THE UNIVERSITY
OF ILLINOIS
LIBRARY
610.5
LA
v. 1919^{4}
[redacted] [redacted]

The person charging this material is responsible for its return to the library from which it was withdrawn on or before the **Latest Date** stamped below.

Theft, mutilation, and underlining of books are reasons for disciplinary action and may result in dismissal from the University.

UNIVERSITY OF ILLINOIS LIBRARY AT URBANA-CHAMPAIGN

~~NOV 1 4 1977~~

L161—O-1096

Digitized by the Internet Archive
in 2015

https://archive.org/details/lancet1919unse_0

THE LANCET.

A Journal of British and Foreign Medicine, Surgery, Obstetrics, Physiology,
Chemistry, Pharmacology, Public Health, and News.

IN TWO VOLUMES ANNUALLY.

VOL. CXCVII.

VOL. II. FOR 1919.

NINETY-SEVENTH YEAR.

EDITED BY
SAMUEL SQUIRE SPRIGGE, M.A., M.D. CANTAB.

ASSISTED BY
EGBERT C. MORLAND, B.SC., M.B. LOND., M.D. BERNE.

LONDON
PRINTED AND PUBLISHED BY THE PROPRIETORS, AT THE OFFICES OF "THE LANCET," No. 423, STRAND, AND
NOS. 1 & 2, BEDFORD STREET, STRAND.
MCMXIX.

610.5
LA
1919 4

INDEX TO VOLUME II., 1919.

☞ *Readers in search of a given subject will find it useful to bear in mind that the references are in several cases distributed under two or more separate but nearly synonymous headings—such, for instance, as Brain and Cerebral, Heart and Cardiac, Liver and Hepatic, Bicycle and Cycle, Child and Infant, Bronchocele, Goitre, and Thyroid, Diabetes, Glycosuria and Sugar, Eye, Ophthalmic, and Vision, &c., &c. (Py Q) = Parliamentary Question.*

A Concordance of page numbers and dates of issue will be found at the end of the Index.

A

Abbott, Dr. H. K., incidence of tuberculosis amongst asylum patients, 349
Abdominal cases, uncommon, illustrating some pitfalls (Dr. N. C. Lake and Dr. H. K. Kevin), 13; wall, peritonitis following non-penetrating wound of (Mr. A. E. Chisholm), 59; aorta, sacculated aneurysm of (Dr. H. A. Haig), 645; viscera of an infant, 1140
Abdominal operations, detail in, 1101
Aberdeen Royal Infirmary, resignation of Dr. A. W. Falconer, 1173
Aberdeen University, pass-lists, 130; opening of medical classes, 705; Council, appointment of assessors, 800; war memorial scheme, 800
Abortion, criminal or spontaneous? 543; legislation of, 942
Abrahams, Dr. A., epidemic perinephric suppuration, 35; lymphadenoma with periodic pyrexia, 424; the officer in charge of a medical division, 717, 763
Abram, Dr. J. H., and Prof. E. Glynn, paratyphoid infections of the pleura, 283
Abscess, liver, with septic umbilical vein, 64; scarlatinal, erosion of the great vessels of the neck in, 489, 547; tuberculous, treatment with hypertonic salt solution (Capt. L. Durante), 735; splenic, with enteric fever (Dr. J. K. Haworth), 923
Abscess, tuberculous, treatment by aspiration (Dr. Z. P. Fernandez), 1193
Abscesses, multiple bone, 978
Acari, Studies on (Mr. S. Hirst) (review), 331
Accessory factors in food, 28; food preservation in relation to (leading article), 338; need for, in infant feeding, 348
Achlorhydria and gastric carcinoma, 1214
Achondroplasic skull (Dr. J. Elliott), 1098; corrigendum, 1170
Acoustic troubles in musicians, 213
Action for negligence, 31
Adami, Dr. J. G., diphtheroids, 1171
Adams, Mr. J. E., complete colectomy, 349
Addison, Dr. C., opening address at the National Association for the Prevention of Tuberculosis, 736; at Manchester, 1050
Addison, Mr. O. L., chronic ulceration of tongue, 878
Addison's disease, traumatic, 26
"Adelaide" patent garter, 136
Ad hoc Dental Committee (Py Q), 134
Advertising, ethics of, 506
Aerial combatant, the (the late Capt. H. G. F. Spurrell), 599, 629; (leading article), 696
Aeronauts, pioneer, medical (Dr. F. J. Poynton), 43
Æsthetic surgery, 297
Afghan campaign, medical breakdown (Py Q), 352; war, medical arrangements, commission on, 624; sickness in, 801
After-history of war nephritis, 163
Agglutinins, specific, for Pfeiffer's bacillus (Dr. W. J. Wilson), 607
Agglutination in dysentery, 654
Aids to Ophthalmology (Dr. N. B. Harman), sixth edition, 1919 (review), 331
Air Force, medical service in (Py Q), 1177
Alberta, public welfare in, 544; extension of Part II. of the Medical Act to, 1050
Alcohol question, practical issues on, 117, 256
Alcohol, the Whole Truth About (Mr. G. E. Flint) (review), 694
Alcoholic liquors in relation to health, 80; in a new rôle, 340
Alcoholism, decline in Germany during the war, 1156
Alkalinity of blood in shock, increase of (Dr. B. Moore), 473
Allbutt, Sir C., homicidal insanity, 34; portrait of, 75, 82
Allen, Dr. R. W., Practical Vaccine Treatment for the General Practitioner (review), 286
Alps, the call of, 841, 999
Alvarenza prize of the College of Physicians of Philadelphia, 628
Amati, Prof. A., urinary hæmolysis, 698
Ambulance Service, L.C.C., 84
American hospital for Great Britain, 72, 166; in London (leading article), 159
American Journal of Syphilis (review), 833
American College of Surgeons, Clinical Congress (annual meeting): Relation of cancer to the prolongation of human life; Gunshot fracture of femur; Brain tumour statistics, 1203—Empyema, with particular reference to its pathogenesis and treatment, 1204—Surgical treatment of exophthalmic goitre; Stiff and flail joints; Standardisation of hospitals, 1205—Cancer of uterus; Treatment of disseminated heat; Local growth, 1206—Honorary Fellowship, 1207
American Medical Association (annual meeting): Report on medical education; Report on social insurance; Presidential address, 78—Health of the United States navy; Public Health Service; American College of Surgeons; War surgery and the surgery of civil life; Influenza in the A.E.F.; Malaria treated by disinfection; War hysteria; Pituitary gland in epilepsy; Therapeutic aspect of blood transfusion, 79—Alcoholic liquors in relation to health, 80—Preventive surgery as demonstrated by industrial practice; Industrial medical practice and sickness prevention as a factor in public health; Efficacy of measures for the prevention of disease, 446
American medical gatherings, 446
American Physicians and Surgeons, Congress of: Epidemiology and epidemics, 447
American Therapeutic Society: Therapeutics and gastro-intestinal disorders, 446—Present teaching of therapeutics, 447
Amœbæ in Man (Mr. C. Dobell) (review), 981
Amœbic dysentery (Dr. H. A. Haig), 823
Amours of old men, ill-effects of, 309
Amputation stumps, lengthening of (Dr. W. E. Gallie), 282, 293
Amputations, kineplastic (Mr. M. Fitzmaurice-Kelly), 280, 939, 1050; of the foot, 940
Anæmia, splenic, 929
Anæmias of the hæmolytic jaundice group, 831
Anæsthesia and the Nurse's Duties (Dr. A. de Prendeville) (review), 647; in Dental Surgery (T. D. Luke and J. S. Ross), fourth edition, 1919 (review), 880; the Art of (P. J. Flagg), second edition, 1919 (review), 1198
Anæsthetic, death under, unusual cause (Dr. E. Playfair), 1079; value of chloroform as an, 1142
Anæsthetics, teaching of, 1142
Anæsthetists, nurse (leading article), 584, 624, 665, 708, 807

Analytical Records from "The Lancet" Laboratory.—Apothesine, a new local anæsthetic, 616—Cheltine foods (milk and malted and strict diabetic), 112; (No. 1), 932—Diabetic solac, 616—Elixir yadil, 112—Hypochlorine, 932—Iglodine, 932—Influenza prophylaxis vaccines, 616—Omnopon-atrinal "Roche," 112—Osmos aperient water, 616—Pinheroin, 932—Sanatogen chocolate, 616—Subitol, 616—Supcrol, 112—Umbrose, 112—Valerianate "Gabail," deodorised, 932

Anaphylaxis and Anti-anaphylaxis (A. Besredka) (review), 202
Anatomy, Systematic and Practical, including Embryology (Dr. A. M. Buchanan), fourth edition, 1919 (review), 331
Anderson, Mr. J., and Dr. J. G. Greenfield, sedimentation of tubercle bacilli in sputum, 423
Anderson, Mr. W. H., living foreign body in the larynx, 899
Andreas Vesalius, portraits of, 999
Aneurysm, cirsoid, of palm of hand (Mr. J. Todesco), 15, 1196; of the heart without symptoms (Dr. C. Wilson), 199, 209; sacculated, of abdominal aorta (Dr. H. A. Haig), 645; dilatation, 930
Aneurysmal varix of the cavernous sinus, 1084
Angina pectoris with low blood pressure, 692
Angus, Dr. W., obituary, 460
Animal diseases in 1918, 655
Animal Parasites and Human Disease (Mr. A. C. Chandler) (review), 67
Ankylosed fingers, resection, 257
Ankylosis of knee, bony, 1196
Ankylostoma duodenale (Dr. H. K. V. Soltau), 690, 756
Antenatal care (Dr. E. Holland), 53; period, causes of disease and death in (Dr. G. Davison), 919
Anthrax, meningitis in, 25
Anthrax, treatment by local injection of serum, 119
Anthropology as an Imperial study, 539
Anthropometric index of physical fitness (leading article), 253
Anthropometric survey, 163
Anti-influenza vaccine (Py Q), 1003
Anti-malarial Work in Macedonia (Dr. W. G. Willoughby and Dr. L. Cassidy (review), 437
Antimonium tartaratum (tartar emetic), intravenous injections in bilharziasis (Dr. F. E. Taylor), 246, 299; in filariasis (Sir L. Rogers), 604; in bilharziasis (Dr. G. C. Low and Dr. H. B. G. Newham), 633
Antimony in filariasis, 604, 1214
Antimosquito measures in Palestine in 1917–18, 1032
Antiscorbutic and growth-promoting value of canned vegetables (Dr. Mabel E. D. Campbell and Dr. Harriette Chick), 320; factor in lemon-juice, 980
Antistreptococcus serum in influenza (Dr. W. Hughes), 782
Antituberculosis dispensary in Naples, the first, 443
Anti-venereal effort, concerted (leading article), 832
Antivivisection shops, 502
Antral suppuration, treatment (Mr. S. Hastings), 960, 1107
Aorta, abdominal, sacculated aneurysm of (Dr. H. A. Haig), 645; ruptured, 1033
Aortic disease in soldiers (Dr. T. F. Cotton), 470; and mitral valvular disease, 978
Apophysitis of os calcis, 64
Apothecaries Society of London, pass-lists, 455, 857; Lord Mayor's Day dinner, 1110
Apothesine, a new local anæsthetic, 616
Appendicitis, acute, small-pox simulating (Dr. J. K. Haworth), 201; (Dr. Mabel E. D. Campbell and Dr. Harriette Chick), 320; acute, 120 cases (Mr. C. P. G. Wakeley), 1071
Apperly, Dr. F. L., unusual form of ventral hernia, 1029
Appleyard, Dr. W., phlegmon of neck, 614
Appointments, weekly lists of, 42, 88, 134, 180, 223, 270, 307, 354, 461, 504, 550, 597, 627, 668, 715, 761, 811, 858, 903, 952, 1004, 1056, 1114, 1178, 1218
Archangel, nurses at (Py Q), 306
Archives of Radiology and Electrotherapy (review), 1038
Archivio Italiano di Chirurgia (Italian Archives of Surgery (review), 1090
Armour, Dr. D., multiple exostosis, 929
Armstrong, Dr. R. A., familial osteo-arthritis, 831
Armstrong-Jones, Col. Sir R., appointed Deputy Lieutenant of the County of Carnarvon, 34
Army Medical Service, unification of, and its relation to "team practice" in civil life, 501; as a career (Sir J. Goodwin), 631
Army surgeons and the F.R.C.S. examination, 218; hut, converted, 226
Arnfinsen, Dr. A., tuberculous infection in school children, 539
Aroma of fish frying, 630
Arris and Gale lecture on initiation of wound shock and its relation to surgical work (Mr. E. M. Cowell), 137
Arsenobenzol as abortive treatment of syphilis, 706
Art of Anæsthesia (P. J. Flagg), second edition, 1919 (review), 1198
Arthritis, rheumatoid, of the spine, 552; rheumatism, and neuritis, vaccine treatment (Dr. H. W. Crowe), 637; dysentery (Dr. B. G. Klein), 775; rheumatoid, 878; in dysentery, 1030; chronic, 1102; of knee, 1139
Artificial limbs (Py Q), 134; for officers (Py Q), 222; standardising of (Py Q), 901
Artificial pneumothorax, effects of (Dr. S. V. Pearson), 148; stimulation, treatment of muscles by (Dr. G. Cooper), 1067; rotation of head in persistent occipito-posterior positions, 1172
Aspiration of tuberculous abscess (Dr. Z. P. Fernandez), 1193
Aspirator, new, 834
Association of Medical Officers of Health, meeting of Welsh branch, 1174
Asthma and emphysema, 878
Astley Cooper Prize Fund, 605
Asylum Medical Service, conditions of (leading article), 114; services, coördination in, 248
Asylum patients, tuberculosis amongst (Dr. F. A. Elkins and Dr. H. H. Thomson), 242, 301, 348, 456
Atmosphere, the ideal, 538
Atmospheric humidity and cerebro-spinal fever (Dr. A. Compton), 151

Atmospheric pollution, monthly record, 33, 221, 288, 497, 707, 803, 1212; fifth report of the committee of investigation (see Supplement, Nov. 15th); Investigation of, 885

Atony, stomach and bowel, in influenzal pneumonia (Dr. N. Bradly), 434

Aubourg, Prof. Paul, radiological examination of pseudarthroses before and after operations of bony grafts, 332

Auden, Dr. G. A., need for schools of psychiatry, 1167

Aural suppuration in early childhood (Mr. D. Guthrie), 429

Auricular flutter, 1196

Austen, Prof. F. E., Induction Coils in Theory and Practice (review), 251

Austen, Maj. E. E., antimosquito measures in Palestine in 1917-18, 1032

AUSTRALIA, CORRESPONDENCE FROM.—Second wave of influenza, 31—Legality of mask-wearing; Curious case of snake-bite; Lodge dispute in Victoria, 32—Influenza epidemic, 172, 297—Melbourne University, an overcrowded medical school; Venereal disease; Death of Surg.-Gen. Sir W. T. Williams, 172—Returning troops; A question of ethics, 297—Medical honours; Eliza Hall Institute, 298—The influenza; Medical War Relief Fund; Returned medical officers; Munificent bequests, 591; Personal, 592—Influenza epidemic, 848—Medical Congress; Custody of a child; Venereal disease, 849

Auto-Erotic Phenomena in Adolescence (Mr. K. Menzies) (review), 436

Avery, Margaret, Text-book of Hygiene for Training Colleges (review), 931

Aviation, a prophecy of, 136

Awards, medical, reduction of (Py Q), 901

B

B. influenzæ (Surg.-Lt.-Com. S. F. Dudley), 476

Baby Hospital in New Zealand, 262

Bacillary dysentery (Dr. J. S. K. Boyd), 482; serum treatment (Dr. B. G. Klein), 775; (Dr. W. E. Waller), 778, 794; dysentery in Macedonia, 889

Bacillus of the Gaertner-paratyphoid type, infection due to (Dr. W. MacAdam), 189; Pfeiffer's, specific agglutinins for (Dr. W. J. Wilson), 607; the life of a, 630

Back, Mr. I., carcinoma of the rectum, 421; and Mr. A. T. Edwards, carcinoma of the transverse colon and intussusception, 1028

Bacterial infection, spread of (Dr. W. W. C. Topley), 1, 45, 91

Bacteriological media, adjustment of reaction (Dr. J. McIntosh and Mr. W. A. M. Smart), 723, 792

Baghdad boil of the lip, 929

Bainbridge, Prof. F. A., and Prof. J. A. Menzies, Essentials of Physiology, third edition, 1919 (review), 740; Physiology of Muscular Exercise (review), 981

Balfour, Dr. A., problem of hygiene in Egypt, 417, 465, 507

Banks, Dr. W., death of, 902

Barber, Dr. H. W., herpes zoster, 1136

Barber, Dr. H., renal dwarfism, 1111

Barclay, Dr. A. E., ideals in radiology and and electrology, 720, 744

Barlow, Dr. R. A., the "gridiron" incision, 1107

Barnes, Dr. A. E., malaria in Salonika, 1172

Barry, Prof. D. T., French medical curriculum, a contrast, 658

Barthès, Dr. J., living foreign body in the larynx, 841

Barton, Mr. E. A., need for accessory food factors in infant feeding, 348; and Dr. Helen Ingleby, Werdnig-Hoffmann paralysis, 922

Barton, Mr. G. E., Teaching the Sick (review), 931

"Barts" chronicle, 794

Bass, Dr. C. C., malaria treated by disinfection, 79

Bassoe, Dr. P., epidemic encephalitis (nona), 74

Bastian, Surg.-Com. W., origin of life, work of the late Charlton Bastian, 217, 299

Batchelor, Dr. G. A., of Pretoria, death of, 501

Bath War Hospital, report, 1172

Baths of Old London (Dr. S. Sunderland), 89, 135, 181, 182; of Bath, 764

Baths, rules for prescribing (Dr. C. F. Sonntag), 669

Batten, Dr. R. D., acute disseminated choroido-retinitis, 925; ophthalmic physicians and the advancement of ophthalmology, 962, 1084

Battle, Mr. W. H., traumatic rupture of intestine, 103, 746

Bayliss, Prof. W. M., Introduction to General Physiology, with Practical Exercises (review), 740

Bayly, Mr. H. W., control of venereal disease, 853, 1049

Beaumont, Dr. G. E., ætiology of influenza, 234, 255; keratodermia blennorrhagica, 502

Beck, Sir J. H. M., obituary, 129

Beckett's Park Hospital (Py Q), 1002

Bedding and clothing, special, of tuberculous cases (Py Q), 950

Bee and wasp, sting of, 445

Beggars in Madras, 298

Behnke, Miss Kate E., stammering and voice defects, 463

Bellby, Dr. G. E., acute thyroiditis, 442

Beit Memorial Fellowships, 1216

Belfast Local Government Board medical inspector, 449; health of, in 1918, 662; medical school, 755; scarlet fever in, 591, 800, 893; disease in, 1101

Belgian Doctors' and Pharmacists' Relief Fund, 498; meeting, 1155, 1159

Bell, Dr. W. B., The Pituitary (review), 110; genesis of cancer of the uterus, 807

Bengal jails, 706; public health, 942

Beri-beri, infantile, treatment, 937; and scurvy in Mesopotamia, 979; environmental factor in the causation of (Dr. K. Simpson), 1027

Besredka, A., Anaphylaxis and Anti-anaphylaxis (review), 202

Bethlem Royal Hospital, out-patient department, 857

Beverages and their Adulteration (Dr. H. W. Wiley) (review), 1144

Bibby, Dr. J. R., appointed medical officer of health for Gloucester, 902

Bidou, Dr. G., Instrumental Orthopædics (De l'Orthopédic Instrumentale) (review), 251

Bile-duct, hydatid obstruction of, simulating gall-stones, 1042

Bilharziasis, intravenous injections of antimonium tartaratum (tartar emetic) in (Dr. F. E. Taylor), 246, 299, 457; (Dr. G. C. Low and Dr. H. B. G. Newham), 633; its incidence and eradication (Dr. B. S. Elgood and Dr. T. Cherry), 636; treated by tartar emetic (Dr. F. G. Cawston), 873

Bill, Dr. A. F., and Mr. W. G. Lockett, call of the Alps, 999

Billings, Dr. F., General Medicine (Practical Medicine Series) (review), 19

Billington, Dr. S. G., detoxicated vaccines, 36; mucus deposit of urine, 325

Binnie, Mr. J. F., Treatise on Regional Surgery (review), 880

Biochemist in medicine, future of, 884

Birmingham health record, 1112; General Hospital, 1112; Cripples' Union, appeal, 1172

Birmingham University, post-graduate lectures on venereal disease, 1172

Birth paralysis, 940

Births, marriages, and deaths, weekly lists of, 42, 89, 135, 181, 224, 271, 308, 355, 416, 462, 505, 550, 598, 628, 669, 716, 762, 811, 858, 903, 953, 1005, 1057, 1115, 1178, 1218

Bismuth and iodoform, treatment of chronic suppurative otitis media (Dr. F. Stoker), 200

Blackhall-Morison, Dr. A., General Medical Council, election of Direct Representatives for England, 806

Black-Milne, Dr. J., and Dr. K. Rogers, influenzal broncho-pneumonia and pneumonia treated with army mixed vaccine, 731

Bland-Sutton, Sir J., the third eyelid, 673; secondary deposits in bone mistaken for primary tumours, 924

Blanton, Dr. W. B., fatalities following salvarsan, 1158

Blease, Mr. T. T., obituary, 461

Blind, welfare of, 356, 443; in Ireland, support of (Py Q), 950

Blomfield, Dr. J., nurse anæsthetists, 666

Blood, increase of alkalinity of, in shock (Dr. B. Moore), 473

Blood transfusion, therapeutic aspect of, 79; cells, red, instability of (Prof. G. Dreyer and Dr. A. D. Gardner), 687, 1106

Boating accident in Belfast Lough, 549

Body-weight in tuberculous patients, diurnal variation (Dr. J. M. Scott), 639, 709

Bognor War Memorial Cottage Hospital, opening ceremony, 180

Bolton Infirmary, enlargement, 1105

Bombay water-supply, 298

Bond, Dr. C. H., need for schools of psychiatry, 1065, 1086

Bony grafts, operations of, radiological examination of pseudo-arthroses before and after (Prof. P. Aubourg), 332; ankylosis of knee, 1196

Books, &c., received, 42, 88, 178, 224, 310, 459, 549, 598, 628, 714, 761, 860, 904, 953, 1008, 1116, 1218

Boric acid in the preservation of food, 297; acid poisoning or cœliac disease (Dr. D. Forsyth), 728

Borstal system, 825

Botany, new school of, 655

Bottomley, Dr. J. J., war surgery and the surgery of civil life, 79

Bousfield, Dr. E. C., cryptopodia, an undescribed disease, 329, 547

Bowlby, Sir A., gunshot fracture of femur, 1203

Bowman, Dr. J. G., standardisation of hospitals, 1205

Boyd, Dr. J. S. K., bacillary dysentery, 482

Boyd, Dr. P., value of chloroform as an anæsthetic, 1142

Bradby, Miss M. K., Psycho-Analysis and its Place in Life (review), 531

Bradley, Dr. N., stomach and bowel atony in influenzal pneumonia, 434

Brahmachari, Mr. U. N., antimony in filariasis, 1214

Brain, primary hydatid disease of (Dr. N. H. B. Fleming and Dr. G. W. Bury), 1186; tumour statistics, 1203

Branson, Dr. G. J., acute pulmonary œdema, 1078

Breaches of discipline at Warlingham Hospital (Py Q), 306

Bread reform, 1216

Breast-feeding, importance of, 260

Brend, Dr. W. A., Handbook of Medical Jurisprudence and Toxicology, third edition, 1919 (review), 111

Brentford Union Infirmary, meeting, 809

Briggs, Dr., heredity and Mendelism in ptosis, 258

Briggs, Dr. J. E., gangrene due to carbon monoxide poisoning, 586

Bristol Medical School dinner, 1111; Medico-Chirurgical Society (see Medical Societies)

Bristol Royal Infirmary, appeal, 549; Medical Committee and raising of medical fees, 1051

Bristol University, pass lists, 130

Bristow, Mr. W. R., congenital malformation of right femur, 1139

British Association for the Advancement of Science, 492

British Federation of Medical and Allied Societies, 121, 546, 594, 664, 755, 808, 896, 990, 997; conference, 1160

British Journal of Children's Diseases (review), 158, 982

British Medical Association, Insurance Acts Committee, 169; next annual meeting, 747, 1098

British military hospitals at Marseilles (Py Q), 811; hospitals, maintenance of (Py Q), 854

British Orthopædic Association (annual meeting): President's address; Discussion on kineplastic amputations, 939—Habitual dislocation of the shoulder-joint; Amputations of the foot; Birth paralysis, 940

British Scientific Products Exhibition, 74

Brock, Dr. J. H. E., conduct of labour and puerperal sepsis, 277, 456

Brockbank, Dr. E. M., Diagnosis and Treatment of Heart Disease, fourth edition, 1919 (review), 251

Brocklehurst, Rev. T. P., professional secrecy in the eye of the law, 175

Broke, Lord W. de, and others, Society for the Prevention of Venereal Disease, 997

Broncho-pneumonia and pneumonia treated with mixed army vaccine (Dr. J. Black-Milne and Dr. K. Rogers), 731

Broncho-spirochætosis in Egypt (Dr. N. Farah), 608

Bronchus, foreign body in, long retained (Mr. A. W. Lemarchand), 646

Brown, Dr. J., General Medical Council elections, election of direct representative for England, 756; election, England and Wales, 1170

Brown, Mr. W. L., death of, 330

Browning, Dr. C. H., elected to the Gardiner chair of bacteriology in the University of Glasgow, 180; and Dr. D. Watson, Venereal Disease, a Practical Handbook for Students (review), 484

Brownlee, Dr. G., next epidemic of influenza, 856

Bruce-Porter, Sir B., treatment of malaria, 1169

Brugsch, Prof. D. T., Allgemeine Prognostik (review), 788

Brunton, Dr. G. L., cytology of the cerebro-spinal fluid, 249

Brunton, Sir T. L., the late, 999

Bryant, Dr. W. S., Dr. G. H. Steven, and Dr. D. Embleton, studies of meningococcus carriers, 679

Bubonic Plague in Liverpool, 257

Buccal contamination, 1230

Buchanan, Dr. A. M., Manual of Anatomy, Systematic and Practical, including Embryology, fourth edition, 1919 (review), 331

Buntine, Dr. R. A., the late, memorial to, 1052

Burke, Dr. E. T., the routine Wassermann, 664

Burke, Mr. J. B., origin of life, work of the late Charlton Bastian, 175, 300

Burma Pasteur Institute, 450

Burnford, Dr. J., (1) cyanosis with polycythæmia, (2) elephantiasis of unknown cause, (3) Raynaud's disease, 878

Burrell, Dr. L. S., conjugal tuberculosis, 806

Bury, Dr. G. W., and Dr. N. B. B. Fleming, primary hydatid disease of the brain, 1186

Butler, Dr. H. O., transmission of infective disease by suckling, 709

Buttar, Dr. C., Dr. N. H. Mummery, and Sir M. Morris, British Federation of Medical and Allied Societies, 546, 665, 755, 896, 997

Butter and margarine, vitamines in (Py Q), 1112

Buxton, Dr. D. W., Vernon-Harcourt inhaler, 456; nurse anæsthetists, 708
Buzzard, Dr. E. F., encephalitis lethargica, 118
Byam, Maj. W., and others, Trench Fever, a Louse-borne Disease (review), 576

C

Cadbury, Prof. H. J., Style and Literary Method of Luke (review), 647
Cæcum, perforation of, by a pin (Dr. J. A. C. Macewen), 785; papillomatous growth of, 1172; ulcer of, 1172
Cæsarean section, cicatrix of the uterine wound in, 877
Cahill, Dr. J., obituary of, 548
Cairo School of Medicine (winter session), 162
Calcium and bacterial growth, 745
Calculus, egg-shaped, 1036
Calcutta, health during 1918, 801
Calcutta, University Medical Schools, 32; Ophthalmic Hospital, 298; University Commission, 450
Calmels, M., and M. Delater, meningitis in anthrax, 25
Cambridge University, Psychological Laboratory, 180; pass lists, 759
Cammidge, Dr. P. J., pentosuria, 175; boiled vegetables for the use of diabetics, 1192
Campaign against typhus in Poland (leading article), 741, 748
Campbell, Dr. H., mental personality, 1181
Campbell, Dr. Mabel E. D., and Dr. Harriette Chick, antiscorbutic and growth-promoting value of canned vegetables, 320

CANADA, CORRESPONDENCE FROM.—Health Department of Canada; Hospitals in Montreal and Toronto; Public welfare in Alberta. 544—Canadian military patients in England; new tuberculosis sanatoriums; Military mental cases in Canada; Dominion Council on public health; Advisory health department on patent drugs; Financial support for the control of venereal disease, 894—Crime in Canada under prohibition; Advisory committee on patent medicines; Physical examination of students at Toronto; Small-pox in Toronto, 1207—Care of military mental cases in Canada, 1208

Cancer, a league against, 80; of the uterus, genesis of (leading article), 742, 807; early diagnosis of, 801; inoperable, copper alanin in, 1107; combating, 1156
Cancer, Latent, Exact Diagnosis of (Dr. O. C. Gruner) (review), 577
Cancer, relation of, to prolongation of human life, 1203; of uterus, 1206
Cancer Research Fund, Imperial, report, 208
Canned vegetables, antiscorbutic and growth-promoting value of (Dr. Mabel E. D. Campbell and Dr. Harriette Chick), 320
Cap, sleeping, 718
Carcinoma, gastric, and achlorhydria, 1214
Carcinoma of pelvic colon (Mr. C. Frankau), 282; of the rectum (Mr. I. Back), 421; of the breast, 832; cervicis, genesis of, 852; of the ileum, 925; of the transverse colon and intussusception (Mr. I. Back and Mr. A. T. Edwards), 1028; of uterus. 1036; of fundus uteri, 1111; of ovary (Mr. H. M. Gerson), 1195
Cardiac massage as a means of resuscitation (Mr. L. E. C. Norbury), 601; (leading article), 618; massage in circulatory failure (Dr. M. J. Petty, jun.), 784
Cardiff Medical Society (see Medical Societies)
Caries, dental, among African tribes, 986
Carlill, Dr. Hildred, hysterical sleeping attacks, 1128
Carnegie, Andrew, death of, 294
Carrier, the, and the atypical case, 121
Carruthers, Maj. J. F., optical nerve tumour, 926
Carter, Dr. G., multiple adenomatous growth, 1172
Carver, Dr. A., commotional factor in ætiology of shell shock, 193, 207; coördination of clinical research and psychological medicine, 264
Case-papers, specimen, 672
Cashmere, medical boards in (Py Q), 854
Cassidy, Dr. L., and Dr. W. G. Willoughby, Antimalarial Work in Macedonia (review), 437
Castellain, Dr. H. G. P., Industrial Medical Service, 128
Castellani, Dr. A., and Dr. A. J. Chalmers, Manual of Tropical Medicine, third edition, 1919 (review), 1037
Casualty list, 132
Casualties among the sons of medical men, 132
Cathcart's apparatus, modified, 68
Cause and effect, 671
"Causes of infant mortality," 1116
Cautley, Dr. E., (1) (?) chloroma, (2) multiple glandular swellings, 64; chronic jaundice, 1085
Cawston, Dr. F. G., bilharziasis treated by tartar emetic, 873
Célestin, Dr. L. A., modified Cathcart's apparatus, 68
Centenarians, 158, 455, 565, 640, 902
Centenary of the Hunterian Society, 587
Central Association for the Care of the Mentally Defective, lectures, 1180
Central Midwives Board, meeting, 38, 219, 714, 948
Cerebral complications of mumps, 163; embolism, 759
Cerebro-spinal fever (Dr. J. Dorgan), 97, 121; and atmospheric humidity (Dr. A. Compton), 151; epidemic, and sphenoidal sinus empyema, relationship between, 874
Cerebro-spinal fluid, cytology of, 249
Certification, a question of, 802
Cervical rib, 978; vertebræ, 978; tumours of the vagina, removal (Mr. J. F. Peart), 1194
Chadwick lectures on the problem of hygiene in Egypt (Dr. A. Balfour), 417, 465, 507; Trust and naval and military sanitation, gold medal and prize of £100, 948
Chalmers, Dr. A. J., and Dr. A. Castellani, Manual of Tropical Medicine, third edition, 1919 (review), 1037
Chambers, Mr. H. W., London medical societies, a glimpse of their history and work, 688
Chancre, soft, treatment, 746
Chandler, Mr. A. C., Animal Parasites and Human Disease (review), 67
Chapman, Mr. A. C., synthetic food, 985
Cheltine foods (milk and malted and strict diabetic), 112; (No. 1), 932
Chemical Physiology, Essentials of (Dr. W. D. Halliburton), 10th edition, 1919 (review), 1144
Chemistry, Physiological, Practical (Mr. S. W. Cole), fifth edition, 1919 (review), 1144
Chemists' Exhibition, 131
Chemists, panel, and Scottish Board of Health, 1100
Cherry, Dr. T., and Dr. B S. Elgood, bilharziasis, its incidence and eradication, 636
Chest, gunshot wounds of (Dr. J. B. McDougall), 968
Chest Radiography at a Casualty Clearing Station (Dr. R. L. Rea) (review), 833
Chick, Dr. Harriette, and Dr. Mabel E. D. Campbell, antiscorbutic and growth-promoting value of canned vegetables, 320
Child-bearing strike, 26
Child-bed, maternal mortality in (Sir J. Phillips), 275
Child-study Society, meeting, 661
Child welfare and maternity, 61; and Eastbourne, 347; welfare in British Guiana, 526; welfare, 671
Children's Country Holidays Fund, 463, 956; Jewel Fund, report, 901
Chip fractures of the terminal phalanges, 699
Chisholm, Mr. A. E., peritonitis following non-penetrating wound of abdominal wall, 59
Chloroform inhaler, safety, 880
Chloroform, value of, as an anæsthetic, 1142; intra-tracheal insufflation of, 1197
Chloroma (?), 64
Chloroma simulating mastoid disease (Dr. E. C. Lewis), 830, 888
Chodak, Dr. H., chorea, complicated by gangrene of fingers, 63
Cholera outbreak in India (Py Q), 269; of the sheep (Dr. J. P. McGowan), 426
Cholmeley, Dr. H. P., fifteenth-century prescription, 1008
Chorea, complicated by gangrene of fingers, 63; and rheumatism, relation between (Dr. H. L. Cronk), 646
Chorea, Huntington's (?), 929
Choroido-retinitis, acute disseminated, 925
Chronic diseases, the State in relation to, 955
Christmas greetings to the ex-Service man, 1280
Christopherson, Dr. J. B., intravenous injection of antimony tartrate in bilbarziasis, 299
Churchill, J. & A., Medical Directory, 84
Cicatrix of the uterine wound in Cæsarean section, 877
Cinema, normal labour on the, 885
Cinemas and eye-strain, 744
Cinematograph, portable, 860
Circulatory failure, cardiac massage in (Dr. M. J. Petty, junr.), 784
Cirrhosis of liver, 1088
Cirsoid aneurysm of palm of hand (Mr. J. Todesco), 15, 1196
Clark, Dr. S. M. D., cancer of uterus, 1206
Clarke, Dr. C., and Dr. L. Dudgeon, morbid anatomy of malaria, 491
Clavicle, tumour of, 925
Clemenger, Dr. F. J., and Dr. A. Fleming, reaction of Pfeiffer's bacillus, 869
Clerical, Medical, and General Life Assurance Society, report, 974
Clifford, Dr. F., dysentery simulating tuberculosis, 1109
Clinical research, coördination of, 216, 264
Clippingdale, Dr. S. D., baths of Old London 182; fifteenth-century prescription, 1058
Clothes of asylum patients (Py Q), 353
Cockayne, Dr. E. A., trophœdema of leg, 64; isolated scaphoid disease, 1086
Cœliac disease or boric acid poisoning (Dr. D. Forsyth), 728, 806
Coin-catcher, removal of, through œsophagoscope (Mr. J. W. Harrison), 1137
Cole, Dr. R. H., Mental Diseases, second edition, 1919 (review), 1089
Cole, Mr. S. W., Practical Physiological Chemistry, fifth edition, 1919 (review), 1144
Colectomy (Mr. J. Taylor), 197; complete, results of, 266, 349, 457, 547
Colin, Dr. H., influence of war fatigue on general paralysis, 250
Colledge, Mr. L., and Mr. G. A. Ewart, foreign body in œsophagus, 734
Collins, Mr. B. K. T., multiple fibromyomata of uterus, 1036
Collins, Mr. E. T., (1) egg-shaped calculus, (2) carcinoma of uterus, (3) cornual ruptured pregnancy, (4) intraligamentous fibromyoma, 1036
Colonial health reports, 44, 90, 182, 551, 764, 814, 859
Colonial Medical Service, reform of, 843; officers and venereal disease (Py Q), 1176
Colony treatment and after-care (Sir G. S. Woodhead and Mr. P. C. Varrier-Jones), 326
Colyer, Dr. S., dental caries among African tribes, 986
Colyer, Mr. J. F., Dental Surgery and Pathology, fourth edition, 1919 (review), 157
"Commercial users," what are, 666, 718
Common lands and medical usage, 342
Commotional factor in ætiology of shell shock (Dr. A. Carver), 193, 207
Competition in ingenuity, 1116
Complement-fixation test in gonococcal infections (Dr. H. B. F. Dixon and Dr. A. H. Priestley), 964
Compton, Dr. A., cerebro-spinal fever and atmospheric humidity, 151; Weil-Felix serological test for typhus, 866
Comrie, Dr. J. D., physical defects among the general male population, 957
Concerted anti-venereal effort (leading article), 882
Congenital multiple sarcomatosis (Mr. J. A. P. Perera), 14; dislocation of hip (Mr. A. H. Tubby), 1135
Conjugal tuberculosis (Dr. E. Ward), 606; (leading article), 651, 708, 806, 852, 897
Conjunctiva, dermoid of, 1212
Constipation and Allied Intestinal Disorders (Dr. A. F. Hurst), second edition, 1919 (review), 331
Contract practice, basis of (leading article). 1039
Convalescent training centres (Py Q), 1002
Converting ounces into grammes, 764
Convulsions, epileptiform (Dr. R. G. Gordon), 914
Cooke, Mr. A., Groundwork of Surgery (review), 1143
Coolidge dental radiator tube, 464
Cooper, Dr. G., treatment of muscles by artificial stimulation, 1067
Cope, Mr. V. Z., Baghdad boil of the lip, 929
Copper alanin in inoperable cancer, 1107
Corfield, Mr. C. R., malaria memorandum, 349
Coriat, Dr. I. H., What is Psycho-Analysis? (review), 532
Corn-borer, European, 44
Corner Stone of Reconstruction, a Book on Working for Social Purity among Men (review), 1089
Coroner, medical, Dr. H. B. Jackson appointed for Croydon, 219

CORRESPONDENTS, ANSWERS TO.—J. R. L., Prevention of hydrophobia, 182—J. F. T., 464—F. St. J. S., 506—J. B. D., Temp. Major, 552—Partly-qualified man, 672—T. O., 860—Demobilised, K. R., 1116

Corrie, Fleet-Surg. A. J., elected a governor at St. Bartholomew's Hospital, 223
Cosens, Mr. W. B., "idiopathic tetanus," 646
Cotes-Preedy, Mr. D., appointed Recorder of Smethwick, 761
Cottage hospitals, maintenance of, 83
Cotterell, Mr. A. P. I., sanitary engineering in connexion with the housing problem, 1006
Cotton, Dr. T. F., aortic disease in soldiers, 470
Couches, left- and right-handed, 463
Cowell, Mr. E. M., initiation of wound shock and its relation to surgical shock, 137
Cowell, Mr. G., medical service at St. Paul's, 624
Cox, Dr. A. J., treatment of infantile beri-beri, 937
Coxa vara, 691
Craig, Dr. C. McK., veldt sore amongst European troops, 478
Crawfurd, Dr. R., forerunners of Harvey in antiquity, 765
Creasy, Mr. R., vesical papilloma simulating vesical tuberculosis, 482
Crematorium for the Cape, 131
Crile, Dr. G. W., surgical treatment of exophthalmic goitre, 1205
Crime and responsibility, 164; in Canada under prohibition, 1207
Cripple, re-education of, at St. Thomas's Hospital, 1173

Cripples, muscle training in reclaiming (Dr. J. Patterson), 225; more hints for, 1116
Crofters and cottars, medical aid for, 120
Cronk, Dr. H. L., relation between chorea and rheumatism, 646
Crookshank, Dr. F. G., encephalitis lethargica, 176
Crossley, Mr. C., death of, 1112
Crowe, Dr. H. W., vaccine treatment of arthritis, rheumatism, and neuritis, 637
Crowther, Mr. J. A., Manual of Physics (review), 931
Croydon General Hospital, report, 1052
Cruise, Mr. R. R., plastic operation, 926
Crownhill Convalescent Home, near Plymouth, meeting, 180
Cryptopodia, an undescribed disease (Dr. E. C. Bousfield), 329, 458, 502, 547
Cuff, Mr. A. W., papillomatous growth of cæcum, 1172
Culture-media, reaction of, 792; standard solution for estimating the reaction of, 1158
Cunnington, Dr. C. W., a protest, 756
Curtin, Dr. E., erosion of great vessels of the neck in scarlatinal abscess, 547
Curtis, Mr. H., malignant disease of face, 978
Cushing, Dr. H., brain tumour statistics, 1203
Cuthbert, Dr. C. F., (1) intussusception caused by papilloma, (2) bony ankylosis of knee, 1196
Cyanosis with polycythæmia, 878
Cycle and motor-cycle show at Olympia, London, 986
Cyst, hydatid, of liver, suppurating (Dr. R. L. Ley), 1195
Cytology of the cerebro-spinal fluid, 249

D

Dally, Dr. F. H., asthma and emphysema, 878
Daniels, Dr. C. W., and Dr. H. B. Newham, *Trypanosoma rhodesiense* infection which recovered, 829
Danne, Mr. W., hermaphrodism, 157
Darier, Dr. J., dysidrosis, its parasitic nature, 578
Davies, Dr. D. L., dermoid of conjunctiva, 1212
Davies, Dr. D. S., post-war problems of malaria, 1172
Davies, Dr. H. M., Surgery of the Lungs and Pleura (review), 981
Davies, Dr. I. J., ruptured aorta, 1036
Davies, Dr. L., double micropthalmia, 1036
Davies, Dr. S., spirits for influenza 998
Davison, Dr. G., causes of disease and death in the antenatal period, 919
Dawson, Dr. H. G. W., malignant disease of superior maxilla, 1111
Deafened ex-Service men, club for, 625
Deaf-mutism, hysterical, prolonged, 1031
Dearer milk and bread (leading article), 440
Death certification, law of (Py Q), 1003
Death in different communities, cause of, 700; under anæsthetic, unusual cause (Dr. E. Playfair), 1079
Deaths from malaria in England, 292
Decimal Association, 764
Decorations, foreign, 220, 597, 850, 902, 1212; Territorial Force, 951
Decorations with morning dress, the wearing of, 859
Deficiency disease, pathogenesis of, 75
Deformities, multiple congenital, 1138
Degeneration and regeneration in the peripheral nerves, 115
Delater, M., and M. Calmels, meningitis in anthrax, 25
De Lee, Prof. J. B., Principles and Practice of Obstetrics, third edition (review), 615
Dementia Præcox and Paraphrenia (Prof. E. Kraepelin) (review), 879; pathology of, 928
Demobilisation, medical, 88
Demobilised medical practitioners (Py Q) 949; medical officers (Py Q), 950; medical officers, educational grants for (Py Q), 1054
Dench, Prof. E. B., Diseases of the Ear (review), 833
Dental reform (Py Q), 179; Register in Isle of Man (Py Q), 222; caries in children (Py Q), 222; treatment and national health, 341; caries in the pre-school child, 698; caries among African tribes, 986
Dental Surgery and Pathology (Mr. J. F. Colyer), fourth edition, 1919 (review), 157; Students, Surgery for (Mr. G. P. Mills and Mr. H. Humphreys), second edition, 1919 (review), 879; Surgery, Anæsthesia in (Dr T. D. Luke and Dr. J. S. Ross), fourth edition, 1919 (review) 880
Dentists, qualifications of (Py Q), 900
Depopulation, 26
Desk diary, convenient, 1180
Derby Medical Society (see Medical Societies)
Dermatitis, "606," treated with intramine (Dr. A. R. Fraser), 480
Dermoid of conjunctiva, 1212
Despatches, mentioned in, 176, 220, 850
Detoxicated vaccines, 36, 82
Dévé, Prof. F., secondary echinococcus, 835; hydatid obstruction of the bile-duct simulating gall-stones, 1042
Devon and Exeter Royal Hospital, meeting, 880
Devon Education Committee and medical certificates, 85; Red Cross and Voluntary Aid Organisation, 180
Dextrocardia, complete and incomplete (Dr. B. Parsons-Smith), 1076, 1096, 1169
Diabetes and glycosuria, relation of Graves's disease to (Dr R. T. Williamson), 425
Diabetic solac, 616; coma, post-mortem activity of the liver after, 806
Diabetics, boiled vegetables for the use of (Dr. P. J. Cammidge), 1192
"Diadem" talcum powder, 309
Diathermy (Mr. N. Patterson), 1020; some uses of, 1107
Dickinson, Dr. T. V., injections of tartar emetic in bilharziasis, 457
Diet, deficiences in, diseases due to, treatment and management, 979
Digby, Prof. K. H., Immunity in Health (review), 1198
Dilatation aneurysm, 929
Dinners: Society of Medical Officers of Health, 760; Middlesex Hospital Medical School, 761; Medico-Legal Society, 810; Queen's University Services Club, 948; reunion, in Nottingham, 949; Royal Dental Hospital of London, 996; St. George's Hospital Medical School (London University), 1052; Ulster Medical Society, 1102; Apothecaries Society of London, 1110; Middlesex Hospital, 1111; complimentary to Sir J. MacAlister, 1111; Bristol Medical School, 1111; King's College Hospital, 1173
Diphtheria and scarlet fever in London (Py Q), 1217
Diphtheroids, 1171
Disability awards in terms of money (Py Q), 900; appeals, permanent (Py Q), 901
Disabled men and compulsory insurance (Py Q), 41; abilities of, 176; man, working capacity of (leading article), 650; men as public vehicle drivers, 718; training centres for (Py Q), 900; nurses, training of, 906; men, hospital treatment (Py Q), 1053
Disablement and its relief, 23; handicap of, 209; problems of (leading article), 789
Disclaimer, a, 899
Disease, preventable (Prof. W. J. Simpson), 819; a correction, 899; chronic, the State in relation to, 955; prevention of, among troops on active service, 1094; in Belfast, 1101; evolution of (Sir W. A. Lane), 1102, 1117
Diseases of the Ear (Prof. E. B. Dench) (review), 833
Dislocation, habitual, of the shoulder-joint, 940; congenital, of hip (Mr. A. H. Tubby), 1135
Dislocation, reducing a, 310
Dispensary doctors' salaries in Ireland, 38
Dispensers, release of (Py Q), 949
Dispensing of prescriptions at night, 30
Disseminated heat, 1206
Diurnal variation in body-weight in tuberculous patients (Dr. J. M. Scott), 639
Divorce and insanity and inebriety (Py Q), 1113
Dixon, Dr. H. B. F., and Dr. A. H. Priestley, complement-fixation test in gonococcal infections, 964
Dobell, Mr. C., Amœbæ in Man (review), 981
Dobson, Mr. J. F., results of complete colectomy, 266; ureteral calculus, 832
Dobson, Mr. N. C., obituary, 1109
Doctors' and chemists' fees for industrial accidents, raising of official tariff, 591; fees, 663
Doctors, civil, requisition of, 213; foreign, practising in France, 499; and nurses, training of, 739; payment of at V.A.D. hospitals (Py Q), 1004
Dogs' Protection Bill, third reading negatived, 39
Dominion Council on public health, 894
Donations and bequests, 65, 173, 298, 415, 549, 591, 668, 754, 800, 874, 902, 948, 1005, 1051, 1112
Donegal, Lieut.-Col. J. F., awarded honorary degree of LL.D. by the National University of Ireland, 219
Donelan, Dr. J., copper alanin in inoperable cancer, 1107
Donkin, Sir H. B., control of venereal disease, 546, 944
Dorgan, Dr. J., cerebro-spinal fever, 97, 121
Dorset County Hospital, meeting, 640
Doyle, Sir A. C., material side of the psychic movement, 1111
Draft regulations for 1920 (leading article), 1154, 1213
Drage, Dr. L., obituary, 351
Drage, Mr. G., position of national statistics, 129
Dreyer, Prof. G., normal vital capacity in man and its relation to the size of the body, 227; and Dr. A. D. Gardner, instability of red blood cells preserved in the method of Rous and Turner, 687
Driberg, Dr. J., fractures of the femur, treatment, 311
Drink control, physiological, 697
Drought in Belfast, 296
Drugs, patent, advisory health department on, 895; synthetic (Prof. J. T. Hewitt), 1057, 1179
Drugs, supply during the war, 165; patent, and trade-marks (Py Q), 223
Drummond, Dr. J., and Dr. M. G. Pearson, Fractured Femurs, their Treatment by Calliper Extension (review), 694
Dublin hospitals, closing of (Py Q), 352, 1165
Dublin, Mr. L. I., Mortality Statistics of Insured Wage-earners and their Families in the United States, and Canada (review), 330
Dublin University, Trinity College School of Physic, pass lists, 130
Duckworth, Sir D., Was St. Luke a physician? 709
Dudley, Surg. Lt-Com. S. F., *B. influenzæ*, 476
Dudgeon, Dr. L., and Dr. C. Clarke, morbid anatomy of malaria, 491
Dundas, Grace H. G., case of lethargy, 435
Dunton, Dr. W. R., junr., Reconstruction Therapy (review), 931
Duodenal feeding, 843
Duplication in human spermatozoa (Mr. S. R. Tattersall), 201
Dupuytren's contracture, 1140
Durante, Capt. L., hypertonic salt solution in treatment of tuberculous abscess, 735
Durham University, Faculty of Medicine, pass-lists, 38, 84, 809; roll of service, 1214
Dyke, Dr. S. C., keratoderma blennorrhagica, 328
Dysentery, bacillary (Dr. J. S. K. Boyd), 482; agglutination in, 654; bacillary, serum treatment (Dr. B. G. Klein), 775; (Dr. W. E. Waller), 778, 794; amœbic (Dr. H. A. Haig), 823; arthritis in, 1030; simulating tuberculosis, 1109
Dysentery, outbreak in Hayes urban district, 621; bacillary, in Macedonia, 889
Dysidrosis, its parasitic nature (J. Darier), 578
Dysmenorrhœa, X-ray treatment (Dr. F. Hernaman-Johnson), 432

E

Eager, Dr. R., incipient mental diseases, 264; early treatment of mental disorders, 558
Ear, Diseases of (Prof. E. B. Dench) (review), 833
Eastbourne and child welfare, 347
East Ham Hospital enlarged, 60
Eccles, Dr. R. B., retroversion of the gravid uterus, 530
Echinococcus, secondary (Prof. F. Dévé), 835; peritoneal (Dr. C. Flandin), 838
Economic situation in Vienna, 1167
Economics of night calls, 551
Edgecombe, Dr. W., modern conception of heart disease, 1102
Edinburgh Obstetrical Society (see Medical Societies)
Edinburgh Royal Infirmary, retirement of Prof. W. Russell and Dr. G. Brown, 543; Royal Maternity Hospital, appointments, 800
Edinburgh University, pass-lists, 180; roll of honour, 217; induction of professors, 662; Dr. G. M. Robertson appointed to chair of psychiatry, 1216
Edington, Dr. A., "Spanish influenza," 730
Edmunds, Mr. A., congenital tumour (? teratoma), 978
Education, medical, grants for, 218; medical, in the United States, 489; medical (Sir G. Makins), 815
Educational grants for ex-Service men, 544
Edwards, Mr. A. T., and Mr. I. Back, carcinoma of transverse colon and intussusception, 1028
Edwards, Mr. V. H. C., and Mr. E. C. Moon, club for deafened ex-Service men, 625
Egypt, hygiene in, problem of (Dr. A. Balfour), 417, 465, 507; broncho-spirochætosis in (Dr. N. Farah), 608; Surgery of (Prof. F. C. Madden) (review), 982
Electrocution of a radiographer, 1102
Elephantiasis, of unknown cause, of both legs, 878
Elgood, Dr. B. S., and Dr. T. Cherry, bilharziasis, its incidence and eradication, 636
Elixir yadil, 112
Eliza Hall Institute, Dr. S. W. Patterson appointed director, 298
Elkins, Dr. F. A., and Dr. H. H. Thomson, tuberculosis amongst asylum patients, 242
Elliott, Dr. J., an achondroplasic skull, 1098; corrigendum, 1170
Elliott, Dr. T. R., epidemic perinephric suppuration, 35
Ellis, Dr. H. A., picric-brass preparations in treatment of lupus, 827; intestinal tuberculosis in connexion with phthisis, 930
Elmslie, Mr. R. C., infantilism, 692; birth palsy in a boy, 875; os tibiale sesamoideum, 876; suture of median and ulnar nerves in forearm, 1139

Embleton, Dr. D., Dr. W. S. Bryant, and Dr. G. H. Steven, studies of meningococcus carriers. 679; relationship between sphenoidal sinus empyema and epidemic cerebro-spinal fever, 874
Embryology. Text-book of (Prof. J. G. Kerr) (review), 693; Laboratory Outline of (Prof. F. R. Lillie and Mr. C. R. Moore (review), 740
Emergence of the health visitor (leading article), 161
Emergency cases hospital in the Meuse (Dr J. A C. Forsyth), 271, 308
Emetine. posology of. 537
Emile-Weil, M. P., prolonged serum treatment of hæmophilia, 1202
Empyema (Dr. R. Sevestre), 1059; its pathogenesis and treatment, 1204
Encephalitis (nona), epidemic, 74; lethargica, 118, 176, 998
Endocarditis, malignant, 1196
Enham Village Centre for re-education of men disabled in the war, 252
Enteric fever with splenic abscess (Dr. J. K. Haworth), 923
Enuresis, nocturnal, 552
Epidemic diseases, eradication of (leading article), 485
Epididymis, syphilis of, 1042
Epilepsy, fits resembling, complete cessation (Mr. H. de C. Woodcock), 60; pituitary gland in, 79
Epileptiform convulsions (Dr. R. G. Gordon), 914
Epithelioma in scar of burn, 1111
Epsom College, annual meeting, 39; appeal, 1201, 1213
Epulides, multiple (Mr. W. W. James), 156
Erosion of the great vessels of the neck in scarlatinal abscess, 489, 547
Essentials of Surgery (Dr. A. L. McDonald) (review), 577; of Physiology (Prof. F. A. Bainbridge and Prof. J. A. Menzies), third edition, 1919 (review), 740; of Chemical Physiology (Dr. W. D. Halliburton), tenth edition, 1919 (review), 1144
Ethno-Botany, Irish, and the Evolution of Medicine in Ireland (Dr. M. F. Moloney) (review), 19
Eugenic Education Society, 757
European corn-borer, 44; troops, veldt sore amongst (Dr. C. McK. Craig), 478
Evans Dr. A, and Sir J. P. Stewart, Nerve Injuries and their Treatment, second edition, 1919 (review). 19
Evans, Dr. H T., chronic progressive paralysis of cranial nuclei, 1036
Evans, Mr. E L., coxa vara. 691
Evans, Mr. L., infantile paralysis with affection of hip, 876; free fascial transplant replacing extensor tendons of wrist, 878; arthritis of knee. 1139
Evatt, Maj.-Gen. Sir G. J. H., training of junior officers of Indian Medical Service in India. 127; unification of the Army Medical Service and its relation to "team practice" in civil life, 501
Everitt divorce case, 943
Evershed, Dr. A., obituary, 1110
Evolution of disease (Sir W. A. Lane), 1102, 1117
Ewart, Mr. G. A., and Mr. L. Colledge, foreign body in œsophagus, 734
Ewart, Dr. W., fallacies in the measurement of body-weight, 709
Examining Board in England by the Royal Colleges of Physicians of London and Surgeons of England, pass lists, 84. 218. 667, 714
Excitement, violent, curious cases (Dr. A. L. Taylor, 781; (leading article), 791
Exophthalmic goitre, increase during the war, 1102; surgical treatment, 1205
Exostosis, multiple, 929, 1139, 1141
Expenses of port sanitary authorities (PyQ), 351
Exposure, effects of, upon the terminals of hands and feet (Dr. F. Jeeves and Dr. E. R. Hunt), 328
Eye-colour and the abnormal palate in neuroses and psychoses (Dr H. L. Gordon), 9
Eyelid, the third (Sir J. Bland-Sutton). 673
Eyesight tests and North-Eastern Railway strike (leading article), 160
Eye-strain and cinemas, 744

F

Face, malignant disease of, 978; unilateral sweating of, 1196
Face, War Surgery of (Dr. J. B. Roberts) (review), 1089
Facial surgery, solid paraffin wax in (Mr. S. Mort), 105, 174
Factories and workshops, health in, annual report of chief inspector for 1918, 749
Faculty of Medicine of Paris, new chair, 591
Failure lessons of, 710
Fairbank, Mr. H. A. T., epidemic perinephric suppuration. 128; chronic synovitis in both knee-joints, 876; multiple congenital deformities, 1138
Fairley, Lieut.-Col. N. F., appointed assistant director of the Eliza Hall Research Laboratory at Melbourne Hospital, 592
Familial osteo-arthritis, 831
Faradism and Galvanism (Dr. E. M. Magill), second edition, 1919 (review), 788
Farah, Dr. N., broncho-spirochætosis in Egypt, 608
Fatality from carrying loose matches, 298
Favus in man, contagiousness of (R. Sabouraud), 581
Fawcett, Prof. E., duplication in human spermatozoa, 266
Fearnsides, Dr. E. G., obituary, 37
Federation of Medical and Allied Societies (leading article), 113, 121
Fees for public vaccination (leading article). 441, 843; for pension certificates (Py Q), 1217
Fees for service on pensions boards, 83; medical, in court, 124; doctors', 663; medical, in Johannesburg, 896; medical, and profiteering, 992, 1058; medical, and litigation, 992; medical, raising of, 1051; medical, raising of, in Liverpool, 1172
Feiling, Dr. A., (1) pituitary tumour, (2) Huntington's chorea (?), 929
Femur, fractures of, treatment (Mr. J. Driberg), 311; right congenital malformation of, 1139; gunshot fracture of, 1203
Femurs, Fractured their Treatment by Calliper Extension (Dr. M. G. Pearson and Dr. J. Drummond) (review), 694
Fenwick, Mr. E. H., elected President of the Société Internationale d'Urologie, 759
Fernandez, Dr. Z. P., treatment of tuberculous abscess by aspiration, 1193
Fevers in the Tropics (Sir L. Rogers), third edition, 1919 (review). 931
Fibromyoma, intraligamentous, 1036; multilobular soft, of uterus, 1036
Field Sanitation, Lectures on (Dr. C. B. Moss-Blundell) (review), 433
Fifteenth-century prescription, 954, 1008, 1058
Filaria loa (subconjunctival) (Mr. R. R. James and Dr. E. L. Hunt), 874, 946
Filariasis, intravenous injection of antimony in (Sir L. Rogers), 604, 1214
Filipino women, pelvimetry among, 988
Filthy streets and the public health (Py Q), 306
Finances of Irish hospitals (Py Q), 133
Finch, Mr. E. F., ulcer of cæcum, 1172
Fingers, ankylosed, resection, 257
Finlay, Dr. G. L. K., new rates of pay for temporary commissions, 625
Fish frying, aroma of, 630; meal as a food for live stock. 814
Fishes, shell shock in, 266
Fistula, recto-vesical, syphilitic, 937
Fits resembling epilepsy, complete cessation (Dr. H. de C. Woodcock), 60
Fitzmaurice-Kelly, Mr. M., kineplastic amputations, 280, 893, 1050
Flack, Dr. M., and Dr. L. Hill, Text book of Physiology (review), 66
Flagg, P. J., The Art of Anæsthesia, second edition, 1919 (review), 1198
Flandin, Dr. C, peritoneal echinococcus, 838
Flat foot (Dr. J. Patterson), 245
Flavine in treatment of fractures of the jaws and acute septic stomatitis (Mr. H. W. Turner), 200
Fleming, Dr. N. B. B., and Dr. G. W. Bury, primary hydatid disease of the brain, 1186
Fleming, Dr. R. A., A Short Practice of Medicine, third edition (review), 437
Fleming, Mr. A., and Dr. A. B. Porteous, streptococcal infection of septic wounds, 49; and Dr. F. J. Clemenger, reactions of Pfeiffer's bacillus, 869
Flemming. Mr. C. E. S., maintenance of cottage hospitals, 83
Flint, Mr. E. R., gastric ulcer, 1111
Flint, Mr. G. E., The Whole Truth about Alcohol (review), 694
Floating school of tropical medicine, 164
Florence Nightingale medal, 884
Food, accessory factors in, 28; factors, accessory, action of ultra-violet rays on, 294; boric acid in the preservation of, 297; for patients in sanatoriums (Py Q), 306; preservation in relation to accessory factors (leading article), 338; need for, in infant feeding, 348
Food and Public Health (Dr. W. G. Savage) (review), 202; Education Society, 463, 810
Food-supply, qualitative problems of (leading article), 934
Food, synthetic, 985
Foot, amputations of, 940
Forceps, improved, 252
Forearm, median and ulnar nerves of, suture of, 1139
Foreign bodies in the œsophagus and respiratory passages (Mr. I. Moore), 566, 609; perforation of pharyngeal wall by swallowing (Dr. W. Appleyard), 614; in bronchus, long retained (Mr. A. W. Lemarchand), 646
Foreign body in œsophagus (Mr. L. Colledge and Mr. G. A. Ewart), 734; body, living, in the larynx, 841, 899, 946
Forsyth, Dr. D., cœliac disease or boric acid poisoning, 728
Forsyth, Dr. J. A. C., Emergency Cases Hospital in the Meuse, 271, 308
Foster, Miss D. P., nurse anæsthetists, 665
Fothergill, Dr. E. R., British Federation of Medical and Allied Societies, 594
Fracture, spontaneous, in serving soldiers (Mr. C. Noon), 326; of a metacarpal bone, simple method of dealing with, 1180
Fractures of the jaws and acute septic stomatitis, treatment with flavine (Mr. H. W. Turner), 200; of the femur, treatment (Mr. J. Driberg), 311; chip, of the terminal phalanges, 699
Fraenkel, Prof. A., combating cancer, 1156
Frankau, Mr. C., carcinoma of pelvic colon, 282
Frankling, Mr. H., uses of diathermy, 1107
Fraser, Dr. A. R., "606" dermatitis treated with intramine, 480
Fraser, Dr. H., recurrent malaria, 1134
F.R.C.S. examination and army surgeons, 218
Freemasons' hospital for paying guests, 577
Fremantle, Lieut.-Col. F. E., hot season in Mesopotamia, 474
French Congress of Surgery, 706
French medical curriculum, a contrast (Prof. D. T. Barry), 658

FRENCH SUPPLEMENT TO "THE LANCET"—Aubourg, Prof. Paul, radiological examination of pseudoarthroses before and after operations of bony grafts, 332; Dévé, Prof. F., secondary echinococcus, 835; Darier, Dr. J., dysidrosis, its parasitic nature, 578; Flandin, Dr. Charles, peritoneal echinococcus, 838; Garnier, Dr. Marcel, ictero-hæmorrhagic spirochætosis, 1145; Sabouraud, Dr. R., contagiousness of favus in man, 581

Friedenwald, Dr. J., perforation of the lung a sequel of perforation of the stomach, 539
Friel, Dr. A. R., ionisation for sepsis, 625; treatment of antral suppuration, 1107
Friends' Emergency and War Victims' Relief Committee, 897
Fry, Dr. H. J. B., certain organisms isolated from cases of influenza, 51
Fry, Miss A. Ruth, Friends' Emergency and War Victims' Relief Committee, 897
Fuchs, Prof. E., Text-book of Ophthalmology, sixth edition (review), 436
Fuller, Dr. A., death of, 131
Fullerton, Mr. A., recent work on shock and hæmorrhage, 878
Fulton, Dr. A. B., death of, 808
Future of liquor control (leading article), 439
Future of Medicine (Sir J. Mackenzie) (review), 436

G

Gallichan, Mr. W. M., Letters to a Young Man on Love and Health (review), 1089
Gallie, Dr. W. E., lengthening of amputation stumps, 282
Gallwey, Maj.-Gen. Sir T. J., differentiation of mankind into racial types, 666
Galvanism and Faradism (Dr. G. M. Magill), second edition, 1919 (review), 788
Galvanosct apparatus, improvement in, 272
Gangrene of fingers, chorea complicated by, 63; due to carbon monoxide poisoning, 586
Gardner, Dr. A. D., and Prof. G. Dreyer, instability of red blood cells preserved in the method of Rous and Turner, 687
Gardner, Dr. D., death of, 626
Garnier, Dr. Marcel, ictero-hæmorrhagic spirochætosis, 1145
Gasbarini, Prof. A., staining of tubercle bacilli, 938
Gastric ulcer, diagnosis and treatment, 786, 1111
Gazette of the Third London General Hospital, Wandsworth, 182

GENERAL COUNCIL OF MEDICAL EDUCATION AND REGISTRATION (AUTUMN SESSION).—President's address; Teaching of preventive medicine, 991—Relationship of practitioners to the State, 1044—Teaching of the preventive aspects of medicine; Report of the Examination Committee: Inspection and visitation of qualifying examinations; Report of the Public Health Committee; Teaching of midwifery, 1045—Students' Registration Committee; Dental Education and Examination Committee, 1046

General Medical Council, election (leading article), 839; addresses by candidates, 590, 662, 704, 754, 799, 846, 847; counting of votes, result, 939; analysis of voting for Ireland, 990
General Medical Council, election of Direct Representatives for Scotland, 590, 662, 754, 799, 947; coming election, candidates selected by the British Medical Association, 704; election of Direct Representatives for England, 756, 806; nominees of the Medico-Political Union, 846; nominee of the National Medical Union, 846; election of

Direct Representatives, 852; and direct representation, 983; Irish election, 1109; election, England and Wales, 1170
General Medicine (Practical Medicine Series) (Dr. F. Billings) (review), 19
General Nursing Council, 1201
General paralysis among Jews, 444
General Surgery (Prof. A. J. Ochsner) (review), 1089
Genesis of cancer of the uterus (leading article), 742, 807
Genesis of mirth, 657
Genital defects in recruits, 621
Genito-urinary Surgery and Venereal Diseases, White and Martin's (E. Martin, B. Thomas, and S. Millhead), eleventh edition, 1919 (review), 880
Geoghegan, Dr. J., tuberculosis from a West Indian standpoint, 56
Geriatrics, Diseases of Old Age and their Treatment (Dr. I. L. Nascher), second edition, 1919 (review), 250
German navy, health of, during the war, 182
Gerson, Mr. H. M., carcinoma of ovary, 1195
Gibbons, Dr. A. P., suggested reforms in the Workmen's Compensation Act, 1087
Gilchrist scholarship for women war workers, 36
Giles, Dr. A. E., Sterility in Women (review), 694
Gilliatt, Mr. W., obstruction to labour due to ventrofixation, 65
Gillies, Maj. H. D., paraffin wax in facial surgery, 174
Glaister, Mr. J. N., State Medical Service, 751
Gland pituitary, surgery of, discussion, 1079
Glands, lymphatic, treatment (Dr. R. Knox), 184
Glandular swellings, multiple, 64
Glasgow Medico-Chirurgical Society (see Medical Societies)
Glasgow University, pass-lists, 667, 901; report, 799
Glendining, Mr. B., improved forceps, 252
Gloyne, Dr. S. R., detoxicated vaccines, 82
Glycosuria and diabetes, relation of Graves's disease to (Dr. R. T. Williamson), 425
Goitre, exophthalmic, surgical treatment, 1205
Gonococcal infections, complement-fixation test in (Dr. H. B. F. Dixon and Dr. A. H. Priestley), 964
Gonococcus pneumonia, 256
Gonorrhœal otitis in infants, 885
Goodall-Copestake, Beatrice M., Theory and Practice of Massage (review), 67
Goodall, Dr. E., coördination of clinical research, position of psychiatry, 216
Goodall, Dr. J. R., vaccination by subcutaneous injection, 285
Goodwin, Sir J., Army Medical Service as a career, 631
Gordon, Dr. A. K., lymphoidocyte and its clinical significance, 108; prevention of disease among troops on active service, 1094
Gordon, Dr. H. L., eye-colour and the abnormal palate in neuroses and psychoses, 9
Gordon, Dr. R. G., epileptiform convulsions, 914
Goss, Dr. F. H., and Dr. C. Lundie, sporulation of syphilis organism as seen on the dark ground, 1025
Gosse, Dr. A. H., prophylactic quinine in malaria, 431; dilatation aneurysm, 930; auricular flutter, 1196
Gonbeau, Dr., treatment of soft chancre, 746
Goulstonian lectures on the spread of bacterial infection (Dr. W. W. C. Topley), 1, 45, 91
Government salaries, 210; employees and the fine arts, 1180
Grace, Mr. J. J., treatment of sciatica, 245
Graduate teaching, demand for (Sir G. Makins), 817
Graham, Dr. G., arthritis in dysentery, 1030
Grancher Foundation, 1102
Grants for medical education, 218; to panel practitioners (Py Q), 353, 855; to Insurance practitioners (Py Q), 1053; educational, for demobilised medical officers (Py Q), 1054
Gratuities, war, for naval nurses (Py Q), 269; for military masseuses (Py Q), 855
Graves's disease, relation to diabetes and glycosuria (Dr. R. T. Williamson), 425
Gravid uterus, retroversion of (Dr. R. B. Eccles), 530
Gray, Dr. J. P., draft regulations for 1920, 1213
Gray, Mr. T., and Dr. G. R. Pirie, congenital hypertrophic stenosis of pylorus, diagnosis and treatment, 515
Great Northern Hospital Progress Fund, 1167
Green, Mr. C., carcinoma of the ileum, 925
Greenfield, Dr. J. G., and Mr. J. Anderson, sedimentation of tubercle bacilli in sputum, 423
Greenfield, Dr. W. S., obituary, 351
Grégoire, Prof. R., vaccine treatment of acute osteomyelitis, 842; acute staphylococcal osteomyelitis treated with vaccines, 1043
Grey, Surg.-Lieut. F. T., compulsory inoculation against Spanish influenza, 479
"Gridiron" incision, 1107, 1168, 1169
Griffith, Dr. T. W., cerebral embolism, 759
Griffiths, Mr. G. H. C. St. G., right inguinal hernia after appendicectomy by the "gridiron" incision, 1026, 1107
Griggs, Mr. W. A., spiritualism, 672
Gruner, Dr. O. C., Exact Diagnosis of Latent Cancer (review), 577
Guest Hospital, Dudley, meeting, 1112
Gunewardene, Dr. T. H., leukæmia with scalp nodules, 832; tuberculosis of the heart, 1085
Gunshot wounds of the chest (Dr. J. B. McDougall), 968; injury of thorax and abdomen, 1096; fracture of femur, 1203
Guthrie, Mr. D., aural suppuration in early childhood, 429
Guy's Hospital Memorial Fund, 565; Medical School, scholarship awards, 667
Gynæcology, X rays and radium in (Dr. D. Turner), 1018
Gynecology, Manual of (Dr. J. C. Hirst) (review), 577

H

Hack *v.* Hack and Munden (leading article), 113
Haden, Lieut. R. L., cerebral complications of mumps, 163
Haeckel, Ernst, death of (leading article), 290
Hæmolysis, urinary, 698
Hæmophilia, prolonged serum treatment, 1202
Haig, Dr. H. A., sacculated aneurysm of abdominal aorta, 645; amœbic dysentery, 823
Hairpin, surgical uses of, 625, 666
Haldane, Dr. J. S., New Physiology and Other Addresses (review), 981
Hall, Dr. F. de H., angina pectoris with low blood pressure, 692; acute pulmonary œdema, 1214
Halliburton, Dr. W. D., Essentials of Chemical Physiology, tenth edition, 1919 (review), 1144
Hamill, Mr. P., aortic and mitral valvular disease, 978
Hamilton, Lieut.-Col. D. L., Territorial Force Medical Officers' Association, 502
Hampstead Medical Society, meeting, 1051
Handbook for ex-officers, 956
Hands and feet, terminals of, effects of exposure upon (Dr. F. Jeeves and Dr. E. R. Hunt), 328
Harden, Dr. A., and Dr. S. S. Zilva, œdema observed in a monkey, 780
Hare, Prof. H. A., Text-book of Practical Therapeutics, seventeenth edition, 1919 (review), 437
Hargrave, Mr. J., The Great War Brings it Home (review), 251
Harman, Dr. N. B., Aids to Ophthalmology, sixth edition, 1919 (review), 331
Harrison, Mr. J. W., removal of coin-catcher through œsophagoscope, 1137
Harrogate Medical Society, dinner, 85; (see also Medical Societies)
Hartridge, Mr. G., The Ophthalmoscope, Manual for Students, 6th edition (review), 110
Harveian oration on forerunners of Harvey in antiquity (Dr. R. Crawfurd), 765
Harveian Society of London (see Medical Societies)
Haslip, Dr. G. H., portrait of Sir C. Allbutt, 82
Hastings, Mr. S., treatment of antral suppuration, 960
Hatfield, Dr. H. K., rickets and the mandible, 701
Haworth, Dr. J. K., small-pox simulating acute appendicitis, 201; splenic abscess with enteric fever, 923
Hawthorne, Dr. C. O., British Federation of Medical and Allied Societies, 664, 755
Haywards Heath Hospital, visit of H.R.H. Princess Alice, Countess of Athlone, 1000
Head and Neck, Injuries to (Mr. H. L. Whale) (review), 532
Health reports, colonial, 44, 90, 182, 551, 764, 814, 859
Health, organised, in Edinburgh, 543; Department of, Canada, 544; in factories and workshops, annual report of Chief Inspector for 1918; of the school child, 1095; Orders in Council (PyQ), 1177; Ministry in Austria, 1208
Health Resorts of the British Isles (Dr. N. Wood), second edition, 1919 (review), 287; immunity in (Prof. K. H. Digby), 1198
Health work for the Whitley councils, 24; of the army in India, 126; visitor, emergence of (leading article), 161; of the German navy during the war, 182; exhibitions, travelling, 226; of troops in India (Py Q), 269; international, and League of Red Cross Societies, 293; of troops on Afghan frontier, 347; in Calcutta during 1918, 801; of troops in India, 938
Heart, aneurysm without symptoms (Dr. C. Wilson), 199, 209; tuberculosis of, 1085; disease, modern conception of, 1102
Heart Disease, Diagnosis and Treatment (Dr. E. M. Brockbank), fourth edition, 1919 (review), 251
Heat-stroke on the frontier, India, 801
Heath, Dr. O., influenza-pneumonia, 58; scoliosis of uncertain origin, 1140
Heath, Mr. M., Köhler's disease, 832
Heiman, Dr. H., transmission of typhoid fever by the mother's milk, 653
Hellier, Prof. J. B., osteomalacia, 759
Henchley, Dr. A. R., dextrocardia, 1169
Henderson, Mr. G. G., appointed Regius Professor of Chemistry in the University of Glasgow, 131
Henry, Dr. A. K., surgical uses of hairpin, 625
Hepburn, Mr. M., aneurysmal varix of the cavernous sinus, 1084
Herbert, Dr. A. S., Military Physical Orthopædics (review), 66
Heredity and Mendelism in ptosis, 259
Heredity (Prof. J. A. Thomson), third edition, 1919 (review), 331
Hermaphrodism, case of (Mr. W. Danne), 157
Hernaman-Johnson, Dr. F., X ray treatment of dysmenorrhœa, 432
Hernia, inguinal, strangulated, spontaneous cure (Dr. W. F. Stiell), 530; inguinal, right, after appendicectomy by the "gridiron" incision (Dr. G. H. C. St. G. Griffiths), 1026, 1107, 1168, 1169; ventral, unusual form (Dr. F. L. Apperly), 1029
Herpes zoster (Dr. H. W. Barber), 1136
Herringham, Sir W., medicine and the State, 787; personal explanation, 896; A Physician in France (review), 1037
"Heteroserotherapy" in pulmonary tuberculosis (Dr. J. J. Perkins, Dr. R. A. Young, and Dr. W. O. Meek), 556
Hewitt, Prof. J. T., synthetic drugs, 1057, 1179
Hewlett, Prof. R. T., œdema observed in a monkey, 853
Higher qualification in ophthalmology, 1046
Higier, Dr. H., Vegetative Neurology (review), 532
Hill, Dr. L., and Dr. M. Flack, Text-book of Physiology (review), 66
Hill, Surg. Rear-Admiral Sir R., marine hygiene, 293
Hillier, Dr. W. T., and Dr. E. Pritchard, (1) punctate ulceration of stomach, (2) hypertrophic pyloric stenosis, 1085
Hindle, Dr. E., elected to the chair of biology in the School of Medicine, Cairo, Egypt, 668
Hip, dislocation, congenital (Mr. A. H. Tubby), 1135
Hirschfeld, Dr. L., and Dr. H. Hirschfeld, serological differences between the blood of different races, 675
Hirst, Dr. J. C., Manual of Gynecology (review), 577
Hirst, Mr. S., Studies on Acari (review), 331
Hobhouse, Dr. E., post-mortem activity of the liver after diabetic coma, 806
Hogarth, Dr. A. H., obituary, 500
Holland, Dr. E., antenatal care, 53
Holt, Dr. R. C., conjugal tuberculosis, 852
Home "doctoring" and the spread of infectious disease, 441; helps, educated, for the middle classes, 600
Home hospital establishments and war medals, 266
Homicidal insanity, 34
Honours list, 132, 220, 302, 454, 455, 499, 545, 597, 667, 711, 758, 805, 850, 902, 939, 951, 1104, 1162, 1165, 1209; birthday, 291, 298
Hope, Mr. W. M., death of, 596
Hopkins, Prof. F. G., treatment of diseases due to deficiencies in diet, 979
Horsley, Sir Victor, A Study of His Life and Work (Mr. S. Paget) (review), 1088
Horton-Smith, Mr. R. H., death of, 938
Hospital at Chepstow (Py Q), 39; arrangements in India (Py Q), 305; carriers for Russia (Py Q), 306; treatment of disabled men (Py Q), 1053; voluntary, finance, 1157
Hospital Saturday Fund Journal, 1280
Hospital Sunday Fund, Metropolitan, 84, 131, 341, 1191; at Bristol, 85, 173, 1051; Brighton, 1164
Hospitals and the Ministry of Pensions, 1200
Hospitals, cottage, maintenance of, 83; in Ireland, future of, 207; Vienna, plight of, 208, 402; in Montreal and Toronto, 544; military, in South Wales (Py Q), 1001; maintenance of (Py Q), 1003; voluntary, in Sheffield, 1051 voluntary aid, medical pay in, 1054; public and the State (Py Q), 1176; V.A.D., remuneration of medical officers (Py Q), 1177; standardisation of, 1205
Hot season in Mesopotamia (Lieut.-Col. F. E. Fremantle), 474
House of Industry Hospitals, paying patients, 800
Houses for nurses in Lewis (Py Q), 1004; wooden, in Norwich, 1051
Housing and Public Health (Dr. J. Robertson) (review), 202
Housing in relation to national health, 60; schemes, 294; in Belfast, 435, 893; questions, some (leading article), 439; the people, cost of, 589; in Madras, 942
Housing problem, sanitary engineering in connexion with (Mr. A. P. I. Cotterell), 1006

Housing, notes on: International Red Cross and housing; New publications; Manuals and memoranda, 660—Temporary accommodation; Concrete houses; Housing in Nova Scotia, 661—Medical appointments and the house shortage; Relaxation of building by-laws; Housing conditions in Durham, 804—Dwelling-house *v.* picture palace; Lectures on housing, 805—Emergency scheme; Wooden house at last, 993—Whitechapel Exhibition; Public utility societies; Supply of building materials; Tuberculosis and housing, 994
Hughes, Dr. W., antistreptococcus serum in influenza, 782
Human Infection Carriers (Prof. C. E. Simon) (review), 483
Human spermatozoa, duplication in (Mr. S. R. Tattersall), 201, 266
Humerus extension splint, 20
Humphreys, Mr. H., and Mr. G. P. Mills, Text-book of Surgery for Dental Students, second edition, 1919 (review), 879
Hunt, Dr. E. L., and Mr. R. R. James, filaria loa (subconjunctival), 874
Hunt, Dr. E. R., and Dr. F. Jeeves, effects of exposure upon the terminals of hands and feet, 328
Hunter, John, his beard and mask, 710
Hunter, William, reminiscence of, 341
Hunterian Society, centenary of, 587; medallist, 937
Huntington's chorea (?), 929
Hurley, Dr. W. R., chip fractures of the terminal phalanges, 699
Hurst, Dr. A. F., Constipation and Allied Intestinal Disorders, second edition, 191 (review), 331; hysteria, 771; and Mr. W. M. Mollison, prolonged hysterical deaf-mutism, 1031
Hutchinson's teeth, 83, 129
Hydatid disease, primary, of the brain (Dr. N. B. B. Fleming and Dr. G. W. Bury), 1186
Hydatid obstruction of the bile-duct simulating gall-stones, 1042; cyst of liver, suppurating (Dr. R. L. Ley), 1195
Hyde, Mr. R. R., industrial welfare work, 502
Hydrorrhœa, nasal, 795
Hygiene in Egypt, problem of (Dr. A. Balfour), 417, 465, 507
Hygiene, marine, 293; on board ship, 672; Naval (Dr. J. C. Pryor) (review), 832; and Disease in Palestine in Modern and Biblical Times (Dr. E. W. G. Masterman) (review), 879; for Training Colleges, Text-book for (Margaret Avery) (review), 931
Hyper-adrenalism, study of (Dr G. R. Pirle), 513
Hyperalgesia, segmental, in malaria (Dr. D. W. C. Jones), 283
Hyperkeratosis of the hair follicles in scurvy (Dr. H. Wiltshire), 564
Hyperthyroidism in influenza (Dr. A. T. Todd), 733
Hyperthyroidism, treatment by radiations, 832
Hypertonic salt solution in treatment of tuberculous abscess (Capt. L. Durante), 735
Hypertrophic stenosis of pylorus, congenital, diagnosis and treatment (Mr. H. T. Gray and Dr. G. R. Pirle), 515, 1085
Hypnotic suggestion, 248
Hypochlorine, 932
Hysteria, war, management of, 79; in the light of experience of war (Dr. A. F. Hurst), 771
Hysterical sleeping attacks (Dr. Hildred Carlill), 1128

I

Ictero-hæmorrhagic spirochætosis (Marcel Garnier), 1145, 1155
Ideal atmosphere, 538
"Idiopathic tetanus" (Mr. W. B. Cosens), 646
Iglodine, 932
Ileum, carcinoma of, 925
Ilford and Barking, medical treatment at (Py Q), 307
Imbecility, moral, 291
Immunisation, mechanism of (Dr. J. A. Shaw-Mackenzie), 825
Immunised skin-grafts (Dr. A. L. Yates), 324
Immunity, methods of choice in (Dr. A. G. Shera), 909; in Health (Prof. K. H. Digby) (review), 1198
Imperial Cancer Research Fund, report, 208
"In non-essentials, liberty," 652
Incipient mental diseases, 174, 264
Income limit under the National Insurance Acts (Py Q), 134; raising of, for compulsory insurance, 342
Incorporated Society of Trained Masseuses, conference, 595

INDIA, CORRESPONDENCE FROM.—Calcutta University medical schools; Plague, cholera, small-pox, hookworm; Town planning at Lucknow; Trooping during the hot weather; Red Cross supplies for the Afghan campaign: New nursing home, 32—Indian Ministry of Health, 125—Lahore milk-supply; Red Cross in India; Health of the army in India, 126—Soldier's life in India; Red Cross work for the Afghan war; Women's Medical Service; Calcutta Ophthalmic Hospital; Beggars in Madras; I.M.S. officers from Ceylon; Pilgrimage sanitation; Bombay water-supply, 298—Burma Pasteur Institute; Influenza recrudescence; Infant Welfare Exhibition at Delhi; Shortage of medical officers; War gratuity of the Indian army; New medical scholarship; Calcutta University Commission, 450—Prevention of influenza; Plague in India; Infant welfare in Lahore, 623—Commission on Afghan war medical arrangements, 624—Infant life in India, 705—Influenza in Madras; Bengal jails; Medical scholarships for Indian women, 706—Influenza in India; Health in Calcutta during 1918; Sickness in the Afghan war; Heat-stroke on the frontier; Small-pox in Ootacamund, 801—Bengal public health; Housing in Madras; Labourers' dwellings in Ootacamund, 942

India during the war (Col. A. W. Sheen), 273; hospital arrangements in (Py Q), 305; sanitary organisation in, beginnings and progress (Prof. W. J. Simpson), 821; public health and hospital work in 1918, 905, 954; health of troops in, 938; medical registration, work of the Bombay Medical Council, 994
Indian Medical Service, 86, 133, 178, 305, 346, 453, 504, 714, 757, 805, 851, 902, 951, 1105, 1167; Ministry of Health, 125; Medical Service, training of junior officers in India, 127; officers from Ceylon, 298
Induction Coils in Theory and Practice (Prof. F. E. Austen) (review), 251
Industrial Medical Service, 30, 36, 128, 493
Industrial medicine in the United States, 888; medicine in America and here (leading article), 1199
Industrial welfare work, 502; employment of mothers, French and German experiences, 540; fatigue and accidents, 585; training and village settlements, 737; diseases, 801
Industry, woman in, 167, 213
Infant and Young Child Welfare (Dr. H. Scurfield) (review), 202; Welfare Exhibition at Delhi, 450
Infant mortality, causes of, 1116
Infant welfare, national conference, 76, 123; in Toronto, 261; feeding, need for accessory food factors in, 348; in Lahore, 623; life in India, 705
Infantile tuberculosis in Italy, 261; paralysis with affection of hip, 876; beri-beri treatment, 937
Infantilism, 692
Infants, gonorrhœal otitis in, 885
Infection, bacterial, spread of (Dr. W. W. C. Topley), 1; due to bacillus of the Gaertner-paratyphoid type (Dr. W. MacAdam), 189
Infectious disease, spread of, and home "doctoring," 441; diseases in London (Py Q), 1002, 1003
Influenza and pregnancy, 699
Influenza epidemic in Australia, 172, 297, 591, 848; and plague in India, 506, 623, 801; Scottish mortality, 1918–19, 705; in Madras, 706; the threat of, 793; in South Africa, 848; in Australia (Dr. H. L. Kesteven), 1189
Influenza, next epidemic (Dr. J. Brownlee), 856; the behaviour of (leading article), 881; spirits for (Py Q), 949, 998; epidemic as it affected Portland Prison and quarters (Dr. M. H. Smith and Mr. M. J. Saunders, 975; and tuberculosis, 1157
Influenza, second wave of, 31; cases of, organisms isolated from (Mr. H. J. B. Fry), 51; pneumonia (Dr. O. Heath), 58; ætiology of (Dr. G. E. Beaumont), 234, 255, 457, 998; recrudescence of, 449, 450; Spanish, compulsory inoculation against (Surg.-Lieut. F. T. Grey), 479; prophylaxis vaccines, 616; prevention of, 623; "Spanish" (Dr. A. Edington), 730; hyperthyroidism in (Dr. A. T. Todd), 733; antistreptococcus serum in (Dr. W. Hughes), 782; prevalence of (Py Q), 855
Influenzæ, B. (Surg.-Com. S. F. Dudley), 476
Influenzal otitis, 292; pneumonia, stomach and bowel atony in (Dr. N. Bradly), 434; broncho-pneumonia and pneumonia treated with mixed army vaccine (Dr. J. Black-Milne and Dr. K. Rogers), 731
Ingenuity, competition in, 1116
Ingleby, Dr. Helen, and Mr. E. A. Barton, Werdnig-Hoffmann paralysis, 922
Inguinal Hernia, strangulated, spontaneous cure (Dr. W. Stiell), 530; hernia, right, after appendicectomy by the "gridiron" incision (Mr. G. H. C. St. G. Griffiths), 1026, 1107, 1168, 1169
Inhaler, chloroform, safety, 880
Injections of tartar emetic in bilharziasis, 457
Injuries to the Neck and Head (Mr. H. L. Whale) (review), 532
Inoculation, compulsory, against Spanish influenza (Surg.-Lt. F. T. Grey), 479; against lobar pneumonia (leading article), 983
Inquests in camera, holding of (leading article), 254; in cases of suicide, reports of, 630
Insanity, homicidal, 34
Instrumental Orthopædics (De l'Orthopédie Instrumentale) (Dr. G. Bidou) (review), 251
Instruments, historic case of, 1058
Insurance Act, medical institutions under (Py Q), 1112; amendment of (Py Q), 1113; tuberculosis treatment under (Py Q), 1217; alleged failure of (Py Q), 1217; medical service under (Py Q), 1217
Insurance Bill, National, 39, 86, 179; Acts Committee of the British Medical Association, 169
Insurance for medical men, 116; practice, better, 162; medical benefit under (Py Q), 222, 307; compulsory raising of income for, 342; practitioners, grants to (Py Q), 1053; practice, deputation to Dr. Addison, 1173
Insurance, National Health, and the Medical Guild, 174, 216; return (Py Q), 854; return, 906
Intelligence tests, 539
Inter-Allied Medical Commission to Poland, report, 748
International health and League of Red Cross Societies, 293
International Opium Convention, 1912 (Py Q), 1113
Intestinal obstruction, unusual cases (Dr. W. H. C. Romanis), 481; tuberculosis in connexion with phthisis, 930
Intestine, traumatic rupture of (Mr. W. H. Battle), 103, 746; (Mr. E. G. Stanley), 726; rupture of, without external injury (Mr. Ll. Lindop), 871
Intracranial lesions (Mr. R. F. Smith), 196
Intratracheal insufflation of ether in operations which involve bleeding into the air-passages, 1030
Intravenous injections of antimonium tartaratum (tartar emetic) in bilharziasis (Dr. F. E. Taylor), 246, 299; in filariasis (Sir L. Rogers), 604
Intussusception, retrograde, of jejunum through stoma of gastro-jejunostomy (Dr. R. Warren), 615; caused by papilloma, 1196
Invalided officer, statement by Pensions Minister (Py Q), 179
Inversion of uterus, 877
Iodides and the thyroid (Mr. F. Ransom), 433
Ionisation, treatment of septic wounds by (Dr. F. W. B. Young), 529, 625, 709

IRELAND, CORRESPONDENCE FROM.—Irish Public Health Council; Londonderry water queues, 590—Scarlet fever outbreak in Belfast, 591—Health of Belfast in 1918, 662—Doctors' fees; Dr. S. Wright, death of, 663—Irish Public Health Council, 754, 1165—Belfast Medical School; Scarcity of water in Ulster, 755—Royal College of Physicians of Ireland; House of Industry Hospitals; Scarlatina epidemic in Belfast; Omagh Board of Guardians, 800—Housing problem in Belfast; Scarlet fever epidemic, 893—Royal College of Surgeons in Ireland; Disease in Belfast; Typhoid outbreak at Castlederg, 1101—Annual dinner of the Ulster Medical Society; Address by Sir W. A. Lane; Students at the Queen's University of Belfast, 1102—Dublin hospitals; Queen's University of Belfast, 1165

Ireland, hospitals in, future of, 207; medical treatment of children in (Py Q), 1003; vaccination in (Py Q), 1113
Irish Ethno-Botany and the Evolution of Medicine in Ireland (Dr. M. F. Moloney) (review), 19
Irish hospitals, finances of (Py Q), 133
Irish Public Health Council, 536, 590, 594, 754, 807, 947, 997, 1053, 1165; meeting, 702
Irwin, Mr. S. T., amputations of the foot, 940
Isolation accommodation in North Devon, report, 549
Italian Expeditionary Force and small-pox (Py Q), 306
Italy, tuberculosis in, 344

J

James, Dr. S. P., treatment of malaria in England, 1016, 1034
James, Mr. R. R., and Dr. E. L. Hunt, filaria loa (subconjunctival), 874
James, Mr. W. W., multiple epulides, 156
Jamieson, Dr. T. H., malaria memorandum, 266
Jaundice among the British troops in Northern Italy (Dr. H. H. Tooth and Dr. E. G. Pringle), 144; addendum, 248
Jaundice, chronic, 1085
Jaw deformities, perverted functional activity in the production of (Mr. D. M. Shaw), 316
Jaws, fractures of, and acute septic stomatitis, flavine treatment (Mr. H. W. Turner), 200

Jeeves, Dr. F., and Dr. E. R. Hunt, effects of exposure upon the terminals of hands and feet, 328
Joffrey, Dr. G. R., hypnotic suggestion, 248
Jejunum, retrograde intussusception of, through stoma of gastro-jejunostomy (Dr. R. Warren), 615
Jewesbury, Dr. R. C., cirrhosis of liver, 1086
Jews, general paralysis among, 444
Johannesburg, medical school in, 848; medical fees in, 859
Joints, stiff and flail, 1205
Jones, Dr. D. W. C., segmental hyperalgesia in malaria, 283; occasional manifestations of malaria, 1131; correction, 1214
Jones, Dr. J. A., acute septic meningitis of otitic origin, 59
Jones, Prof. F. W., voluntary muscular movements in cases of nerve injuries, 907
Jones, Sir R., stiff and flail joints, 1205
Journal of Discovery, 792
Journal of Industrial Hygiene (new medical journal), 587, 888
Journal of Physiology (review), 111, 647
Journal of the East Africa and Uganda Natural History Society (review), 438
Jung, Prof., psychogenesis of mental disease, 109

K

Keith, Mr. S., obituary, 461
Keith, Prof. A., differentiation of mankind with racial types, 553; John Hunter's beard and mask, 710; Menders of the Maimed (review), 1038; multiple exostosis, 1141
Kennaway, Dr. E. L., a safety chloroform inhaler, 880
Kennedy, Prof. R., prognosis of nerve injuries, 5
Kensington War Hospital Supply Depôt, 90
Keratitis, 1084
Keratoderma blennorrhagica (Dr. S. Dyke), 328, 502
Kerr, Dr. J., tuberculosis in relation to school life, discussion, 1086
Kerr, Prof. J. G., Text-book of Embryology (review), 693; cicatrix of the uterine wound in Cæsarean section, 877
Kesteven, Dr. H. L., epidemic influenza in Australia, 1189
Kettlewell, Mr. G. D., Hutchinson's teeth, 129
Kevin, Dr. H. K., and Dr. N. C. Lake, uncommon abdominal cases illustrating some pitfalls, 13
Kidd, Dr. J. C., Post Office contract practice, 594
Kidd, Dr. L. J., shell shock in fishes, 266
Kimura, Prof. O., degeneration and regeneration in the peripheral nerves, 115
Kinematic operations, technique of, 988, 1050
Kineplastic amputations (Mr. M. Fitzmaurice-Kelly), 280, 939
King, Mr. N. C., election of direct representatives, 852; extension of Part II. of the Medical Act to Alberta, 1050
Kingery, Lieut. L. B., and Maj. L. Thompson, syphilis in the negro, 491
King's College Hospital Medical School (University of London), scholarships, 241, 691; opening of the session, 843; dinner, 1173
Kingsford, Dr. B., ventilating ether bag mount, 204
Kitching, Dr. R. L., conduct of labour and puerperal sepsis, 350
Klein, Dr. B. G., serum treatment of bacilliary dysentery, 775, 794
Knee, internal derangements of (Dr. J. Patterson), 226; arthritis of, 1139; bony ankylosis of, 1196
Knox, Dr. R., X ray therapy, 183
Köhler's disease of the tarsal scaphoid, 444, 832
Kraepelin, Prof. E., Dementia Præcox and Paraphrenia (review), 879

L

Labour in a primipara obstructed by a fibro-vascular septum or band, 924
Labour, obstruction due to ventrofixation, 65; and puerperal sepsis, conduct of (Dr. J. H. E. Brock), 277, 350, 456
Labourers' dwellings in Ootacamund, 942
Lackie, Dr. L., artificial rotation of head in persistent occipito-posterior positions, 1172
La Clinique Ophtalmologique (review), 20
Ladies' Guild of St. Thomas, meeting, 856
Lady Chichester Hospital, Hove, opening ceremony, 1173
Lahore milk-supply, 126
Laing, Dr. N. P., death of, 1109
Lake, Dr. N. C., and Dr. H. K. Kevin, three uncommon abdominal cases illustrating some pitfalls, 13
Lake, Mr. R., origin of quinsy, 997
Lambert, Dr. A., medicine a determining factor in war, 78
Lane, Lieut.-Col. C., ankylostoma duodenale with pyloric obstruction, 756
Lane, Sir W. A., evolution of disease, 1102, 1117
Langmead, Dr. F. S., scleroderma with calcification in a mongol, 63; lipodystrophia, 831
La Presse médicale d'Egypte (review), 788
Larynx, tuberculosis of (Sir StClair Thomson), 689; living foreign body in, 841, 899, 946
Lassablière, Dr. P., Lait Condensé (review), 694
Last year (leading article), 1199
Laval University of Montreal, 1043
Law, the, and parental responsibility, 672
Lawrence, Dr. S. C., Society of Members of the Royal College of Surgeons, England, 946

LEADING ARTICLES.

Aerial combatant, 696
American hospital in London, 159
Anæsthetists, nurse, 584
Anthropometric index of physical fitness, 253
Anti-venereal effort, concerted, 882
Asylum medical service, conditions of, 114
Campaign against typhus in Poland, 741
Cancer of the uterus, genesis of, 742
Cardiac massage, the place of, 618
Concerted anti-venereal effort, 882
Conjugal tuberculosis, 651
Consultative Councils of the Ministry of Health, 617
Contract practice, basis of, 1039
Dearer milk and bread, 440
Disabled man, working capacity of, 650
Disablement, problems of, 789
Draft regulations for 1920, 1154
Emergence of the health visitor, 161
Epidemic diseases, eradication of, 485
Excitement, violent, as a release phenomenon, 791
Eyesight tests and North-Eastern Railway strike, 160
Federation of Medical and Allied Societies, 113
Fees for public vaccination, 441
Food preservation in relation to accessory factors, 338
Food-supply, qualitative problems of, 934
Future of the medical profession, 393; of liquor control, 439
General Medical Council election, 839; and direct representation, 983
Genesis of Cancer of the uterus, 742
Hack v. Hack and Munden, 113
Haeckel, Ernst, death of, 290
Health visitor, emergence of, 161
Housing questions, some, 439
Industrial medicine in America and here, 1199
Influenza, behaviour of, 881
Inoculation against lobar pneumonia, 983
Inquests in camerâ, holding of, 254
Last year, 1199
Liquor traffic and public health, 69; control, future of, 439
Local Government Board, the passing of the, 21
Malaria in England, 533
Malaria, memorandum on, for general practitioners, 72
Marking time in psychiatry, 535
Measles notification order, new, 1091
Medical and Allied Societies, Federation of, 113
Medical Consultative Council. 791
Medical ethics, teaching of, 1040
Medical profession, future of, 393
Medical research, future of, 933
Medical service in India, women's, 789
Medical trades-unionism, 206
Medicine, preventive, practice of, 695
Mental Deficiency Act, a valuable conference, 1040
Midwifery, practical, teaching of, 1092
Milk and bread, dearer, 440
Mind and medicine, 487
Ministry of Health, consultative councils, 617
Naval medicine, then and now, 883
Needs of the average student, 840
North-Eastern Railway strike and eyesight tests, 160
Nurse anæsthetists, 584
Obstetrics in London, teaching of, 486
Ophthalmology, place of physician in, 1093
Passing of the Local Government Board, 21
Peace and famine, 22
Pensions, reorganisation of, 289
Physician in ophthalmology, the place of, 1093
Pneumonia, lobar, inoculation against, 983
Population, a sample of the, 984
Practical midwifery, teaching of, 1092
Preventive medicine, the practice of, 695
Psychiatric clinics, 205
Psychiatry, marking time in, 535
Public Medical Service, experiment in, 649
Pyogenic infection, epidemiology of, 70
Racial pathology, an experiment in, Christmas in Vienna, 1153
Royal Army Medical Corps, temporary officers in, the new contract, 583
Science and unrest, 205
Sense of stability and balance in the air, 71
Serological differences, topographical distribution of, 696
Seventy years young, 23
Shock, wound, study of, 159; wound, story of, 1153
Shorter working day, 534
Small-pox on the Continent, 337
Stability and balance in the air, sense of, 71
"Strike, but Hear Us," 617
Syphilis and insanity, 935
Temporary officers in the R.A.M.C., the new contract, 583
Trades-unionism, medical, 206
Tuberculosis curve, 253; conjugal, 651
Tuberculosis problems in the new age, 743
Typhus in Poland, campaign against, 741
Urbanisation, defence of, 583
Vaccination, public, fees for. 441
Venereal disease, unqualified treatment of, 339
Women's Medical Service in India, 789
Working capacity of the disabled man, 650
Working day, a shorter, 534
Wound shock, study of, 159; story of, 1153

Le carnet de politesse, 44
Leeds and West Riding Medico-Chirurgical Society (see Medical Societies)
Leeds University, honorary degrees, 1000
Lefèvre, M. H., resection of ankylosed fingers, 257
Leicester Royal Infirmary, appointments, 431
Lemarchand, Mr. A. W., long-retained foreign body in bronchus, 646
Lemon, Maj. A. E., sea-sickness, 700
Lemon-juice, antiscorbutic factor in, 930
Léri, Prof. A., Shell Shock, Commotional and Emotional Aspects (review), 532
Lesions, intracranial (Mr. R. E. Smith), 196
Lessons of failure, 710
Lethargic encephalitis and tuberculous meningitis, 936, 998
Lethargy, case of (Grace H. G. Dundas), 435, 483
Letters from an eighteenth century doctor, 956
Letters to a Young Man on Love and Health (Mr. W. M. Gallichan) (review), 1089
Leukæmia with scalp nodules, 832
Lewin, Dr. Octavia, nasal hygiene and national health, 65
Lewis, Dr. G. C., chloroma simulating mastoid disease, 830
Lewis, Dr. F. P., group study in ophthalmic research, 654
Ley, Mr. G., indirect traumatic rupture of uterus during pregnancy, 735
Ley, Mr. R. L., suppurating hydatid cyst of liver, 1195
Liddle triennial prize for 1919-20, subject, 1202
Lie, the printed, 586
Life and its Maintenance, a Symposium of Biological Problems of the Day (review), 437; of a bacillus, 630
Life insurance and war disabilities, 458
Light sense, 73
Lillie, Prof. F. R., and Mr. C. R. Moore, Laboratory Outline of Embryology (review), 740
Limbs, artificial (Py Q), 134; for officers (Py Q), 222; artificial, standardising of (Py Q), 901
Lindop, Mr. Ll., rupture of intestine without external injury, 871
Lindsay, Mr. S. S., acute œdema of face due to potassium iodide, 217
Linen thread, vaselined, 710
Lipodystrophia, 831
Lip-reading, Manual of (Miss Mary E. B. Stormont) (review), 67
Liquor traffic and the public health (leading article), 69; control, future of (leading article), 439
Lister memorial tablets, 621, 936
Lister, Sir W. T., elected surgeon to Royal London Ophthalmic Hospital, 1000
Lister, William Howard (Dr. W. Seton) (review), 286
Literary intelligence, 41, 330, 549, 609, 753, 948, 1029
Litteljohn, Dr. A. R., obituary. 1214
Liver abscess with septic umbilical vein, 64; hydatid cyst of, suppurating (Dr. R. L. Ley), 1195
Liver, cirrhosis of, 1086
Liverpool Medical Institution (see Medical Societies)
Liverpool, raising of medical fees, 1172
Liverpool University, address by the Vice-chancellor, 1050; lecture by Dr. A. Depage, 1171; pass-lists, 1215
Livingstone College, lectures, 147; report, 1133
Lloyd, Dr. J. H., trench fever and war nephritis, 640
Lobar pneumonia, inoculation against (leading article), 983
Local Government Board, passing of (leading article), 21; vote, 40; directory of maternity and infant welfare in England and Wales published by, 549
Lochrane, Dr. C. D., carcinoma of fundus uteri, 1111
Lockett, Mr. W. G., and Dr. A. F. Bill, call of the Alps, 999
Lodge dispute in Victoria, 32
London and Counties Medical Protection Society, meeting, 85
London Association of Medical Women's Federation (see Medical Societies)

London County Council Ambulance Service, 84; County Council's medical officer of health and school medical officer, report for the year 1918, 544

London Dermatological Society (see Medical Societies)

Londonderry water-supply, failure of, 504, 590

London Hospital, award of prizes, 219

London Jewish Hospital, opening, 810

London Medical Exhibition, 661; Medical Benefit Fund (Py Q), 1003

London School of Tropical Medicine, pass-lists, 219; medical societies, a glimpse of their history and work, 668

London University, pass-lists, 180, 219, 305, 999, 1215; lectures in advanced physiology, 1919–1920, 540; award of Paul Philip Reitlinger prize, 1036

Longevity and Means for the Prolongation of Life (Sir H. Weber) (review), 251

Low, Dr. G. C., and Dr. H. B. G. Newham, bilharziasis treated by intravenous injections of antimonium tartaratum, 633

Low, Mr. Y. W., tumour of the clavicle, 925

Lowndes, Mr. F. W., obituary, 501

Lowry, Dr. Eleanor, the nose in relation to general diseases, 65

Luce, Sir R., epithelioma in scar of burn, 1111

Luke, T. D., and J. S. Ross, Anæsthesia in Dental Surgery, fourth edition, 1919 (review), 880

Lumb, Maj. N. P. L., Urethroscope in Diagnosis and Treatment of Urethritis (review), 438

Lunacy Act, 1890, interpretation of Secs. 47 and 321, 18; Board of Control, annual report, 504

Lunacy as a story theme, 884

Lundie, Dr. C., and Dr. F. H. Goss, sporulation of syphilis organism as seen on the dark ground, 1025

Lung, perforation of, a sequel to perforation of the stomach, 539

Lungs and Pleura, Surgery of (Dr. H. M. Davies) (review), 981

Lupus, treatment with picric-brass preparations (Dr. H. A. Ellis), 827, 883; vulgaris, treatment (Dr. R. W. MacKenna), 917

Lymphadenoma with periodic pyrexia (Dr. A. Abrahams), 424

Lymphatic glands, treatment (Dr. R. Knox), 184

Lymphoidocyte and its clinical significance (Dr. A. K. Gordon), 108

M

MacAdam, Dr. W., infection due to bacillus of the Gaertner-paratyphoid type, 189

Macalister, Prof. A., obituary, 500

MacAlister, Sir D., invested with the Cross of Commander of the Legion of Honour, 939

MacAlister, Sir J., complimentary dinner to, 1111

McCall, Rt. Hon. Sir J., obituary, 37

McCann, Dr. F. J., pre-cancerous uterus, 735

McCarrison, Lieut.-Col. R., pathogenesis of deficiency disease, 75

McCartan, Mr. M., obituary, 38

McCollum, E. V., Newer Knowledge of Nutrition (review), 287

McDonald, Dr. A. L., Essentials of Surgery (review), 577

McDougall, Dr. J. B., gunshot wounds of the chest, 968

Macedonia, bacillary dysentery in, 889

Macewen, Dr. J. A. C., perforation of the cæcum by a pin, 785

McGowan, Dr. J. P., cholera of the sheep, 426

MacKenna, Dr. R. W., Through a Tent Door (review), 484; treatment of lupus vulgaris, 917

Mackenzie, Dr. F. M., death of, 761

Mackenzie, Maj. J. E., Edinburgh University roll of honour, 217

Mackenzie, Sir J., Future of Medicine (review), 436

Mackie, Maj. F. P., experiences as a bacteriologist in Mesopotamia, 1172

McIntosh, Dr. J., and Mr. W. A. M. Smart, adjustment of the reaction of bacteriological media, 723, 792

Maclean, Dr. E., (1) tubal gestation, (2) multilobular soft fibromyoma of uterus, 1036

Macnab, Dr. R., death of, 663

Macula, bilateral changes in, 926

McWalter, Dr. J. C., General Medical Council, Irish election, 1109

Madden, Prof. F. C., Surgery of Egypt (review), 982

Magian, Dr. A. C., new urethral all-glass two-way irrigating nozzle for gonorrhœa, 648; Practitioner's Manual of Venereal Diseases, with Modern Methods of Diagnosis and Treatment (review), 982

Magill, Dr. E. M., Notes on Galvanism and Faradism, second edition, 1919 (review), 788

Magistrates, medical, Dr. J. W. Staniforth, 608; Col. J. Turton, 668; Dr. T. N. Kelynack, 687; Dr. W. B. Addison, Dr. W. F. Thompson, and Dr. L. Molloy, 760

Maintenance of cottage hospitals, 83

Makins, Sir G., medical education, 815

Malaria, memorandum on, for general practitioners (leading article), 72; criticism of, 126, 266, 349; segmental hyperalgesia in (Dr. D. W. C. Jones), 283; morbid anatomy of, 491; chronic and quinine-resisting, treatment by X rays, 656; prophylaxis, natural, as regards, 706; occasional manifestations (Dr. D. W. C. Jones), 1131, 1214; recurrent, treatment (Dr. H. Fraser), 1134, 1169; post-war problems of, 1172

Malaria treated by disinfection, 79; from the surgeon's standpoint (Dr. Marguerite White), 154; quinine as a prophylactic, 175, 431, 547; in England, deaths from, 292; in England (leading article), 533; in the United States, 585; in England, treatment (Dr. S. P. James), 1016, 1034, 1105; in Salonika, 1172

Male population, general, physical defects among (Dr. J. D. Comrie), 957

Malformation of the human stapes, 1031

Malignant diseases, treatment (Dr. R. Knox), 187; disease of the face, 978; of superior maxilla, 1111

Malingering and simulation of disease, 1158

Malleson, Mr. H., A Woman Doctor, Mary Murdoch of Hull (review), 110

Mammalian Physiology (Prof. C. S. Sherrington) (review), 203

Manchester Grammar School, 1515–1919 (Dr. A. A. Mumford) (review), 1033

Manchester University, pass-lists, 84, 130, 667, 1215; opening of winter session, 687; report, 760; appeal for funds, 1000, 1112, 1138; public lectures, 1216

Mankind, differentiation into racial types (Prof. A. Keith), 553, 666

Manor House Hospital, 902, 946

Marine hygiene, 293

Marking time in psychiatry (leading article), 535

Marr, Lieut.-Col. H. C., Psychoses of the War, including Neurasthenia and Shell Shock (review), 531

Marriage of assistant medical officers at asylums, 267, 459

Marsdin, Mr. F., obituary, 1110

Martin, E., B. Thomas, and S. Millhead, White and Martin's Gonito-Urinary Surgery and Venereal Diseases, eleventh edition, 1919 (review), 880

Mary, Dr. A., Origin of Life, work of the late Charlton Bastian, 265

Mask-wearing, legality of, 32

Massage, cardiac, as a means of resuscitation (Mr. L. E. C. Norbury), 601; (leading article), 618; cardiac, in circulatory failure (Dr. M. J. Petty, junr.), 784

Massage and masseurs, 444

Massage, Theory and Practice (Beatrice M. Goodall-Copestake) (review), 67; and the Original Swedish Movements, eighth edition, 1919 (review), 576

Masseur, the compleat, 588

Masseuses, military, gratuity for (Py Q), 855

Masterman, Dr. E. W. G., Hygiene and Disease in Palestine in Modern and Biblical Times (review), 879

Mastoid disease, chloroma simulating (Dr. E. C. Lewis), 830, 888

Maternal mortality in child-bed (Sir J. Phillips), 275; impressions in New Mexico, 1116

Maternity and child welfare, 61

Maternity belt, useful, 814

Mauritians, great, 491

Maylard, Mr. A. E., detail in abdominal operations, 1151

Mayo, Dr. W. J., relation of cancer to the prolongation of human life, 1203

Mayors, medical, Dr. H. A. Latimer, 663, 889; Dr. T. G. Lewis, 781; Dr. F. M. Blumer, Dr. A. J. Rice-Oxley, and Dr. P. A. Roden, 889

Meaker, Dr. S. R., modified operation for scrotal varicocele, 973

Meal service in military hospitals, 136

Measles notification order, new (leading article), 1091; (Py Q), 1176

Medical Act, extension of Part II. to Alberta, 1050

Medical and Allied Societies, Federation of (leading article), 113, 121; trades-unionism (leading article), 206

Medical and Dental Registers, 74

Medical Annual for 1919 (review), 66; abstracts and reviews, 492

Medical boards criticised, 1176

Medical Consultative Council (leading article), 791

Medical Defence Union, meeting, 537; and Dental Defence Union of Scotland, Ltd., meeting, 857

Medical Diary, 43, 223, 270, 307, 355, 416, 464, 505, 551, 598, 627, 668, 716, 762, 812, 857, 904, 951, 1005, 1056, 1114

Medical Directory, 84, 1097

Medical Exhibition, London, 661

Medical instruments for Serbia, an appeal, 270; arrangements in Russia (Py Q), 306; treatment at Ilford and Barking (Py Q) 307; breakdown in Afghan campaign (Py Q), 352; inspection of aliens (Py Q), 354; education in the United States, 489; matters in Spain, 448; referees at Hastings (Py Q), 950

Medical journal, new (Journal of Industrial Hygiene), 587; Quarterly (review), 833

Medical Jurisprudence and Toxicology (Dr. W. A. Brend), third edition, 1919 (review), 111

Medical man's house requisitioned (Py Q), 949

Medical men killed during the war, monument to, 498

Medical officer's retention in India (Py Q), 1054

Medical officers, Territorial, pay of, 218; serving in India (Py Q), 223; assistant, at asylums, marriage of, 267, 459; obtained by the War Office (Py Q), 353; in the army, release of (Py Q), 353; shortage of, 450; returned, 591; officers of health, annual reports, 849, 895; detained abroad (Py Q), 949; demobilised (Py Q), 950; discontent among (Py Q), 1002; retention in the army (Py Q), 1052; demobilised, pay of (Py Q), 1054; older, replacement of (Py Q), 1112; officers in V.A.D. hospitals, remuneration of (Py Q), 1177; officers, release of, in Egypt (Py Q), 1177

Medical profession and the nation's health (Sir M. Morris), 795; officer of health for Gloucester, new, 902; registration in India, work of the Bombay Medical Council, 994; profession, reorganisation in Vienna, 1207

Medical reformer, 310; women in conference on social problems, 506; scholarships for Indian women, 706; education (Sir G. Makins), 815; aid, free, to dependents of soldiers, 848; boards in Cashmere (Py Q), 854; supplies for Petrograd (Py Q), 855; awards, reduction of (Py Q), 901; fees and profiteering, 992, 1058; fees and litigation, 992; treatment of children in Ireland (Py Q), 1003; evidence, question of (Py Q), 1004

Medical research, future of (leading article), 933; ethics, teaching of (leading article), 1040; Research Committee (Py Q), 1053

Medical schools, opening of, 595; appointments under the Ministry of Pensions, 813; School of Strasbourg, 1042

Medical Service, Industrial, 30, 36, 128, 493; service, value of, 464; in India, women's (leading article), 789; service in Mesopotamia (Py Q), 854, 950; State, cost of (Py Q), 1113; service under Insurance Acts (Py Q), 1217

Medical Sickness, Annuity, and Life Assurance Friendly Society, meeting, 347, 810; benefit regulations for Scotland (Py Q), 1002; Insurance Agency, meeting, 1098; benefit regulations, new, 1176

MEDICAL SOCIETIES.

Bristol Medico-Chirurgical Society.—Post-war problems of malaria, 1172

Cardiff Medical Society.—Exhibition of cases and specimens; Multiple fibromyomata of uterus; Rupture of aorta, 1036—Dermoid of conjunctiva, 1212

Derby Medical Society.—Exhibition of cases and specimens, 1111

Edinburgh Obstetrical Society.—Artificial rotation of the head in persistent occipito-posterior positions, 1172

Glasgow Medico-Chirurgical Society.—Abdominal operations, 1101

Harrogate Medical Society.—Modern conception of heart disease; Chronic arthritis, 1102

Harveian Society of London.—Gastric ulcer, 786

Leeds and West Riding Medico-Chirurgical Society.—Exhibition of cases and specimens, 759, 832, 1111—Treatment of hyperthyroidism by radiations, 832—Gastric ulcer, 1111

Liverpool Medical Institution.—Diphtheroids, 1171

London Association of the Medical Women's Federation.—Nasal hygiene and national health; Nose in relation to general diseases, 65—President's address, 714—Work in the Mediterranean area, 878

London Dermatological Society.—Baths of old London, 85

Medical Society of London.—President's address; Angina pectoris with low blood pressure, 692—Reclassification and treatment of pensioners, 785—Cases for diagnosis; Baghdad boil of the lip; Pituitary tumour; Huntington's chorea (?); Multiple exostosis; Splenic anæmia, 929—Dilatation aneurysm, 930—Treatment of malaria, 1034—True nature of multiple exostoses, 1141—Medico-legal significance of hæmorrhage, 1142

Medico-Chirurgical Society of Edinburgh—Debate on psycho-therapy, 1100

Medico-Legal Society.—Annual meeting; Interpretation of Secs. 47 and 321 (ii.) Lunacy Act, 1890, 18—Suggested reforms in the Workmen's Compensation Act, 1087

Medico-Psychological Association of Great Britain and Ireland (Annual Meeting).—Coördination in the asylum services; Training of mental nurses; Hypnotic suggestion, 248—Cytology of the cerebro-spinal fluid, 249—Analysis of 200 cases of mental defect; Influence of war fatigue on general paralysis, 250—Need for schools of psychiatry, 1086
National Association for the Prevention of Tuberculosis (Seventh Annual Congress).—Address by the Minister of Health, 736—Address by Sir R. Philip, 737—Action and scope of pensions boards; Red Cross and other voluntary activities, 738—Training of doctors and nurses; After-care, 739
North of England Obstetrical and Gynæcological Society.—Cicatrix of uterine wound in Cæsarean section, 877
Norwich Medico Chirurgical Society.—Medicine and the State, 787
Royal Institute of Public Health (London Conference).—Lord Mayor's speech; Need for a permanent endowment for research work, 15—Work of the Ministry of Health, 16—Prevention and arrest of venereal disease, 17—Housing in relation to national health, 60—Maternity and child welfare, 61—Tuberculosis problem under after-war conditions, 62
Royal Society of Medicine (Sections).—
  Anæsthetics.—Intratracheal insufflation of ether in operations which involve bleeding into the air passages, 1030—Intratracheal insufflation of chloroform, 1197
  Clinical.—Malignant disease of the face; Exhibition of clinical cases, 978—Intussusception caused by a papilloma; Bony ankylosis of knee; Malignant endocarditis; Cirsoid aneurysm; Dislocation of patella; Auricular flutter; Unilateral sweating of the face, 1196—Multiple congenital anomalies, 1197
  Disease in Children.—Exhibition of cases and specimens, 63, 1085—Lipodystrophia; Familial osteo-arthritis, 831—Köhler's disease; Leukæmia, 822—Chronic jaundice; Punctate ulceration of the stomach in infants; Hypertrophic pyloric stenosis; Tuberculosis of the heart, 1085—Cirrhosis of the liver; Isolated scaphoid disease, 1086
  Gynæcology and Obstetrics.—Rôle of the cinematograph in the teaching of obstetrics, 876—Inversion of uterus, 877
  Medicine.—Anæmias of the hæmolytic jaundice group, 831—Arthritis in dysentery, 1030
  Neurology.—Some lessons of the war applied to spinal surgery, 926
  Obstetrics and Gynæcology.—Obstruction to labour due to ventrofixation, 65—Indirect traumatic rupture of uterus during pregnancy; Pre cancerous uterus, 735—Teaching of obstetrics and gynæcology to medical students, 1081
  Ophthalmology.—Acute disseminated choroido-retinitis, 925—Optical nerve tumour; Bilateral changes in the macula; Result of a plastic operation, 926—Exhibition of cases and specimens; Need for ophthalmic physicians for the advancement of ophthalmology, 1084
  Otology.—Malformation of the human stapes; Prolonged hysterical deaf-mutism; Vertigo in conjunction with a radical mastoid operation, 1031
  Pathology.—Relationship between sphenoidal sinus empyema and epidemic cerebro-spinal fever, 874—Bodo-like flagellate in urinary tract, 875—Abdominal viscera of an infant, 1140
  Psychiatry.—Psychogenesis of mental disease, 109—Pathology of dementia præcox, 928
  Surgery.—Coxa vara; Congenital and paralytic scoliosis, 691—Infantilism, 692—Birth palsy in a boy, 875—Os tibiale sesamoideum; Infantile paralysis with affection of hip; Chronic synovitis in both knee-joints, 876—Exhibition of specimens of secondary deposits in bone mistaken for primary tumours, 924—Carcinoma of the ileum; Tumour of the clavicle, 925—Surgery of the pituitary gland, 1079
  Subsection of Orthopædics.—Cases of Deformity, 1138—Sterno-mastoid tumour; Malformation of femur; Multiple exostoses; Arthritis of knee; Suture of median and ulnar nerves in forearm; Traumatic myositis ossificans, 1139—Dupuytren's contracture; Scoliosis of uncertain origin, 1140
  Therapeutics and Pharmacology.—Treatment and management of diseases due to deficiencies in diet, 979
Scottish Society of Anæsthetists.—Value of chloroform as an anæsthetic; Teaching of anæsthetics, 1142
Sheffield Medico-Chirurgical Society.—Programme of meetings for the winter, 1031—Malaria in Salonika; Papillomatous growth of cæcum; Multiple adenomatous growth; Ulcer of cæcum, 1172—Collection of war trophies, 1173
Société de Biologie, Paris.—Summary of papers, 220, 438
Society of Tropical Medicine and Hygiene.—Antimosquito measures in Palestine in 1917-18, 1032
Tuberculosis Society.—Annual meeting; Tuberculosis work, hopeful outlook; A social problem, 65—Intestinal tuberculosis in connexion with phthisis, 930—Tuberculosis in relation to school life, 1086
Ulster Medical Society.—Recent work on shock and hæmorrhage, 878
West London Medico-Chirurgical Society.—London medical societies, a glimpse of their history and work, 668—Rheumatoid arthritis; Sarcoma of upper end of humerus; Chronic ulceration of tongue; Asthma and emphysema; Cyanosis with polycythæmia and congenital heart disease; Elephantiasis; Raynaud's disease, 878

Medical Society of London (see Medical Societies)
Medical War Relief Fund, 591
Medicine, a determining factor in war, 78; preventive, practice of (leading article), 695

Medicine and the Law.—Treatment by correspondence; Dispensing of prescriptions at night, 30—Proof of paternity; Professional secrecy in the eye of the law; Action for negligence, 31—Medical fees in court; Tuberculosis and marriage, 124—Professional secrecy, military and civil aspect, an international contrast, 171—Professional secrecy and the medical officer of health, 624—A question of certification, 802—Legislation of abortion; Question of privilege and prudence, 942—Everitt divorce case; Prescriptions and profiteering, 943—Profiteering and medical fees; Medical fees and litigation, 992—Newington *v.* Holman and Wife; costs of a successful litigant, 1163

Medicine, General (Practical Medicine Series) (Dr. F. Billings) (review), 19; Modern, and Some Modern Remedies (Dr. T. B. Scott), second edition, 1919 (review), 203; Future of (Sir J. Mackenzie) (review), 436; A Short Practice of (Dr. R. A. Fleming), third edition (review), 437
Medicine, radiations in, achievements and possibilities (Dr. R. Knox), 183; and the State, 787, 896; amongst the sciences, position of (Sir G. Makins), 815; biochemist in, future of, 884; industrial, in the United States, 888
Medico-Chirurgical Society of Edinburgh (see Medical Societies)
Medico-Legal Society, dinner, 810
Medico-Psychological Association of Great Britain and Ireland (see Medical Societies), 248
Mediterranean area, work in, 878
Meek, Dr. W. O., Dr. J. J. Perkins and Dr. R. A. Young, "heteroserotherapy" in pulmonary tuberculosis, 556; obituary, 595
Melbourne University, an overcrowded medical school, 172
Melville, Dr. S., and others, Manor House Hospital, 946
Mence, Mr. W. C., death of, 455
Menders of the Malmed (Prof. A. Keith) (review), 1038
Meningitis in anthrax, 25; septic, acute of otitic origin (Dr. J. A. Jones), 59; tuberculous, and lethargic encephalitis, 936, 998
Meningococcus carriers, studies of (Dr. D. Embleton, Dr. W. S. Bryant, and Dr. G. H. Steven), 679
Mental Deficiency and Lunacy Amendment Bill, 1113
Mental disease, psychogenesis of (Prof. Jung), 109; incipient, 174, 264; defect, 200 cases, 250; deficiencies in prostitutes, 443; disorders, early treatment (Dr. R. Eager), 558; After-Care Association, appeal, 1180; personality (Dr. H. Campbell), 1181; cases, military, in Toronto, care of, 1208
Mental Hygiene (review), 251; Deficiency Act, a valuable conference (leading article), 1040; Deficiency and Lunacy (Amendment) Bill, 1053, 1217; Diseases (Dr. R. H. Cole), second edition, 1919 (review), 1089
Mental nurses' working day, 210; nurses, training of, 248; cases, uncertifiable, treatment (Py Q), 269; collapse, means to avert, 426; homes, early, 457; ability, classification of, 843; military, cases in Canada, 894
Mentally deranged soldiers in pauper asylums (Py Q), 950, 999, 1054
Menzies, Mr. K., Auto-Erotic Phenomena in Adolescence (review), 436
Menzies, Prof. J. A., and Prof. F. A. Bainbridge, Essentials and Physiology, third edition, 1919 (review), 740
Mercier, Dr. C. A., obituary, 460
Mertz, Lieut. P. A., mental deficiency in prostitutes, 443
Mesopotamia, hot season in (Lieut.-Col. F. E. Fremantle), 474; medical service in (Py Q), 854; experiences as a bacteriologist in, 1172
Messer, Inspector-Gen. A. B., obituary, 808
Metacarpal bone, fracture of, simple method of dealing with, 1180
Metropolitan Hospital Sunday Fund, 84, 131, 341, 1191
Metropolitan water-supply researches, 27; during April, May, and June, 1919, 600; July, August, and September, 1919, 1116
Meyrick-Jones, Dr. H. M., fees for service on pensions boards, 83
Michelson, Dr. H. E., syphilis of the epididymis, 1042
Microphthalmia, double, 1036
Middlemiss, Dr. J. E., analysis of 200 cases of mental defect, 250
Middlesex Hospital Medical School, dinner, 761; Hospital, dinner, 1111
Midwifery, practical, teaching of (leading article), 1092
Midwife's charter, 700
Midwives, training of, 1051
Miers, Sir H. A., appointed to be a member of the Advisory Council to the Committee of the Privy Council for Scientific and Industrial Research, 760
Military patients, disturbance of (Py Q), 179; patients, Canadian, in England, 854; hospitals in South Wales (Py Q), 1001
Military Physical Orthopædics (Dr. A. S. Herbert) (review), 66
Military service and sanatorium treatment (Dr. E. E. Prest), 240
Military Surgeon (review), 158, 251, 288, 438, 648, 788
Milk and bread, dearer (leading article), 440; supplies and public health (Py Q), 255; cheaper for poor children (Py Q), 856; for invalids in France and Belgium (Py Q), 855; shortage, 942
Milk, Condensed (Le Lait Condensé) (Dr. P. Lassablière) (review), 694
Miller, Dr. R., cœliac disease, 806; splenic anæmia, 929
Millhead, S., E. Martin, and B. Thomas, White and Martin's Genito-Urinary Surgery and Venereal Diseases, eleventh edition, 1919 (review), 880
Mills, Mr. G. P., and Mr. H. Humphreys, Text-book of Surgery for Dental Students, second edition, 1919 (review), 879
Mind and matter (leading article), 487; and medicine, 547
Mind and its Disorders (Dr. W. H. B. Stoddart), third edition, 1919 (review), 1143
Ministry of Health, work of, 16; appointments (Py Q), 39; Consultative Councils of, 118, 222, 622; (leading article), 617; organisation of medical staff, 166; Indian, 125
Ministry of Pensions, medical boards of, 119; medical appointments under, 813; staff (Py Q), 1053; vote (Py Q), 1113; and hospitals, 1200
Minor Surgery and Bandaging (Mr. G. Williams (review), 1143
Minter, Dr. L., medical men as "commercial users," 718
Mirth, genesis of, 657
Miscegenation and talent, 300; of Shakespeare, 600
Mitchell, Dr. J. H., and Dr. D. S. Ormsby, Practical Medicine Series for 1918 (Skin and Venereal Diseases) (review), 110
Mitchell, Dr. W., position of radiology in medicine, 853
Mobilised students, their medical studies, 212
Mollinson, Mr. W. M., and Dr. A. F. Hurst, prolonged hysterical deaf-mutism, 1031; vertigo in conjunction with a radical mastoid operation, 1031
Moloney, Dr. M. F., Irish Ethno-Botany and the Evolution of Medicine in Ireland (review), 19
Monophagism, pellagra, and scurvy, 24
Montreal and Toronto, hospitals in, 544
Monument to medical men killed during the war, 498
Moon, Mr. E. C., and Mr. V. H. C. Edwards, club for deafened ex-service men, 625
Moore, Dr. B., increase of alkalinity of blood in shock, 473
Moore, Mr. C. R., and Prof. F. R. Lillie, Laboratory Outline of Embryology (review), 740
Moore, Mr. I., foreign bodies in the œsophagus and respiratory passages, 566, 609
Moral imbecility, 291
Morbid anatomy of malaria, 491
Morphia, export of (Py Q), 900
Morris, Sir H., Epsom College, appeal, 1213
Morris, Sir M., Story of English Public Health (review), 202; Dr. C. Buttar and Dr. N. H. Mummery, British Federation of Medical and Allied Societies, 546, 665; medical profession and the nation's health, 795

Mort, Mr. S., solid paraffin wax in facial surgery, 105
Mortality, maternal, in child-bed (Sir J. Phillips), 275
Mortality statistics of Insured Wage-earners and their Families in the United States and Canada (Mr. L. I. Dublin) (review), 330
Moschcowitz, Dr. A. V., empyema, its pathogenesis and treatment, 204
Moss-Blundell, Dr. C. B., Ten Lectures on Field Sanitation (review), 438
Mothercraft, 309
Motherhood, effect of industrial employment on, 168
Mothers, industrial employment of, French and German experiences, 540
Motor Exhibition at Olympia, London, 847
Mott, Mr. C. H., intra-tracheal insufflation of chloroform, 1197
Mott, Sir F. W., War Neuroses and Shell Shock (review), 531; pathology of dementia præcox, 928
Mowry, Capt. A. E., genital defects in recruits, 621
Moynihan, Sir B., diagnosis and treatment of gastric ulcer, 786
Mucus deposit of urine (Dr. S. G. Billington), 325
Multiple neuritis, peripheral (Mr. T. D. Pryce), 1078
Multiple osteomata of skull bones (Mr. C. N. Slaney), 13; congenital sarcomatosis (Mr. J. A. P. Perera), 14; epulides (Mr. W. W. James), 156; exostosis, 929, 1139, 1141; congenital deformities, 1138; adenomatous growth, 1172; congenital anomalies, 1197
Mumford, Dr. A. A., Manchester Grammar School, 1515–1919 (review), 1038
Mummery, Dr. N. H., Sir M. Morris, and Dr. C. Buttar, British Federation of Medical and Allied Societies, 546, 665, 896, 997
Mumps, cerebral complications of, 163
Muscle training in reclaiming cripples (Dr. J. Patterson), 225
Muscles, treatment of, by artificial stimulation (Dr. G. Cooper), 1067
Muscular movements, voluntary, in cases of nerve injuries (Prof. F. W. Jones), 907; Exercise, Physiology of (Prof. F. A. Bainbridge) (review), 981
Museum of the Royal College of Surgeons of England, 699
Muthu, Dr. C., conjugal tuberculosis, 708, 897
Myalgic pains (Dr. J. M. Taylor), 976; and manipulation, 1170
Mycological methods of detecting sugar in urine, 718
Myers, Dr. C. S., justifiability of therapeutic lying, 1213
Myositis ossificans, traumatic, 1139

N

Nair, Dr. T. M., death of, 213
Napier, Mr. L. E., Weil-Felix reaction in a mild epidemic of typhus, 863
Nasal hygiene and national health, 65; hydrorrhœa, 793
Nascher, Dr. I. L., Gereatrics, Diseases of Old Age and their Treatment, second edition, 1919 (review), 250
National Association for the Prevention of Consumption, Conference, 455
National Association for the Prevention of Tuberculosis (Seventh Annual Congress) (see Medical Societies)
National conference on infant welfare, 76, 123; Baby Week Council, 814
National Council for the Unmarried Mother and her Child, report, 182
National Hospital for Diseases of the Heart, Westmoreland-street, W., courses of instruction, 549
National League of the Blind (Py Q), 1176
National Physical Laboratory, Prof. J. E. Petavel appointed Director, 445
National statistics, position of, 129
Nation's health and the medical profession (Sir M. Morris), 795
Nation's tobacco bill, 718
Nattrass, Dr. F. J., generalised tuberculosis presenting difficulties in diagnosis, 872
Nature (review), 880
Naval Hygiene (Dr. J. C. Pryor) (review), 832; medicine—then and now (leading article), 883
Naval nurses, war gratuities for (Py Q), 269
Neck, phlegmon of (Dr. W. Appleyard), 614
Neck and Head, Injuries to (Mr. H. L. Whale) (review), 532
Needs of average student (leading article), 840
Neolithic skeleton, 943
Neosalvarsan, primary toxic effect of (Prof. K. Petrén), 244
Nephritis, war, after-history, 163; war, and trench fever (Dr. J. H. Lloyd), 640
Nerve injuries, prognosis of (Prof. R. Kennedy), 5; Injuries and their Treatment (Sir J. P. Stewart and Dr. A. Evans), second edition, 1919 (review), 19; transplantation (Dr. N. I. Spriggs), 434; injuries, voluntary muscle movements in (Prof. F. W. Jones), 907
Nerves, peripheral, degeneration and regeneration in, 115; median and ulnar, of forearm, suture of, 1139
Nerves of the Human Body (Mr. C. R. Whittaker), second edition, 1919 (review), 20
Nervous system, syphilitic disease of, silver salvarsan in, 939
Nesfield, Dr. R. W., death of, 967
Neurasthenia and shell shock treatment in Ireland (Py Q), 353; and Shell Shock, Psychoses of the War, including (Lieut.-Col. H. C. Marr) (review), 531
Neurasthenic patients, treatment (Py Q), 306
Neuritis, arthritis, and rheumatism, vaccine treatment (Dr. H. W. Crowe), 637; peripheral multiple (Mr. T. D. Pryce), 1078
Neurology, Vegetative (Dr. H. Higier) (review), 532
Neuroses and psychoses, eye-colour and the abnormal palate in (Dr. H. L. Gordon), 9
Neuroses, War, and Shell Shock (Sir F. W. Mott) (review), 531
Neve, Dr. A., obituary, 715
Newham, Dr. H. B. G., and Dr. G. C. Low, bilharziasis treated by intravenous injections of antimonium tartaratum, 633; and Dr. C. W. Daniels, *Trypanosoma rhodesiense* infection which recovered, 829
Newington *v.* Holman and wife, 1163

NEW INVENTIONS.—Aspirator, new, 834—Cathcart's apparatus, modified, 68—Chloroform inhaler, safety, 880—Forceps, improved, 252—Humerus extension splint, 20—Urethral all-glass two-way irrigating nozzle for gonorrhœa, 648—Ventilating ether bag mount, 204

Newman, Sir G., scope of post-graduate education, 745
Night calls, economics of, 551
Nisbet, Dr. A. T., death of, 1144
Nocturnal enuresis, 552
Noon, Mr. C., spontaneous fracture in serving soldiers, 326
Norbury, Mr. L. E. C., cardiac massage as a means of resuscitation, 601
North-East London Post-Graduate College, 899
North-Eastern Railway strike and eyesight tests (leading article), 161
North of England Obstetrical and Gynæcological Society (see Medical Societies)
Norwich Medico-Chirurgical Society (see Medical Societies)
Nose in relation to general diseases, 65

NOTES AND SHORT COMMENTS.—Medical pioneer aeronauts, 43—Colonial health reports, 44, 90, 182, 551, 764, 814, 859—European corn-borer; Le Carnet de Politesse, 44—Baths of Old London (Dr. S. Sunderland), 89, 135, 181, 182—Kensington War Hospital Supply Depôt; Psychological study of the prisoner of war, 90—Women's Holiday Fund; Prophecy of aviation; Peace celebrations and precautions against fire; "Adelaide" patent garter; Meal service in military hospitals, 136—Health of the German navy during the war; Gazette of the Third London General Hospital, Wandsworth; National Council of the Unmarried Mother and Her Child, 182—Muscle training in reclaiming cripples (Dr. J. Patterson), 225, 1115—Converted army hut; Travelling health exhibitions, 226—Emergency Cases Hospital in the Meuse (Dr. J. A. C. Forsyth), 271, 308—The pneumameter; Small holdings and the returned soldier; Improvement in the Galvanoset apparatus, 272—Ill-effects of amours of old men; "Diadem" talcum powder; Mothercraft, 309—Medical reformer; Pregnancy and childbirth among Siberian aborigines; Reducing a dislocation, 310—Stammering and voice defects (Miss M. V. O. Oswald), 355—Welfare of the blind; Vivisection experiments, 356—The Perthshire unit, 462—Children's Country Holidays Fund, 463, 956—Food Education Society; Left- and right-handed couches; Physical progress and mental retrogression; Current sexual decorum; Tenacious adversaries; "Stammering and voice defects," 463, 551—Value of medical service; Coolidge dental radiator tube; Ranyard nurses, 464—Plague and influenza in India; Medical women in conference on social problems; Ethics of advertising, 506—Economics of night calls, 551—Nocturnal enuresis; Oculist and optician; Surgeon and his family; Tar-spraying fatality; Rheumatoid arthritis of spine, 552—Aerial combatant (the late Capt. H. G. F. Spurrell), 599, 629—Metropolitan water-supply during April, May, and June, 1919, 600; during July, August, and September, 1919, 1116—Miscegenation of Shakespeare; Educated home helps for the middle classes, 600—Life of a bacillus; Aroma of fish frying; Reports of inquests in cases of suicide, 630—Rules for the prescribing of baths (Dr. C. F. Sonntag), 669—Cause and effect; Child welfare, 671—Hygiene on board ship; Specimen case-papers; Spiritualism; Law and parental responsibility, 672—Officer in charge of a medical division (Dr. A. Abrahams), 717, 763—"With apologies to Moore"; Disabled men as public vehicle drivers; Medical men as "commercial users"; Mycological methods of detecting sugar in urine; Sleeping cap; Nation's tobacco bill, 718—Baths of Bath; Decimal Association; Science in a new republic; Converting ounces into grammes, 764—Poverty in relation to pulmonary tuberculosis; Medical appointments under the Ministry of Pensions; Prosecution under the Venereal Diseases Act, 1917, 813—Fish-meal as a food for live-stock; Useful maternity belt; National Baby Week Council; New surface marking; Radiology and radium therapy; Cult of the scrubbing-brush, 814, 860—Medical fees in Johannesburg; On our defence; Wearing of decorations with morning dress, 859—To King's College Hospital medical students; Medical scholarships for the wage-earner; Portable cinematograph, 860—Public health and hospital work in India in 1918, 905, 954—School medical inspection, its origin and growth; Training for disabled nurses; Old age pensions; National Insurance return, 906—Fifteenth-century prescription, 954, 1008, 1058—State in relation to chronic disease, 955—Handbook for ex-officers; Public health at Shanghai in 1918, 956—Public health at Hong-Kong in 1918, 955, 1115—Letters from an eighteenth-century doctor; Nurses and war service pensions, 956—Sanitary engineering in connexion with the housing problem (Mr. A. P. I. Cotterell), 1006—Physics of the air in relation to health, 1007—Public health at Cayman Islands (Jamaica) in 1918, 1008—Synthetic drugs (Prof. J. T. Hewitt), 1057, 1179—Robin Society; Failure to provide spectacles treated as parental neglect; Historic case of instruments; Conquest of the Atlantic by air; Profiteering and medical fees; Extra sugar ration for one-year-olds, 1058—Public health in Egypt, 1917, 1115—"Causes of infant mortality"; More hints for cripples; Competition in ingenuity; Maternal impressions in New Mexico, 1116—Public health in New South Wales, 1179—Public Health in Somaliland; Government employees and the fine arts; St. Dunstan's Hospital; Mental After-care Association; Convenient desk diary; Simple method of dealing with fracture of a metacarpal bone; Central Association for the Care of the Mentally Defective, 1180—Public health in Cairo; Public health in Ceylon, 1219—Hospital Saturday Fund Journal; Smith's visiting list; Christmas greetings to the ex-Service man; Buccal contamination; "A straight talk to a cold," 1220

Notice, brought to, 220, 454
Nurse and resident patient, 1216
Nurse anæsthetists (leading article), 584, 624, 665, 708, 807
Nurse's best weapon, 842
Nurses' Registration Bill, 40, 87; registration (Py Q), 901; Registration (No. 2) Bill, 949, 1001, 1052, 1175, 1217; and Poor-law nurses (Py Q), 1004; Registration (Ireland) Bill, 1053; (Py Q), 1113, 1217; Registration (Scotland) Bill (Py Q), 1113, 1217
Nurses, training of, 248; naval, war gratuities for (Py Q), 269; at Archangel (Py Q), 306; in Mesopotamia, pay of (Py Q), 900; Indian, leave for (Py Q), 900; disabled, training for, 906; and war service pensions, 956
Nursing Council, General, 1201
Nutrition, Newer Knowledge of (E. V. McCollum) (review), 287

O

OBITUARY—
  Angus, William, M.D. Aberd., D.P.H., 460
  Beck, Sir J. H. M., 129
  Blease, Thomas Torkington, M.R.C.S. Eng., L.S.A. Lond., 461
  Cahill, John, M.D. Durh., F.R.C.S. Eng., 548
  Dobson, Nelson Congreve, F.R.C.S. Eng., Ch.M., 1109
  Drage, Lovell, M.D. Oxon., 351
  Evershed, Arthur, M.R.C.P. Lond., M.R.C.S. Eng., 1110
  Fearnsides, Edwin Greaves, M.D., B.C. Camb., B.Sc. Lond., F.R.C.P. Lond., M.R.C.S. Eng., 37, 82
  Greenfield, William Smith, M.D. Lond., F.R.C.P. Lond. and Edin., 351
  Hogarth, Archibald Henry, M.A., M.D. Oxon., D.P.H., 500
  Keith, Skene, M.B., F.R.C.S. Edin., 461

Litteljohn, Arthur Rieussett, M.R.C.S., L.R.C.P., M.R.C.V.S., D.P.H., 1214
Lowndes, Frederick Walter, M.R.C.S. Eng., L.S.A., 501
Macalister, Alexander, M.A., M.D. Camb., M.D., D.Sc. Dub., LL.D. Glasg., Montreal, and Edin., F.R.S., 500
McCall, Rt. Hon. Sir John, M.D., Hon. LL.D. Glasg., 37
McCartan, Michael Joseph, L.R.C.P. & S. Irel., J.P., 38
Marsdin, Frederick, M.B. Lond., F.R.C.S. Eng., 1110
Meek, Wilfrid Ombler, M.B., B.S. Lond., 595
Mercier, Charles Arthur, M.D., F.R.C.P. Lond., F.R.C.S. Eng., 469
Messer, Adam Brunton, M.D. Edin., 808
Neve, Arthur, F.R.C.S. Edin., 715
Page, Frederick, M.D. Edin., F.R.C.S. Eng., D.C.L. Durh., 129
Pick, Thomas Pickering, F.R.C.S., 499
Purefoy, Richard Dancer, M.D., LL.D. (hon. causâ) Dub., 81
Renton, James Crawford, M.D. Edin., F.R.F.P.S. Glasg., 851
Scott, Alexander, M.D. Glasg., 81
Skaife, Frederic, M.R.C.S. Eng., L.R.C.P. Edin., 1215
Tobin, Richard Francis, F.R.C.S.I., 548
Vernon-Harcourt, Augustus G., F.R.S., 416
Walls, William Kay, M.B., M.R.C.S., 663
Wilks, George, M.C., M.B. Cantab., M.R.C.S., L.S.A., 38

O'Brien, Dr. F. W., Köhler's disease of the tarsal scaphoid, 444
Obstetrics and gynæcology, teaching of, to medical students, discussion on report, 1081
Obstetrics in London, teaching of (leading article), 486, 494, 987; teaching of, rôle of the cinematograph, 876
Obstetrics, Practical (Prof. E. H. Tweedy and Dr. G. T. Wrench), fourth edition, 1919 (review), 483; Principles and Practice of (Prof. J. B. De Lee), third edition, 1918 (review), 615
Ochsner, Prof. A. J., General Surgery (review), 1089
Oculist and optician, 552
Œdema, acute, of face due to potassium iodide, 217; observed in a monkey (Dr. A. Harden and Dr. S. S. Zilva), 780, 853; pulmonary, acute (Dr. G. J. Branson), 1078, 1214
Œsophagectasia, extreme (Dr. H. B. Shaw), 923
Œsophagus and respiratory passages, foreign bodies in (Mr. I. Moore), 566, 609; foreign body in (Mr. L. Colledge and Mr. G. A. Ewart), 734
O'Farrell, Mr. T. T., teaching of pathology, 1062
Office International d'Hygiène Publique (Py Q), 854
Officer in charge of a medical division (Dr. A. Abrahams), 717, 763
Officers on leave, medical advice for (Py Q), 222; from India, medical treatment (Py Q), 269, 900
Olympia Motor Exhibition, 793
Omagh Board of Guardians, disputed appointment, 800, 964
Omnopon-atrinal "Roche," 112
On our defence, 859
Onslow, Hon. H., Origin of Life, work of the late Charlton Bastian, 265, 458
Opening of the winter session, 540
Ophthalmic Hospitals and Ophthalmic Progress in Egypt during 1915–1916. Fourth Annual Report (review), 20
Ophthalmic research, group study in, 654; physicians and the advancement of ophthalmology (Dr. R. D. Batten), 962
Ophthalmological Clinic in Paris, 609
Ophthalmology, Aids to (Dr. N. B. Harman), sixth edition, 1919 (review), 331; Text-book of (Prof. E. Fuchs), sixth edition (review), 436
Ophthalmology, higher qualification in, report, 1046; need for ophthalmic physicians for advancement of, discussion, 1084; physicians in, place of (leading article), 1093
Ophthalmoscope, the, a Manual for Students (Mr. G. Hartridge), sixth edition (review), 110
Opium Convention, International, 1912 (Py Q), 1113
Opium, morphine, and cocaine, use of (Py Q), 269
Optical nerve tumour, 926
Optician and Scientific Instrument Maker (review), 20
Oriental sore, 832
Origin of Life, work of the late Charlton Bastian, 175, 216, 217, 265, 299, 458
Ormsby, Dr. O. S., and Dr. J. H. Mitchell, Practical Medicine Series for 1918 (Skin and Venereal Diseases) (review), 110
Orthopædic Surgery, Treatise on (Dr. R. Whitman), sixth edition, 1919 (review), 19
Orthopædics, Military Physical (Dr. A. S. Herbert) (review), 66; Instrumental (De l'Orthopédie Instrumentale) (Dr. G. Bidou) (review), 251
Osler presentation, 115; "Medical Library," 340
Osmos aperient water, 616
Osteitis fibrosa (Mr. E. G. Slesinger), 867
Osteo-arthritis, familial, 831
Osteomalacia, 759
Osteomata, multiple, of skull bones (Mr. C. N. Slaney), 13
Osteomyelitis, acute vaccine treatment, 842; staphylococcal, acute, treated with vaccines, 1043
Os tibiale sesamoideum, 876
Ostrom, K. W., Massage and the Original Swedish Movements, eighth edition, 1919 (review), 577
Oswald, Miss M. V. O., stammering and voice defects, 355, 551
Otabe, Dr. S., wheat culture-media, 576
Otitis, gonorrhœal, in infants, 885
Otitis media, suppurative, bismuth and iodoform treatment (Dr. F. Stoker), 200; influenzal, 292
Oto-rhino-laryngology, plea for better teaching (Mr. H. Tilley), 1014, 1043
Ott, Dr. L., alcoholic liquors in relation to health, 80
Ounces into grammes, converting, 764
Outdoor employment for tuberculous officers (Py Q), 1053
Output, experiments on, 291
Ovary, carcinoma of (Mr. H. M. Gerson), 1195
Oxford and Cambridge Universities, State aid, 936
Oxford Ophthalmological Congress, 1919, annual meeting, 170
Oxford Roll of Service, 416
Oxford University, pass lists, 38, 219, 1215

P

Paddington Military Hospital (Py Q), 179
Page, Prof. F., obituary, 129
Paget, Mr. S., antivivisection shops, 503; Sir Victor Horsley: A Study of his Life and Work (review), 1088
Pains, myalgic (Dr. J. M. Taylor), 976
Pais, Dr. A., treatment of chronic and quinine-resisting malaria by X rays, 656
Palestine, antimosquito measures in 1917–18, 1032
Palmer, Dr. B. A., death of, 180
Palsy, birth, in a boy, 875
Panel practice and insured persons, 620; system, success of (Py Q), 1113
Panel practitioners, grants to (Py Q), 353, 855; pension scheme for, 998; chemists and Scottish Board of Health, 1100; payments to (Py Q), 1217
Panniculitis, 620
Papilloma, vesical, simulating vesical tuberculosis (Mr. R. Creasy), 482
Papillomatous growth of cæcum, 1172
Paraffin wax, solid, in facial surgery (Mr. S. Mort), 105, 174
Paralysis, chronic progressive, of cranial nuclei, 1036
Paralysis, general, influence of war fatigue on, 250; general, among Jews, 444; agitans (Py Q), 179; infantile, with affection of hip, 876; birth, 940
Paralysis, Werdnig-Hoffmann (Mr. E. A. Barton and Dr. Helen Ingleby), 922
Paramore, Mr. R. H., "gridiron" incision, 1168
Parasitological research at Cambridge, new institute for, 887, 1051
Paratyphoid infections of the pleura (Dr. J. H. Abram and Prof. E. Glynn), 283

PARIS, CORRESPONDENCE FROM.—League against cancer, 80—Medical war benefit; Stereoscopic radioscopy, 81 — Mobilised students and their medical studies, 212—Requisition of civil doctors; Acoustic troubles in musicians, 213—Prevalence of rabies in Paris and in the departments of Seine and Oise; Boric acid in the preservation of food; Æsthetic surgery; Venous tension and varicose veins, 297—Monument to medical men killed during the war; Influence of orientation on the physiology of man and animals, 448—Foreign doctors practising in France, 499—Increase of rabies in France; New chair in the Faculty of Medicine of Paris; Raising of official tariff for doctors and chemists' fees for industrial accidents 591—French Congress of Surgery; Strikes and Hygiene; Natural prophylaxis as regards malaria; Arsenobenzol as abortive treatment of syphilis, 706—Medical treatment for pensioned soldiers and sailors; Reorganisation of the School of the Service de Santé Militaire; Industrial diseases, 801—Incidence of tetanus in 1918; Tumours of the posterior cranial fossa; Extension of the Faculty of Medicine; Closing of the School of Re-education, 941—Milk shortage, 942—Electrocution of a radiographer; Grancher Foundation; Water-diviner; Increase of exophthalmic goitre during the war, 1102
Paris Faculty of Medicine, 990

PARLIAMENTARY INTELLIGENCE.

Notes on Current Topics.

Select Committee on Pensions, 39—Pensions reorganisation, 267 — War Pensions (Administrative Provisions) Bill, 305—Nurses Registration (No. 2) Bill, 949, 1001, 1052—Rats and Mice (Destruction) Bill, 1001

House of Lords.

July 28th.—Ministry of Health, Consultative Councils, 222
Aug 13th.—Closing of Dublin hospitals; War Pensions Bill, 353
Nov. 11th.—Rats and Mice (Destruction) Bill, 949
Dec. 2nd.—Rats and Mice Destruction Bill, 1112
Dec. 10th.—Prevention of venereal disease, 1174—Nurses Registration Bill, 1175
Dec. 18th.—Mental Deficiency (Amendment) Bill, Nurses' Registration (No. 2) Bill, Nurses' Registration (Ireland) Bill, and Nurses Registration (Scotland) Bill, read a third time and passed, 1217

House of Commons.

June 26th.—Ministry of Health appointments; Hospital at Chepstow; National Insurance Bill, 39
June 27th.—Dogs' Protection Bill, third reading negatived, 39—Nurses' Registration Bill, 40
June 30th.—Local Government Board vote, 40—Welsh Board of Health, 41
July 1st.—Disabled men and compulsory insurance, 41
July 2nd.—Treatment of Tuberculous prisoners, 86
July 3rd.—Welsh Board of Health; National Health Insurance Bill, 86
July 4th.—Nurses' Registration Bill; Syphilis treatment, 87
July 8th.—Medical demobilisation, 88
July 9th.—Venereal disease at Hull; Finances of Irish hospitals, 133
July 10th.—Medical treatment of soldiers; Tuberculous ex soldiers, 133
July 11th.—Income limit under the National Insurance Acts, 134
July 14th.—Scottish Board of Health; Tuberculosis treatment; Artificial limbs; Ad hoc dental committee, 134
July 15th.—Public health propaganda, 179
July 16th.—Dental reform, 179
July 17th.—Paddington Military Hospital; Disturbance of military patients; venereal disease, 179
July 21st.—Invalided officer, statement by Pensions Minister, 179
July 22nd.—Case of paralysis agitans; National Health Insurance Bill, 179
July 23rd.—Medical advice for officers on leave; Service disability pensions; Welsh Board of Health, 222
July 24th.—Artificial limbs for officers; Dental Register in Isle of Man, 222
July 28th.—Dental caries in children; Medical benefit under National Insurance, 222—Physical condition of recruits; Vaccination in the Royal Navy; Trade Marks and patent drugs, 223
July 29th.—Medical officers serving in India, 223
July 30th.—Medical treatment for officers from India; Use of opium, morphine, and cocaine; War gratuities for naval nurses, 269
July 31st.—Royal Army Medical Corps appointments, 269
August 4th.—Royal Army Medical Corps in Egypt; Ex-service men and tuberculosis, 269
August 5th.—Treatment of uncertifiable mental cases; State Medical Service, Cholera outbreak in India; Health of troops in India, 269
August 6th.—Hospital arrangements in India, 305—Hospital carriers for Russia; Public health research; Medical arrangements in Russia; Venereal disease; Food for patients in sanatoriums, 306
August 7th.—Filthy streets and the public health; Breaches of discipline at Warlingham Hospital; Nurses at Archangel; Small-pox and the Italian Expeditionary Force; Treatment for neurasthenic patients, 306
August 11th.—Insurance medical benefit; Seale Hayne Hospital victualling, 307
August 12th.—Medical treatment at Ilford and Barking, 307
August 13th.—Medical breakdown in Afghan campaign; Small-pox in the country; Pensions disablement appeal, 352
August 14th.—Isolation of tuberculous patients; Grants to panel practitioners; Medical officers obtained by the War Office; Release of medical officers in the Army, 353

August 18th.—Neurasthenia and shell shock treatment in Ireland; Seale Hayne Hospital; Clothes of asylum patients, 353; Tuberculous ex-service men; Medical inspection of aliens; Expenses of port sanitary authorities: Scottish Board of Health, 354

August 19th.—V.A.D. nurses and gratuity; Patients in military hospitals, 354

Oct. 27th.—Pension appeals; Rats and Mice Bill, 810

Oct. 28th.—British military hospitals at Marseilles; Victory medal for Territorial nurses; Rats and Mice Bill, 811—Maintenance of British hospitals; Whisky for medicinal purposes; Office International d'Hygiène Publique, 854

Oct. 29th.—Medical Boards in Cashmere; R.A.M.C. officers' release; Medical service in Mesopotamia; Pensions appeals; National Insurance return, 854—Prevention of influenza; Special grant to panel practitioners, 855

Oct 30th.—Medical supplies for Petrograd; Gratuity for military masseuses; Quinine supplies and prices, 885

Oct. 31st.—Destruction of rats, 855

Nov. 3rd.—Milk-supplies and public health, 855—Cheaper milk for poor children, 856

Nov. 4th.—Milk for Invalids in France and Belgium, 856—Pay of nurses in Mesopotamia; Pensions appeal tribunals; treatment of syphilis; Export of morphia, 900

Nov. 5th.—Leave for Indian nurses; Wounded officers under treatment; Qualifications of dentists; Training centres for disabled men, 900

Nov. 6th.—Disability awards in terms of money, 900—Standardising of artificial limbs; Permanent disability appeals; Reduction of medical awards; Arrears of pensions appeals; Prisoner certified insane; Nurses' registration, 901

Nov. 12th.—Spirits for influenza; Release of dispensers; Demobilised medical practitioners; Medical officers detained abroad; Medical man's house requisitioned, 949

Nov. 13th.—Mentally deranged soldiers in pauper asylums; Support of the blind in Ireland; Special bedding and clothing of tuberculous cases; Medical referees at Hastings, 950

Nov. 17th.—Demobilised medical officers; Medical service in Mesopotamia, 950

Nov. 18th.—Military hospitals in South Wales, 1001—Medical benefit regulations for Scotland; Spirit restriction removal; Infectious disease in London, 1002

Nov. 19th.—Discontent among medical officers; Control of patent medicines; R.A.M.C. Major's pension; Beckett's Park Hospital, 1002

Nov. 20th.—Convalescent training centres, 1002—Psychotherapy for ex-Service men; Medical treatment of children in Ireland; London Medical Benefit Fund; Maintenance of hospitals; Anti-influenza vaccine; Infectious disease in London; Prices and supplies of quinine, 1003

Nov. 24th.—Law of death certification, 1003—Question of medical evidence; Poor-law nurses and the Registration Bill; Vaccination, 1004

Nov. 25th.—Payment to doctors at V.A.D. hospitals; Houses for nurses in Lewis, 1004

Nov. 26th.—Retention of medical officers in the army; treatment of tuberculous service men, 1052—Nurses' Registration (Ireland) Bill, 1053

Nov 27th.—R.A.M.C. officers and permanent Government appointments; Ministry of Pensions staff; Hospital treatment of disabled men; Irish Health Council; Medical Research Committee; Outdoor employment for tuberculous officers; Mental Deficiency and Lunacy (Amendment) Bill, 1053

Dec. 1st.—Grants to Insurance practitioners, 1053—Mentally deranged soldiers; Pay of the Pensions Medical Staff; Educational grant for demobilised medical officers, 1054

Dec. 2nd.—Medical officer's retention in India; Medical pay in voluntary aid hospitals, 1054

Dec. 3rd.—Replacement of older medical officers; Vitamines in butter and margarine, 1112

Dec. 4th.—Medical Institutions under the Insurance Act, 1112—Amendment of National Health Insurance Act; Vaccination in Ireland; International Opium Convention, 1912; Nurses' Registration (Scotland) Bill, 1113

Dec. 5th.—Mental Deficiency and Lunacy Amendment Bill, 1113

Dec. 8th.—Success of the panel system; Cost of a State Medical Service; Phthisis before and after the war, 1113

Dec. 9th.—Vaccination in Ireland; Divorce and insanity and inebriety; Ministry of Pensions vote; Sanatoriums for tuberculous service men; Nurses' registration, 1113—Medical boards criticised, 1176

Dec. 10th.—New medical benefit regulation; Colonial officers and venereal disease, 1176

Dec. 11th.—Measles notification; State and public hospitals; National League of the Blind, 1176—Prudential benefit claims, 1177

Dec. 15th.—Health Orders in Council; Remuneration of medical officers in V.A.D. hospitals, 1177

Dec. 16th.—Release of medical officers in Egypt; Medical service in the Air Force, 1177

Dec. 17th.—Tuberculosis treatment under Insurance Act, 1217

Dec 18th.—Fees for pension certificates; Payments to panel practitioners; Alleged failure of Insurance Act; Medical service under the Insurance Acts; Diphtheria and scarlet fever in London; Sexual Offences Committee; Venereal disease in Portsmouth and elsewhere, 1217

Parmiter, Dr. B. R., prevention of venereal disease, 1169
Parrel, G. de, Précis d'Anacousie Vocale et de Labiologie (review), 740
Parrott, Dr. H. W., "tuberculous meningitis and lethargic encephalitis," 998
Parsons, Col. J. H., bilateral changes in the macula, 926
Parsons-Smith, Dr. B., dextrocardia, complete and incomplete, 1076
Passing of the Local Government Board (leading article), 21
Pass-lists: Oxford University, 38, 219, 1215—Cambridge University, 759—Durham University, Faculty of Medicine, 38, 84, 809—Glasgow University, 667, 901—Aberdeen University, 130—Royal College of Surgeons of Edinburgh, 38, 130, 759, 809, 1216—Edinburgh University, 180—Royal College of Physicians of Edinburgh, Royal College of Surgeons of Edinburgh and Royal Faculty of Physicians and Surgeons of Glasgow, 130, 809—Examining Board in England by the Royal Colleges of Physicians of London and Surgeons of England, 84, 218, 667, 714—Royal Colleges of Physicians of London and Surgeons of England, 270, 809, 947—Royal College of Surgeons of England, 1000, 1171—Royal College of Surgeons in Ireland, 347—Royal College of Physicians of Ireland and Royal College of Surgeons in Ireland, 347—Manchester University, 84, 130, 667, 1215—Liverpool University, 1215—Bristol University, 130—Dublin University Trinity College School of Physic, 130—Queen's University of Belfast, 131—London University, 180, 219, 305, 999, 1215—Sheffield University, 219—London School of Tropical Medicine, 219—Apothecaries' Society of London, 455, 857—St. Andrews University, 628, 1216
Patella, dislocation of, 1196
Patent medicines, control of (Py Q), 1002; advisory committee on, 1207
Pathognomic sign wanted of early active tuberculosis, 1095
Pathological research fellowship, 886
Pathology, teaching of (Mr. T. T. O'Farrell), 1062
Patients in military hospitals (Py Q), 354
Patterson, Dr. J., muscle training in reclaiming cripples, 225
Patterson, Dr. N., diathermy, 1020
Pay of Territorial Medical Officers, 218; of the Pensions Medical Staff (Py Q), 1054; medical, in voluntary aid hospitals (Py Q), 1054
Payment to doctors at V.A.D. hospitals (Py Q), 1004
Payments to panel practitioners (Py Q), 1217
Peace and famine (leading article), 22
Pearson, Dr. M. G., and Dr. J. Drummond, Fractured Femurs, their Treatment by Calliper Extension (review), 694
Pearson, Dr. S. V., effects of artificial pneumothorax, 148
Peart, Mr. J. F., removal of cervical tumours of the vagina, 1194
Pediatrics, conference on: medical aspect, 259; social aspect, 260
Pellagra among Turkish prisoners of war in Egypt, 490, 979
Pellegrini, Prof. A., technique of kinematic operations, 988
Pelvic colon, carcinoma of (Mr. C. Frankau), 282
Pelvimetry among Filipino women, 988
Pension appeals (Py Q), 810; scheme for panel practitioners, 998; R.A.M.C. major's (Py Q), 1002; certificates, fees for (Py Q), 1217
Pensions Boards, fees for service on, 83; remuneration of medical men serving on, 217; position and payment of, 301, 459, 498, 698, 709; action and scope of, 738
Pensioned soldiers and sailors, medical treatment, 801
Pensioners, tuberculous, treatment of (Py) 86; "border-line," treatment, 459; reclassification and treatment, 785
Pensions, Select Committee on, 39; service disability (Py Q), 222; reorganisation, 267; reorganisation of (leading article), 289; War (Administrative Provisions) Bill, 305, 352; disablement scheme (Py Q), 352; and allowances for disabled men, 493; appeals (Py Q), 854, 900; appeals, arrears of (Py Q), 901; old age, report of committee, 906; war service, and nurses, 956; medical staff, pay of (Py Q), 1054
Pentosuria, 117, 175
People's League of Health, meeting, 894
Percy, Dr. J. F., disseminated heat, 1206
Perera, Mr. J. A. P., congenital multiple sarcomatosis, 14
Perforation of the lung a sequel of perforation of the stomach, 539; of the cæcum by a pin (Dr. J. A. C. Macewen), 785
Perinephric suppuration, epidemic, 35, 83, 1128
Peripheral nerves, degeneration and regeneration in, 115; multiple neuritis (Mr. T. D. Pryce), 1078
Peritoneal echinococcus (Dr. C. Flandin), 838
Peritonitis following non-penetrating wound of abdominal wall (Mr. A. E. Chisholm), 59
Perkins, Dr. J. J., Dr. R. A. Young, and Dr. W. O. Meek, "heteroserotherapy" in pulmonary tuberculosis, 556
Personal explanation (Sir W. P. Herringham), 896
Perthshire unit, 462
Perverted "functional" activity in the production of jaw deformities (Mr. D. M. Shaw), 316
Petrén, Prof. K., primary toxic effect of neosalvarsan, 244
Petrograd, medical supplies for (Py Q), 855
Petty, Dr. M. J., junr., cardiac massage in circulatory failure, 784
Peugniez, M. P., syphilitic recto-vesical fistula, 937
Pfeiffer's bacillus, specific agglutinins for (Dr. W. J. Wilson), 607; (Dr. A. Fleming and Dr. F. J. Clemiinger), 869
Pharmaceutical business, reform of, 1208
Phillips, Sir J., maternal mortality in childbed, 275
Phlegmon of neck (Dr. W. Appleyard), 614
Phthisis before and after the war (Py Q), 1113
Physical condition of recruits (Py Q), 223; fitness, anthropometric index of (leading article), 253; progress of mental retrogression, 463; defects among the general male population (Dr. J. D. Comrie), 957; examination of students in Toronto, 1207
Physician in France (Sir W. Herringham) (review), 1037; in ophthalmology, the place of (leading article), 1093
Physician, the Young (Maj. F. B. Young) (review) 1144
Physics, Manual of (Mr. J. A. Crowther) (review), 931
Physics of the air in relation to health, 1007
Physiological Chemistry, Practical (M. S. W. Cole), fifth edition, 1919 (review), 1144
Physiological drink control, 697
Physiology, State-applied, 25; of man and animals, influence of orientation on, 498
Physiology, Text-book of (Dr. M. Flack and Dr. L. Hill (review), 66; Mammalian (Prof. C. S. Sherrington) (review), 203; Essentials of (Prof. F. A. Bainbridge and Prof. J. A. Menzies), third edition, 1919 (review), 740; General, Introduction to, with Practical Exercises (Prof. W. M. Bayliss) (review), 740; of Muscular Exercise (Prof. F. A. Bainbridge) (review), 981; New and Other Addresses (Dr. J. S. Haldane) (review), 981; Chemical, Essentials of (Dr. W. D. Halliburton), tenth edition, 1919 (review), 1144
Pick, Mr. T. P., obituary, 499
Picken, Dr. R. M. F., expectation of life in pulmonary tuberculosis, 106
Picric-brass preparations in treatment of lupus (Dr. H. A. Ellis), 827, 888
Pierce, Dr. B., psychiatry a hundred years ago, 211
Pilgrimage sanitation, 258
Pinheroin, 932
Pirio, Dr. G. R., study of hyperadrenalism, 513; and Mr. H. T. Gray, congenital hypertrophic stenosis of pylorus, 515
Pituitary, the (Dr. B. Bell) (review) 110
Pituitary tumour treated by operation (Mr. H. L. Whale), 11; gland in epilepsy, 79; tumour, 929; gland, surgery of, discussion, 1079
Plague at Liverpool and Avonmouth, 210, 257; and influenza in India, 506, 623; on a troopship, 760; in the Port of London, 810
Plague, cholera, small-pox, hookworm, 32
Plastic operation, result of, 926
Playfair, Dr. E., unusual cause of death under anæsthetic, 1079
Pleura, paratyphoid infections of (Dr. J. H. Abram and Prof. E. Glynn), 283
Pneumameter, the, 272

Pneumokoniosis in man and horse (Mr. W. C. Rivers), 55
Pneumonia, gonococcus, 256; influenzal, stomach and bowel atony in (Dr. N. Bradly), 434; and broncho-pneumonia treated with army vaccine (Dr. J. Black-Milne and Dr. K. Rogers), 731; lobar, inoculation against (leading article), 983
Pneumothorax, artificial, effects of (Dr. S. V. Pearson), 148
Poland, report of Inter-Allied Medical Commission, 748
Poor-law medical institutions and lay superintendence, 292; nurses and the Registration Bill (Py Q), 1004
Population, a sample of (leading article), 984, 1106
Porteous, Dr. A. B., and Mr. A. Fleming, streptococcal infections of septic wounds, 49
Porter, Dr. F., National Health Insurance and the Medical Guild, 174
Porter, Maj. F. J. W., quinine as a prophylactic in malaria, 175
Portrait, Sir Clifford Allbutt's, 75, 82
Portraits of Andreas Vesalius, 999
Portsmouth and South Hants Eye and Ear Hospital, meeting, 186
Portsmouth Royal Hospital, meeting, 668; financial appeal, 1134
Posology of emetine, 537
Post-graduate and other meetings in Manchester, 980
Post-graduate medical teaching in Glasgow, 220; study in French, opportunity at Laval, 549; education, scope of, 745
Post-mortem activity of the liver after diabetic coma, 806
Post Office, contract practice, 594
Potassium iodide, acute œdema of face due to, 217
Potts, Dr. W. A., psychotherapy in ordinary practice, 1123
Potts, Mr. G., keratitis, 1084
Poverty in relation to pulmonary tuberculosis, 813
Powell, Prof. A., bodo-like flagellate in urinary tract, 875
Power, Sir D'Arcy, prognosis in surgery, 861
Poynton, Dr. F. J., medical pioneer aeronauts, 43
Practical Medicine Series for 1918 (Skin and Venereal Diseases) (Dr. O. S. Ormsby and Dr. J. H. Mitchell) (review), 110; Obstetrics (Prof. E. H. Tweedy and Dr. G. T. Wrench), fourth edition, 1919 (review), 483; Sanitation (Dr. G. Reid), nineteenth edition, 1919 (review) 1089; Physiological Chemistry (Dr. S. W. Cole), fifth edition, 1919 (review), 1144
Practical midwifery (teaching of (leading article), 1092
Practitioner, general, position of, 894
Practitioner's Manual of Venereal Diseases, with Modern Methods of Diagnosis and Treatment (Dr. A. C. Magian) (review), 982
Pregnancy and childbirth among Siberian aborigines, 310; and influenza, 699; indirect traumatic rupture of uterus during, 735; cornual ruptured, 1036
Prendeville, Dr. A. de, Anæsthesia and the Nurse's Duties (review), 647
Prescription, a fifteenth century, 954
Prescriptions and profiteering, 943
Presentations and testimonials: Dr. M. Grabham, 82; Dr. N. O'Dell Burns, 166; Dr. W. R. N. Cole, 166; Dr. F. Hichens, 455; Mr. E. J. Domville, 455, 549; Dr. H. J. Alford, 761; Mr. D. H. Forty, 761; Dr. F. M. Blumer, 943; Dr. G. P. Bate, 1000; Dr. R. Rannie and Mrs. Rannie, 1100; Mr. H. C. Nance, 1172
Prest, Dr. E. E., sanatorium treatment and military service, 240
Preventable disease (Prof. W. J. Simpson), 819; a correction, 899
Preventive medicine, practice of (leading article), 695
Priestley, Dr. A. H., and Dr. H. B. F. Dixon, complement-fixation test in gonococcal infections, 964
Prince of Wales Hospital, Cardiff, 1216
Pring, Mr. C. H., a disclaimer, 899
Pringle, Dr. E. G., and Dr. H. H. Tooth, jaundice among the British troops in Northern Italy, 144; addendum, 248
Prisoner of war, psychological study of, 90; certified as insane (Py Q), 901
Pritchard, Dr. E., (1) purpura, (2) liver abscess with septic umbilical vein, 64; and Dr. W. T. Hillier, (1) punctate ulceration of stomach in infants, (2) hypertrophic pyloric stenosis, 1085
Professional secrecy in the eye of the law, 31, 34, 175; military and civil aspect, an international contrast, 171; secrecy and the medical officer of health, 624
Profiteering Act, 1919, 701; and medical fees, 992, 1058
Prognosis in surgery (Sir D'Arcy Power), 861
Progressive move, 538
Proof of paternity, 31
Prophylactic quinine in malaria, 175, 431, 547
Prophylaxis, natural, as regards malaria, 706
Prostitutes, mental deficiency in, 443
Protest, a, 756
Prudential benefit claims (Py Q), 1177
Pryce, Mr. T. D., peripheral multiple neuritis, 1078
Pryor, Dr. J. C., Naval Hygiene (review), 832
Pseudo-paratyphoid carrier (Dr. R. C. Watts), 1029
Psoriasis, traumatic, 208
Psychiatric clinic for Cardiff, 201; clinics (leading article), 205
Psychiatry a hundred years ago (Dr. B. Pierce), 211; in Cardiff, clinic in, 1112
Psychiatry, marking time in (leading article), 535; schools of, need for, 938; need for schools (Dr. C. H. Bond), 1035, 1036, 1167
Psycho-Analysis and its Place in Life (Miss M. K. Bradby) (review), 531; Analysis, What is? (Dr. I. H. Coriat) (review), 532
Psychogenesis of mental disease (Prof. Jung), 109
Psychological study of the prisoner of war, 90; medicine and clinical research, coördination of, 264
Psychotherapy, debate on, 1100; in ordinary practice (Dr. W. A. Potts), 1123
Psychotherapy for ex-Service men (Py Q), 1003
Ptosis, heredity, and mendelism in, 258
Public Health Act, new, dangers of, 342
Public health, annual reports of medical officers of health, 849, 895
Public Health Congress at Brussels, 1158
Public Health, English, Story of (Sir M. Morris) (review), 202; and Food (Dr. W. G. Savage) (review), 202; and Housing (Dr. J. Robertson) (review), 202
Public Health propaganda (Py Q), 179; Act in South Africa, conscience clause abolished, 257, 987; research (Py Q), 306; and filthy streets (Py Q), 306; welfare in Alberta, 544; health and welfare work, international standards (Dr. W. C. White), 719; veterinary sanitary service in relation to, 747; health and hospital work in India in 1918, 905, 954; health at Shanghai in 1918, 956; health at Hong-Kong in 1918, 956, 1115; health at Cayman Islands (Jamaica) in 1918, 1003; Health Council for the Union of South Africa, appointments, 1044; in Egypt, 1917, 1115; in New South Wales, 1179; in Somaliland, 1180; in Cairo, 1219; in Ceylon, 1219
Public health (Pneumonia, Malaria, Dysentery, &c.) Regulations (Scotland), 1919, 543
Public health, report of the London County Council medical officer of health and school medical officer for the year 1918, 544
Public Health, Royal Institute of, London conference (see Medical Societies)
Public-house reform, 589
Public Medical Service, experiment in (leading article), 649
Puerperal sepsis and labour, conduct of (Dr. J. H. E. Brock), 277, 350, 456
Pugh, Dr. W. T. G., traumatic myositis ossificans, 1139
Pulmonary tuberculosis, expectation of life in (Dr. R. M. F. Picken), 106; tuberculosis, "heteroserotherapy" in (Dr. J. J. Perkins, Dr. R. A. Young, and Dr. W. O. Meek), 556; mortality after sanatorium treatment, 803; poverty in relation to, 813; œdema, acute (Dr. G. J. Branson), 1078, 1214
Punctate ulceration of stomach in infants, 1085
Purefoy, Dr. R. D., obituary, 81
Purpura, 64; hæmorrhagica due to neosalvarsan, 794
Pylorus, congenital hypertrophic stenosis of, diagnosis and treatment (Mr. H. T. Gray and Dr. G. R. Pirie), 515, 1085
Pyogenic infection, epidemiology of (leading article), 70
Pyrexia, periodic lymphadenoma with (Dr. A. Abrahams), 424

Q

Quadruplets, survival of, 1097, 1170
Quarterly Journal of Experimental Physiology (review), 203, 1090
Quarterly Journal of Medicine (review), 68
Queen's University of Belfast, pass lists, 131; appointments, 180; Service club, dinner, 948; students at, 1102; meeting of Senate, 1165
Quinine as a prophylactic in malaria, 175, 431, 547; supplies and prices (Py Q), 855, 1003
Quinsy, origin of, 997

R

Rabid ignorance, 75
Rabies, prevalence in Paris, and departments of the Seine and Oise, 297; increase in France, 591
Racial pathology, an experiment in, Christmas in Vienna (leading article), 1153
Radiograms, a gallery of, 985
Radiography, Chest, at a Casualty Clearing Station (Dr. E. L. Rea) (review), 833
Radiological examination of pseudarthroses before and after operations of bony grafts (Prof. P. Aubourg), 332
Radiologist, perils of, 1156
Radiology and electrology, ideals in (Dr. A. E. Barclay), 720; in medicine, position of, 744, 853; and radium therapy, 814
Radium treatment in Ireland, 888
Rae, Dr. S. S., ætiology of influenza, 998
Rageot, Prof. G., depopulation, 26
Ramsbottom, Mr. J., ætiology of influenza, 457
Ranner, Mr. S. C., to King's College Hospital medical students, 860
Ransom, Mr. F., iodides and the thyroid, 433
Ranyard nurses, the, 464
Rats and Mice Bill, 810, 811, 949, 1001, 1112; destruction of (Py Q), 855
Rayleigh, Lord, death of, 27
Raynaud's disease, 878
Rea, Dr. E. L., Chest Radiography at a Casualty Clearing Station (review), 833
Reaction of culture-media, 792
Reconstruction Therapy (Dr. W. R. Dunton, jun.) (review), 931
Recruits, physical condition (Py Q), 223; genital defects in, 621
Rectum, carcinoma of (Mr. I. Back), 421
Red Cross, past and future, 619; in Norfolk, 810; ambulances, civil use of, 889
Red Cross supplies for the Afghan campaign, 32; in India, 126; Devon, voluntary aid organisation, 180; Societies, League of, and international health, 293, 347; work for the Afghan war, 298; auxiliary hospitals, annual report, 473; British, appreciation by the War Office, 549
Redruth Miners' and Women's Hospital, extension, 1172
Regan, Dr. J. C., and Dr. Catherine Regan, treatment of anthrax by local injection of serum, 119
Regional Surgery, Treatise on (Mr. J. F. Binnie) (review), 880
Registrar-General's decennial supplement (1901–1910), 295, 343
Registration Bill and Poor-law nurses (Py Q), 1004
Registration, medical, in India, work of the Bombay Medical Council, 994
Reid, Dr. G., Practical Sanitation, nineteenth edition, 1919 (review), 1089
Reid, Sir G. A., prevention of venereal disease, 944, 1108
Remuneration of medical men serving on pension boards, 217; of medical officers in V.A.D. hospitals (Py Q), 1177
Renal dwarfism, 1111
Renton, Dr. J. C., obituary, 851
Replacement of older medical officers (Py Q), 1112
Research Defence Society, meeting, 39; Committee, Medical (Py Q), 1053
Research work, need for a permanent endowment, 15
Resection of ankylosed fingers, 257
Resuscitation, cardiac massage as a means of (Mr. L. E. C. Norbury), 601
Retroversion of the gravid uterus (Dr. R. B. Eccles), 530
Reunion dinner in Nottingham, 949
Review of the Foreign Press (review), 1198
Reynolds, Dr. W. E., nurse anæsthetists, 624
Rheumatism, neuritis, and arthritis, vaccine treatment (Dr. H. W. Crowe), 637; and chorea, relations between (Dr. H. L. Cronk), 646
Rheumatoid arthritis of the spine, 552 arthritis, 878
Rib, cervical, 978
Ricca, Prof. S., Forme Inibitorie di Guerra e Isterismo (review), 616
Rickets and the mandible, 701
Rieger, Dr. J. B., purpura hæmorrhagica due to neosalvarsan, 794
Ritter v. Godfrey, 1163
Rivers, Mr. T. M., erosion of the great vessels of the neck in scarlatinal abscess, 439
Rivers, Mr. W. C., pneumokoniosis in man and horse, 55
Riviere, Dr. C., Early Diagnosis of Tubercle, second edition, 1919 (review), 157
Roberts, Dr. J. B., War Surgery of the Face (review), 1089
Roberts, Dr. J. E. H., "gridiron" incision, 1169
Robertson, Dr. G. M., psychotherapy, discussion, 1100
Robertson, Dr. J., Housing and Public Health (review), 202
Robin Society, provision of free meals, 1058
Robinson, Dr. D. G., rôle of the cinematograph in the teaching of obstetrics, 876
Robinson, Mr. W., cryptopodia—diffuse fibromata of the feet, 502
Robson, Dr. F. W. H., a new aspirator, 834
Rodent menace, 536
Rodents, *B. Danysz* infections in (Dr. W. W. C. Topley), 45

Roentgenotherapy (Dr. A. F. Tyler) (review), 788
Rogers, Dr. K., and Dr. J. Black-Milne, influenzal broncho-pneumonia and pneumonia treated with mixed army vaccine, 731
Rogers, Sir L., preliminary report of the intravenous injection of antimony in filariasis, 604; Fevers in the Tropics, third edition, 1919 (review), 931
Romanis, Dr. W. H. C., unusual cases of intestinal obstruction, 481
Röntgen Society, election of officers, 596
Ross, Dr. M., gonococcus pneumonia, 256
Ross, J. S., and T. D. Luke, Anæsthesia in Dental Surgery, fourth edition, 1919 (review), 880; teaching of anæsthetics, 1142
Rotation, artificial, in persistent occipito-posterior positions, 1172
Roth, Mr. P. B., apophysitis of os calcis, 64; congenital and paralytic scoliosis, 691; Duputyren's contracture, 1140
Rous, Dr. P., instability of red blood cells, 1106
Rowden, Dr. L. A., treatment of hyperthyrodism by radiations, 832
Rowlands, Mr. R. P., cirsoid aneurysm, 1196
Royal Army Medical Corps, casualties, 132; honours, 132; temporary officers, 85; auxiliary funds, 133; Auxiliary Fund, meeting, 834; appointments (Py Q), 269; in Egypt (Py Q), 269; officers for the new contract, 488; (leading article), 583; new rates of pay for temporary commissions in, 625; Journal, 851; officer's release (Py Q), 854; major's pension (Py Q), 1002; officers and permanent Government appointments (Py Q), 1053; new scale of pay, 1202, 1209
Royal College of Physicians of Edinburgh, meeting, 347, 1000, 1171
Royal College of Physicians of Edinburgh, Royal College of Surgeons of Edinburgh, and Royal Faculty of Physicians and Surgeons of Glasgow, pass-lists, 130, 809
Royal College of Surgeons of Edinburgh, pass-lists, 38, 130, 759, 809, 1216; meeting, 753
Royal Colleges of Physicians of London and Surgeons of England, pass-lists, 270, 809, 947; and the naval and military forces of the Empire, 799
Royal College of Physicians of London, comitia, 180, 262, 834
Royal College of Surgeons of England, election of Fellows, 84; meeting, 130, 218, 707, 949; annual meeting, 1047; museum, 699; Thomas Vicary lecture, 755; Society of Members of, 946; pass-lists, 1000, 1171
Royal College of Physicians of Ireland and Royal College of Surgeons in Ireland, pass-lists, 347
Royal College of Surgeons in Ireland, pass-lists, 347; meeting, 1101
Royal College of Physicians of Ireland, meeting, 800; election of officers, 809
Royal Dental Hospital of London, dinner, 996
Royal Institute of Public Health, London conference (see Medical Societies)
Royal Institution, meeting, 827; lecture arrangements, 1041
Royal Medical Benevolent Fund, meeting, 131, 347, 760, 948, 1174; War Emergency Fund, 452; an appeal, 1111
Royal Society of Arts, awards, 38
Royal Society of Medicine, a war section, 270; (see also Medical Societies)
Royal Surgical Aid Society, an appeal, 1111
Rupture, traumatic, of intestine (Mr. W. H. Battle), 103, 746; (Mr. E. G. Stanley), 726; traumatic, indirect, of uterus during pregnancy, 735; of intestine without external injury (Mr. Ll. Lindop), 871
Russ, Dr. C., ionisation for sepsis, 709
Russia, hospital carriers for (Py Q), 306; medical arrangements in (Py Q), 306
Ruxton, Dr. H. W. B., medical men as "commercial users," 718

S

Sabouraud, R., contagiousness of favus in man, 581
Sacculated anenrysm of abdominal aorta (Dr. H. A. Haig), 645
Sachs, Mr. E. O., death of, 546
St. Andrews University, appointment of Dr. J. F. Gemmill to chair of natural history in University College, Dundee, 590; pass-lists, 628, 1216
St. Bartholomew's Hospital and College, Scholarship awards, 628; People's Peace Year Commemoration Fund, 760; Dr. H. B. Spilsbury appointed lecturer on morbid anatomy and histology at medical school, 990
St. Dunstan's Hospital, 1180
St. George's Hospital Medical School (London University), dinner, 1052
St. John of Jerusalem, Order of, appointments, 136, 301, 1133; appreciation of the War Office, 549; Welsh Priory of, 1087
St. Luke, Style and Literary Method of (Prof. H. J. Cadbury) (review), 647; was he a physician? 709
St. Mary's Hospital Medical Society, address by Sir A. C. Doyle, 1111
St. Thomas's Hospital, scholarship awards, 342, 902
Salaries, Government, 210
Salvarsan, silver, in syphilitic disease of the nervous system, 939; fatalities following, 1158
Samuel, Dr. S., genesis of carcinoma cervicis, 852
Sanatogen chocolate, 616
Sanatorium treatment and military service (Dr. E. E. Prest), 240
Sanatoriums, food for patients in (Py Q), 306; for tuberculous service men, 1113
Sandilands, Dr. J. E., prophylactic quinine in malaria, 547; appointed health officer to the City of Bombay, 812
Sanitary engineering in connexion with the housing problem (Mr. A. P. I. Cotterell), 1006
Sanitary organisation in India, beginnings and progress (Prof. W. J. Simpson), 821
Sanitation, Field Lectures on (C. B. Moss-Blundell) (review), 438; Practical (Dr. G. Reid) nineteenth edition, 1919 (review), 1089
Sanitation, pilgrimage, 298
Sarcomatosis, multiple, congenital (Mr. J. A. P. Perera), 14
Sargent, Mr. P., some lessons of the war applied to spinal surgery, 926; surgery of the pituitary gland, 1079
Saunders, Dr. E. A., rheumatoid arthritis, 878
Saunders, Mr. M. J., and Dr. M. H. Smith, influenza epidemic as it affected Portland Prison and quarters, 975
Savage, Dr. W. G., Food and Public Health (review), 202
Savill memorial lecture on mental personality (Dr. H. Campbell), 1181
Scaphoid disease, isolated, 1086
Scarlet fever outbreak in Belfast, 591, 800, 893
Scarlatinal abscess, erosion of the great vessels of the neck in, 489, 547
Scharlieb, Dr. Mary, Welfare of the Expectant Mother (review), 202
Scholarships, medical, for the wage-earner, 850
School child, health of, 1095
School medical inspection, 1918: Birmingham, Bristol, Hull, Liverpool, Nottingham, Sheffield, 541; its origin and growth, 906
School of the Service de Santé Militaire reorganisation, 801
Sciatica, treatment (Mr. J. J. Grace), 245; unilateral sensory changes in, 656
Science and unrest (leading article), 205; in a new republic, 764
Science as made in Germany, 258
Sclerodermia with calcification in a Mongol, 63
Scoliosis, congenital and paralytic, 691; of uncertain origin, 1140

Scotland, Correspondence from.—Public Health (Pneumonia, Malaria, Dysentery, &c.) Regulations (Scotland), 1919; Organised health in Edinburgh; Edinburgh Royal Infirmary, retirement of Prof. W. Russell and Dr. G. Brown; Criminal or spontaneous abortion? 543—Death of Prof. Trail of Aberdeen University; St. Andrew's University, chair of natural history; Election of direct representatives for Scotland to the General Medical Council, 590, 799—University of Edinburgh, induction of professors; Scottish vital statistics, 1917; Election of direct representative for Scotland to the General Medical Council, 662, 754—General Medical Council election, candidature of Dr. M. Dewar; Scottish mortality from influenza, 1918–19; University of Aberdeen, opening of medical classes, 705—Scottish Board of Health, establishment of consultative councils; Royal College of Surgeons of Edinburgh; Scottish Universities, opening of the winter session, 753—Bequest by the late Prof. Trail to Aberdeen University library, 754—Royal College of Surgeons of Edinburgh and the naval and military forces of the Empire; Inaugural lectures of new professors at Edinburgh; Glasgow University, 799—Royal Maternity Hospital, Edinburgh; Aberdeen University Council, election of assessors; War memorial scheme; Bequests to Aberdeen medical charities, 800—Scottish Board of Health and panel chemists; Presentation to a Scottish medical man; Medico-Chirurgical Society of Edinburgh, debate on psychotherapy, 1100—Glasgow Medico-Chirurgical Society, detail in abdominal operations, 1101

Scotland, medical benefit regulations for (Py Q), 1002
Scott, Dr. A., obituary, 81
Scott, Dr. J. M., diurnal variation in body-weight in tuberculous patients, 639
Scott, Mr. T. B., Modern Medicine and Some Modern Remedies, second edition, 1919 (review), 203; the late Sir T. L. Brunton, 999
Scottish Board of Health (Py Q), 134, 354, 753; and panel chemists, 1100; Poor-law medical officers, superannuation of, 176; mortality from influenza, 1918–19, 705; Universities, opening of the winter session, 753; Midwives' Association, meeting, 962
Scottish Society of Anæsthetists (see Medical Societies)
Scrotal varicocele, modified operation (Dr. S. R. Meaker), 973
Scrubbing brush, the cult of, 814, 860
Scurfield, Dr. H., Infant and Young Child Welfare (review), 202
Scurvy, hair follicles of, hyperkeratosis in (Dr. H. Wiltshire), 564; and beri-beri in Mesopotamia, 979
Seale Hayne Hospital, victualling, 307; (Py Q), 353
Sea-sickness, 700
Secondary echinococcus (Prof. F. Dévé), 835
Secondary deposits in bone mistaken for primary tumours, 924
Sedimentation of tubercle bacilli in sputum (Dr. J. G. Greenfield and Mr. J. Anderson), 423
Segmental hyperalgesia in malaria (Dr. D. W. C. Jones), 283
Sense of stability and balance in the air (leading article), 71
Sepsis, puerperal, and labour, conduct of (Dr. J. H. E. Brock), 277, 350, 456
Septic wounds, streptococcal infections of (Mr. A. Fleming and Dr. A. Porteous), 49; meningitis, acute, of otitic origin (Dr. J. A. Jones), 59; wounds, treatment by ionisation (Dr. F. W. B. Young), 529, 625, 709
Serological differences between the blood of different races (Dr. L. Hirschfeld and Dr. H. Hirschfeld), 675; (leading article), 696
Serum treatment of bacillary dysentery (Dr. B. G. Klein), 775, 794; (Dr. W. E. Waller), 778, 794; antistreptococcus, in influenza (Dr. W. Hughes), 782
Service disability pensions (Py Q), 222
Services, deaths in: Surg.-Com. F. Fedarb, R.N., 34; Col. J. Gould, I.M.S., C.B.E., 133; Capt. T. G. Whyte, F.R.C.S. Irel., D.P.H., R.A.M.C., 263; Fleet-Surg. G. Hewlett, R.N., 546; Surg.-Gen. C. James, R.N., 758
Services, naval and military medical, 33, 85, 132, 176, 220, 263, 302, 346, 453, 503, 545, 596, 627, 667, 711, 757, 805, 850, 902, 950, 996, 1054, 1104, 1165, 1209; Indian Medical, 86, 133, 178, 305, 346, 453, 504, 546, 714, 757, 805, 851, 902, 951, 1105, 1167
Seton, Dr. W., William Howard Lister (review), 286
Seventy years young (leading article), 23
Sevestre, Dr. R., empyema, 1059
Sex and Heredity, lectures delivered in Glasgow, 1917–18 (review), 437
Sexual decorum, current, 463; Offences Committee (Py Q), 1217
Shakespeare, miscegenation of, 600
Sharman, Dr. H., National Health Insurance and the Medical Guild, 216
Shattock, Prof. S. G., and others, malformation of the human stapes, 1031
Shaw, Dr. H. B., extreme œsophagectasia, 923
Shaw, Dr. L. E., the pensions problem, 264
Shaw, Dr. D. M., perverted "functional" activity in production of jaw deformities, 316
Shaw-Mackenzie, Dr. J. A., mechanism of immunisation, 825
Shearer, Mr. D. F., a sample of the population, 1106
Sheen, Col. A. W., India during the war, 273
Sheffield Medico-Chirurgical Society (see Medical Societies)
Sheffield University, pass-lists, 219; report, 1051; clinical demonstrations, 1216
Sheffield, voluntary hospitals in, 1051
Shell Shock and War Neuroses (Sir F. W. Mott) (review), 531; Shock, Commotional and Emotional (Prof. A. Léri) (review), 532
Shell shock, commotional factor in ætiology (Dr. A. Carver), 193, 207; in fishes, 266
Shell Shock, Psychoses of the war, including Neurasthenia and (Lieut.-Col. H. C. Marr) (review), 531
Shera, Dr. A. G., methods of choice in immunity, 909
Sherrington, Prof. C. S., Mammalian Physiology (review), 203
Shipway, Dr. F. E., intratracheal sufflation of ether in operations which involve bleeding into the air-passages, 1030
Shock, Shell, and War Neuroses (Sir F. W. Mott) (review), 531; Shell, Psychoses of the War, including Neurasthenia and (Lieut.-Col. H. C. Marr) (review), 531; Shell, Commotional and Emotional (Prof. A. Léri) (review), 532
Shock, surgical, initiation of wound shock and its relation to (Mr. E. M. Cowell), 137; wound, study of (leading article), 159; wound, story of (leading article), 1153; shell, commotional factor in ætiology (Dr. A. Carver), 193, 207; shell, in fishes, 266

Shock alkalinity of blood in, increase of (Dr. B. Moore), 473; and hæmorrhage, recent work on, 878
Shorter working day (leading article), 534
Shoulder-joint, dislocation of, 940
Sibley, Dr. W. K., pension scheme for panel practitioners, 998
Silk, Dr. J. F. W., nurse anæsthetists, 807
Silver salvarsan in syphilitic disease of the nervous system, 939
Simon, Prof. C. E., Human Infection Carriers (review), 483
Simpson, Dr. K., environmental factor in the causation of beri-beri, 1027
Simpson, Prof. W. J., preventable disease, 819; a correction, 899
Simulation among prisoners of war, 1201
Skaife, Mr. F., obituary, 1215
Skin, diseases of, treatment (Dr. R. Knox), 184
Skin-grafts, immunised (Dr. A. L. Yates), 324
Skull, an achondroplasic (Dr. J. Elliott), 1098; corrigendum, 1170
Slaney, Mr. C. N., multiple osteomata of skull bones, 13
Slattery, Mr. R. V., vaselined linen thread, 710
Sleeping cap, 718; attacks, hysterical (Dr. Hildred Carlill), 1128
Slesinger, Mr. E. G., osteitis fibrosa, 867
Slorach, Dr. C. C., death of, 504
Slum clearance, difficulties in, 1096
Small holdings and the returned soldier, 272
Small-pox and the Italian Expeditionary Force (Py Q), 306; on the continent (leading article), 337; in the country (Py Q), 352; in Ootacamund, 801; in Cheshire, 1111; in Toronto, 1207
Small-pox simulating acute appendicitis (Dr. J. K. Haworth), 201; notes for practitioners (Mr. W. McC. Wanklyn), 284
Smart, Mr. W. A. M., and Dr. J. McIntosh, adjustment of the reaction of bacteriological media, 723, 792
Smith, Dr. H. A., labour in a primipara obstructed by a fibro-vascular septum or band, 924
Smith, Dr. M. H., and Mr. M. J. Saunders, influenza epidemic as it affected Portland Prison and quarters, 975
Smith, Mr. R. E., intracranial lesions, 196
Smith, Mr. W. F., death of, 1173
Smith's visiting lists, 1280
Snake-bite, curious case, 32
Snell, Mr. E., death of, 710
Société de Biologie (see Medical Societies)
Society for Relief of Widows and Orphans of Medical Men, meeting, 85
Society for the Prevention of Venereal Disease, 997
Society for the Study of Inebriety, conference, 596
Society of Medical Officers of Health, dinner, 760
Society of Tropical Medicine and Hygiene (see Medical Societies)
Soft chancre, treatment, 746
Soldier's life in India, 298
Soldiers, medical treatment of (Py Q), 133
Soltau, Dr. H. K. V., ankylostoma duodenale, 690
Sonntag, Dr. C. F., rules for the prescribing of baths, 669
Soper, Mr. G. M., death of, 948

SOUTH AFRICA, CORRESPONDENCE FROM.—Mild recrudescence of influenza; A stricken transport; Tribute to a lady doctor at Capetown, 449—Medical school in Johannesburg; Free medical aid to dependents of soldiers; Influenza in South Africa, 848

South African Medical School, new, 1097
South London Hospital for Women, anniversary of opening, 131
Spain, medical matters in, 448
Spanish influenza, compulsory inoculation against (Surg.-Lieut. F. T. Grey), 479
"Spanish influenza" (Dr. A. Edington), 730
Specimen case-papers, 672
Spectacles, failure to provide, treated as parental neglect, 1058
Spencer, Dr. H., inversion of uterus, 877
Spencer, Dr. H. R., survival of quadruplets, 1170
Spermatozoa, human, duplication in (Mr. S. R. Tattersall), 201, 266
Sphenoidal sinus empyema and epidemic cerebro-spinal fever, relationship between, 874
Spielmann, Mr. M. H., portraits of Andreas Vesalius, 999
Spilsbury, Dr. B. H., appointed lecturer on morbid anatomy and histology at Medical School of St. Bartholomew's Hospital, 990; abdominal viscera of an infant, 1140
Spinal surgery, some lessons of the war applied to, 926
Spine, rheumatoid arthritis of, 552
Spirit restrictions removed (Py Q), 1002
Spirits for influenza (Py Q), 949, 998
Spiritualism, 672
Spirochætosis, ictero-hæmorrhagic (Marcel Garnier), 1145, 1155
Splenic abscess with enteric fever (Dr. J. K. Haworth), 923; anæmia, 929
Spontaneous fracture in serving soldiers (Mr. C. Noon), 326
Sporulation of syphilis organism as seen on the dark ground (Dr. C. Lundie and Dr. F. H. Goss), 1025
Spriggs, Dr. N. I., nerve transplantation, 434
Spurrell, the late Capt. H. G. F., the aerial combatant, 599, 629
Sputum, tubercle bacilli in, sedimentation of (Dr. J. G. Greenfield and Mr. J. Anderson), 423
Squire, Sir P. W., death of, 594
Stability and balance in the air, sense of (leading article), 71
Stadium (review), 112
Staining of tubercle bacilli, 938
Stammering and voice defects (Miss M. V. O. Oswald), 355, 463, 551
Stanley, Mr. E. G., traumatic rupture of intestine, 726
Stapes, human, malformation of, 1031
Staphylococcal osteomyelitis, acute, treated with vaccines, 1043
State aid to Universities of Oxford and Cambridge, 936
State-applied physiology, 25
State Medical Service (Py Q), 269; cost of (Py Q), 1113; (Mr. J. N. Glaister), 751
State scientific and industrial research, medical aspects of, 488
State, the, in relation to chronic diseases, 955; and public hospitals (Py Q), 1176
Statistics, national, position of, 129
Statistics, Theory of, Introduction to (Mr. G. U. Yule) (review), 694
Status lymphaticus, death from, 301
Stenosis, hypertrophic, of pylorus, congenital, diagnosis and treatment (Mr. H. T. Gray and Dr. G. R. Pirie), 515, 1085
Stereoscopic radioscopy, 81
Sterility in Women (Dr. A. E. Giles) (review), 694
Sterno-mastoid tumour, 1139
Steven, Dr. G. H., Dr. D. Embleton, and Dr. W. S. Bryant, studies of meningococcus carriers, 679
Stevenson, Dr. W. C., radium treatment in Ireland, 888
Stewart, Sir J. P., and Dr. A. Evans, Nerve Injuries and their Treatment, second edition, 1919 (review), 19
Stiell, Dr. W. F., spontaneous cure of strangulated inguinal hernia, 530
Stiff and flail joints, 1205
Sting of the bee and wasp, 445
Stoddart, Dr. W. H. B., Mind and its Disorders, third edition, 1919 (review), 1143
Stoker, Mr. F., use of bismuth and iodoform in treatment of chronic suppurative otitis media, 200
Stomach and bowel atony in influenzal pneumonia (Dr. N. Bradly), 434
Stomach, punctate ulceration of, in infants, 1085
Stomatitis, acute septic, treatment with flavine (Mr. H. W. Turner), 200; epidemic, 987
Stormont, Miss Mary E. B., Manual of Lip-reading (review), 67
"Straight talk to a cold," 1280
Strangeways, Mr. T. S. P., cryptopodia, 458
Strasbourg, Medical School of, 1042
Streptococcal infections of septic wounds (Mr. A. Fleming and Dr. A. B. Porteous), 49
"Strike, but Hear Us" (leading article), 617; end of, 652
Strikes and hygiene, 706
Student's Guide (Session 1919–1920), 357
Students' Number, the, 445
Students, mobilised, and medical studies, 212
Style and Literary Method of Luke (Prof. H. J. Cadbury) (review), 647
Subcutaneous injection, vaccination by (Dr. J. R. Goodall), 285
Subitol, 616
Sugar, extra ration for one-year-olds, 1058
Sugar in urine, mycological methods of detecting, 718
Suicide, inquests in cases of, reports of, 630
Superannuation of Scottish Poor-law medical officers, 176
Superol, 112
Suppuration, antral, treatment (Mr. S. Hastings), 960, 1107
Suppuration, perinephric, epidemic, 35, 83, 128; aural, in early childhood (Mr. D. Guthrie), 429
Surface marking, a new, 814
Surgeon and his family, 552
Surgery, Essentials of (Dr. A. L. McDonald) (review), 577; for Dental Students (Mr. G. P. Mills and Mr. H. Humphreys), second edition, 1919 (review), 879; Regional, Treatise on (Mr. J. F. Binnie) (review), 880; of the Lungs and Pleura (Dr. H. M. Davies) (review), 981; of Egypt (Prof. F. C. Madden) (review), 982; General (Prof. A. J. Ochsner) (review), 1089; Groundwork of (Mr. A. Cooke) (review), 1143; Minor, and Bandaging (Mr. G. Williams) (review), 1143
Surgery, prognosis in (Sir D'Arcy Power), 861
Surgical tradition, the (Sir J. Tweedy), 1009
Sutherland, Dr. H., picric brass in treatment of lupus, 888
Sutherland, Dr. S., baths of Old London, 89, 135, 181
Suture of median and ulnar nerves in forearm, 1139
Sweating, unilateral, of face, 1196

SWITZERLAND, CORRESPONDENCE FROM.—Position of the general practitioner, 894

Sydenham and St. Alban's Medical Dining Clubs, meeting, 704
Symonds, Sir C. J., prevention of venereal disease, 1048
Synovitis, chronic, in both knee-joints, 876
Synthetic drugs (Prof. J. T. Hewitt), 1057, 1179
Synthetic food, 985
Syphilis and insanity (leading article), 935; in the offspring, influence of the war upon, 1208
Syphilis treatment (Py Q), 87, 900; in the negro, 491; arseno-benzol as abortive treatment, 706; sporulation of, as seen on the dark ground (Dr. C. Lundie and Dr. F. H. Goss), 1025; of the epididymis, 1042
Syphilitic recto-vesical fistula, 937; disease of the nervous system, silver salvarsan in, 939

T

Talent and miscegenation, 300
Tar-spraying fatality, 552
Tarsal scaphoid, Köhler's disease of, 444, 832
Tattersall, Mr. S. R., duplication in human spermatozoa, 201
Taylor, Dr. A. L., violent excitement, curious cases, 781; (leading article), 791
Taylor, Dr. F. E., intravenous injections of antimonium tartaratum (tartar emetic) in bilharziasis, 246
Taylor, Dr. J. M., on myalgic pains, 976
Taylor, Maj. J., colectomy, 197, 457, 547
Taylor, Mr. W. E., death of, 1018
Teaching of obstetrics in London, 494
Teaching the Sick (Mr. G. E. Barton) (review), 931
Temporary officers in the R.A.M.C., the new contract (leading article), 583
Tenacious adversaries, 463
Tennent, Dr. R., the "gridiron" incision, 1168
Territorial Force Medical Officers' Association, 502
Territorial medical officers, pay of, 218
"Tetanus idiopathic" (Mr. W. B. Cosens), 646
Tetanus in 1918, incidence of, 941
Theodosius, Mr. H. G., Durham University, the roll of Service, 1214
Theory and Practice of Massage (Beatrice M. Goodall-Copestake) (review), 67
Therapeutic lying, justifiability of, 1213
Therapeutics, Practical, Text-book of (Prof. H. A. Hare), seventeenth edition, 1919 (review), 437
Thomas, B., S. Millhead, and E. Martin, White and Martin's Genito-Urinary Surgery and Venereal Diseases, eleventh edition, 1919 (review), 880
Thomas, Hugh Owen, 165
Thomas Vicary lecture, the surgical tradition (Sir J. Tweedy), 1009
Thompson, Dr. J. A., nasal hydrorrhœa, 793
Thompson, Maj. L., and Lieut. L. B. Kingery, syphilis in the negro, 491
Thompson, Mr. W., carcinoma of breast, 832
Thomson, Dr. H. H., and Dr. F. A. Elkins, tuberculosis amongst asylum patients, 242
Thomson, Prof. J. A., Heredity, third edition, 1919 (review), 331
Thomson, Sir StClair, tuberculosis of the larynx, 689
Thorax and abdomen, remarkable gunshot injury, 1096
Thorburn, Sir W., epidemic perinephric suppuration, 83; living foreign body in the larynx, 946
Thread, linen, vaselined, 710
Through a Tent Door (Dr. R. W. Mackenna) (review), 484
Thyroid, the, and iodides (Mr. F. Ransom), 433
Thyroiditis, acute, 442
Tilley, Mr. H., plea for better teaching of oto-rhino-laryngology, 1014, 1043
Tinley, Dr. W. E. F., humerus extension splint, 20
Tobacco bill, the nation's, 718
Tobin, Mr. R. F., obituary, 548
Todd, Dr. A. T., hyperthyroidism in influenza, 733
Todesco, Mr. J., cirsoid aneurysm of palm of hand, 15
Tongue, chronic ulceration of, 878

Tooth, Dr. H. H., and Dr. E. G. Pringle, jaundice among the British troops in Northern Italy, 144; addendum, 248
Topley, Dr. W. W. C., spread of bacterial infection, 1, 45, 91
Town, Mr. C. E., St. Dunstan's Hospital, 1180
Town planning at Lucknow, 32
Toxic effect, primary, of neosalvarsan (Prof. K. Petrén), 244
Trade marks and patent drugs (Py Q), 223
Trades-unionism, medical (leading article), 206
Trail, Prof., death of, 590
Training of junior officers of Indian Medical Service in India, 127
Transmission of typhoid fever by the mother's milk, 653, 709
Traumatic Addison's disease, 26; psoriasis, 208
Traumatic rupture of intestine (Mr. W. H. Battle), 103, 746; aneurysm of right ventricle, 209; rupture of intestine (Mr. E. G. Stanley), 726; rupture, indirect, of uterus during pregnancy, 735; myositis ossificans, 1139
Travelling health exhibitions, 226
Treatment by correspondence, 30
Trench Fever, a Louse-borne Disease (Maj. W. Byam and others) (review), 576
Trench fever and war nephritis (Dr. J. H. Lloyd), 640
Trooping during the hot weather, 32
Troops, returning, 297
Trophœdema of leg, 64
Tropical medicine, floating school of, 164; teaching of, 744
Tropical Medicine, Manual of (Dr. A. Castellani and Dr. A. J. Chalmers), third edition, 1919 (review), 1037
Trypanosoma rhodesiense infection which recovered (Dr. C. W. Daniels and Dr. H. B. Newham), 829
Tubal gestation, 1036
Tubby, Mr. A. H., congenital dislocation of hip, 1135
Tubercle bacilli in sputum, sedimentation of (Dr. J. G. Greenfield and Mr. J. Anderson), 423; staining of, 938
Tubercle, a Monthly Journal Devoted to all Aspecta of Tuberculosis (review), 833, 931, 1198
Tubercle, Early Diagnosis (Dr. C. Riviere), second edition, 1919 (review), 157

TUBERCULOSIS.—After-care for consumptives; Segregation of advanced consumptives, 124—Hairmyres colony; Colony scheme for the East Midlands; Anti-tuberculous campaign in Bombay; American Tuberculosis Association; Hog as a test for bovine tubercle, 125—Establishment and conduct of a tuberculosis sanatorium; Annual report of the tuberculosis officer for Wigan; Trudeau Sanatorium, thirty-fourth annual report; Injections of saccharose in pulmonary tuberculosis, 171—Residential treatment for discharged soldiers and sailors, 451—Paris, post-graduate courses in tuberculosis; Tuberculosis in Norway and Sweden; Tuberculosis in Germany, 452—Welsh National Memorial; Sanatorium reports; American Review of Tuberculosis, 592, 993—Pulmonary tuberculosis; Mortality after sanatorium treatment; Prospective Middlesex Sanatorium, 803—Tuberculosis in cows; Devon tuberculosis colony; Opening of Kinver sanatorium, 804—Treasury grant towards institutional treatment; School for tuberculous children in London; Report of central tuberculosis officer for Lancashire, 992—Tuberculosis in Malay States; Tuberculosia campaign in France—Sanatorium benefit in London; Report of the tuberculosis officer for Kent; Derbyshire county council report; Sanatoriums for printers; Tuberculosis training colony for Chester, 1162

Tuberculosis amongst asylum patients (Dr. F. A. Elkins and Dr. H. H. Thomson), 242, 301, 348, 456; curve (leading article), 253; and ex-service men (Py Q), 269; conference, 653; problems in the new age (leading article), 743; treatment under the Insurance Act (Py Q), 1217
Tuberculosis from a West Indian standpoint (Dr. J. Geoghegan), 56; problem under after-war conditions, 62; pulmonary, expectation of life in (Dr. R. M. F. Picken), 106; and marriage, 124; treatment (Py Q), 134; in Italy, 344; of the heart, 1085; in relation to school life, discussion, 1086; dysentery simulating, 1109
Tuberculosis, pulmonary, "heteroscrotherapy" in (Dr. J. J. Perkins, Dr. R. A. Young, and Dr. W. O. Meek), 556; conjugal (Dr. E. Ward), 606, 708 806, 852, 897; conjugal (leading article), 651; of the larynx (Sir StClair Thomson), 689; mortality after sanatorium treatment, 803; in cows, 804; pulmonary, poverty in relation to, 813; generalised, presenting difficulties in diagnosis (Dr. F. J. Nattrass), 872; intestinal, in connexion with phthisis, 930; early active, wanted a pathognomonic sign, 1095; and influenza, 1157
Tuberculosis Society (see Medical Societies)
Tuberculous abscess, treatment by aspiration (Dr. Z. P. Fernandez), 1193
Tuberculous pensioners, treatment of (Py Q), 86; ex-soldiers (Py Q), 133, 354; patients, isolation of (Py Q), 353; infection in school children, 539; patients, body-weight in, diurnal variation (Dr. J. M. Scott), 639; abscess, hypertonic salt solution treatment (Capt. L. Durante), 735; meningitis and lethargic encephalitis, 936, 998; cases, special bedding and clothing of (Py Q), 950; service men, treatment (Py Q), 1052; officers, outdoor employment for (Py Q), 1053; service men, sanatoriums for (Py Q), 1113
Tucker, Dr. B. R., pituitary gland in epilepsy, 79
Tumour, pituitary, treated by operation (Mr. H. L. Whale), 11; of the clavicle, 925; optical nerve, 926; pituitary, 929; congenital (? teratoma), 978; sterno-mastoid, 1139
Tumours of the posterior cranial fossa, 941; cervical, of the vagina, removal (Mr. J. F. Peart), 1194
Turner, Dr. D., X rays and radium in gynæcology, 1018
Turner, Mr. E. B., control of venereal disease, 594, 757, 899
Turner, Mr. H. W., flavine in treatment of fractures of jaws and acute septic stomatitis, 200
Turtle, Mr. G. de B., unilateral sweating of the face, 1196
Tweedy, Prof. E. H., and Dr. G. T. Wrench, Practical Obstetrics, fourth edition, 1919 (review), 483
Tweedy, Sir J., professional secrecy in the eye of the law, 34; the surgical tradition, 1009
"Twilight sleep" in general practice (Dr. G. H. Winch), 563
Tylecote, Dr. F. E., incidence of tuberculosis amongst asylum patients, 348
Tyler, Dr. A. F., Roentgenotherapy (review), 788
Typhoid fever, transmission by the mother's milk, 653, 709; outbreak in Castlederg, 1101
Typhus epidemic in Eastern Europe, 652; in Poland, campaign against (leading article), 741, 748
Typhus, Weil-Felix reaction in mild epidemic (Mr. L. E. Napier), 863; Weil-Felix serological test for (Dr. A. Compton), 866
Tyrrell, Dr. E. J., filaria loa, 946

U

Ulcer, gastric, diagnosis and treatment, 786, 1111; of cæcum, 1172
Ulceration, chronic, of tongue, 878
Ulster Medical Society, dinner, 1102 (see also Medical Societies)
Ulster, scarcity of water, 755
Ultra-violet rays, action of, on accessory food factors, 294
Umbrose, 112
Unger, Dr. L., blood transfusion, 79
Unification of Army Medical Service and its relation to "team practice" in civil life, 501
Unilateral sensory changes in sciatica, 656; sweating of the face, 1196
University College Hospital Medical School, awards, 714
"University of Utopia," 620
Urbanisation, defence of (leading article), 583
Ureteral calculus, 832
Urethral all-glass two-way irrigating nozzle for gonorrhœa, 648
Urethritis, Diagnosis and Treatment by the Urethroscope (Maj. N. P. L. Lumb) (review), 438
Urinary hæmolysis, 698; tract, bodo-like flagellate in, 875
Urine, mucus deposit of (Dr. S. G. Billington), 325; sugar in, mycological methods of detection, 718
Uterus, gravid, retroversion of (Dr. R. B. Eccles), 530; indirect traumatic rupture during pregnancy, 735; pre-cancerous, 735; cancer of, genesis of (leading article), 742, 807
Uterus, inversion of, 877; carcinoma of, 1036; cancer of, 1206

V

Vacancies, weekly lists of, 42, 88, 134, 181, 223, 270, 307, 354, 461, 504, 550, 597, 627, 668, 715, 761, 811, 858, 903, 952, 1004, 1056, 1114, 1178, 1218
Vaccination by subcutaneous injection (Dr. J. R. Goodall), 285; public, fees for (leading article), 441; fees, 843; position of (Py Q), 1004
Vaccination in the Royal Navy (Py Q), 223; in Ireland (Py Q), 1113
Vaccine treatment of arthritis, rheumatism, and neuritis (Dr. H. W. Crowe), 637; treatment of acute osteomyelitis 842
Vaccine Treatment, Practical, for the General Practitioner (Dr. R. W. Allen) (review), 286; lymph, public supply, 296; anti-influenza (Py Q), 1003
Vaccines, detoxicated, 36, 82
V.A.D. nurses and gratuity (Py Q), 354; hospitals, payment of doctors (Py Q), 1004; Sussex, 53, 1128; hospitals, remuneration of medical officers (Py Q), 1177
Vagina, cervical tumours of, removal (Mr. J. F. Peart), 1194
Valerianate "Gabail," deodorised, 932
Varicocele, scrotal, modified operation (Dr. S. R. Meaker), 973
Varicose veins and venous tension, 297
Varrier-Jones, Mr. P. C., and Sir G. S. Woodhead, colony treatment and after-care, 526
Vaselined linen thread, 710
Veale, Dr. R. A., oriental sore, 832
Vegetables, canned, antiscorbutic and growth-promoting value of (Dr. Mabel E. D. Campbell and Dr. Harriette Chick), 320
Vegetables, boiled, for the use of diabetics (Dr. P. J. Cammidge), 1192
Vegetative Neurology (Dr. H. Higier) (review), 532
Veldt sore amongst European troops (Dr. C. McK. Craig), 478
Venereal Disease, a Practical Handbook for Students (Dr. C. H. Browning and Dr. D. Watson) (review), 484; in the British Dominions and United Statea of America, Conspectus of Recent Legislation on (Dr. D. White) (review), 532

VENEREAL DISEASE, CONTROL OF.—Provision of treatment centres; Compulsory notification; Prophylaxis *v.* early treatment, 80—Early preventive treatment and the N.C.C.V.D., 450—Hostels for gonorrhœal patients; Travelling consultants for venereal clinics; Systematic care in the sexual diseases, 451—Prophylaxis against venereal disease; Legislation against venereal disease in Sweden, 593, 1164—Travelling consultants for venereal clinics, 593—Venereal prevention committee, 701—Association between alcoholic and sexual abuses; Venereal clinic in Liverpool, 892—Statistical method in relation to venereal prophylaxis; Anti-venereal campaign in Ulster; Cinema film, 893—Society for the Prevention of Venereal Disease, 1163—Swedish Act of 1918, 1164

Venereal disease, prevention and arrest of, 17, 944, 945, 1048, 1049, 1108, 1169, 1174; at Hull (Py Q), 133; in Australia, 172, 849; disease (Py Q), 179, 306; unqualified treatment of (leading article), 339; control of, 546, 594, 757, 853, 899; Society for the Prevention of, 997; and colonial officers (Py Q), 1176; in Portsmouth and elsewhere (Py Q), 1217
Venereal Diseases Act, 1917, prosecution under, 813
Venereal diseases, prevention of, in theory and in experience (Dr. D. White), 844; financial support for control of, 895
Venous tension and varicose veins, 297
Ventilating ether bag mount, 204
Ventral hernia, unusual form (Dr. F. L. Apperly), 1029
Ventrofixation cause of obstruction to labour, 65
Vernon-Harcourt inhaler, 456
Vernon-Harcourt, Prof. A. G., obituary, 41
Vertebræ, cervical, 978
Vertigo in conjunction with a radical mastoid operation, 1031
Vesical papilloma simulating vesical tuberculosis (Mr. R. Creasy), 482
Veterinary sanitary service in relation to public health, 747
Victory medal for Territorial nurses (Py Q), 811

VIENNA, CORRESPONDENCE FROM.—Organisation of the medical profession in Vienna; Health Ministry in Austria; Reform of the pharmaceutical business; Influence of the war upon syphilis of the offspring, 1208

Vienna hospitals, plight of, 208; economic situation in, 1167
Viscera, abdominal, of an infant, 1140
Vision of signalmen at sea, 619
Vital capacity, normal, in man and its relation to the size of the body (Prof. G. Dreyer), 227
Vital statistics of London during June, 172; during July, 345; during August, 626; during September, 758; during October, 995; during November, 1103
Vital statistics of Scotland, 502; for 1917, 662
Vital statistics, urban, English, Scotch, and Irish towns, 32, 81, 133, 173, 215, 262 298, 346, 416, 452, 499, 545, 592, 663, 707, 759, 805, 850, 896, 943, 996, 1055, 1104, 1170
Vitamines in butter and margarine (Py Q), 1112
Vivisection experiments, 356
Vocal Therapy Fund, meeting, 930

Volpino, Prof. G., monophagism, pellagra, and scurvy, 24
Voltaire on an anti-venereal crusade, 656
Voluntary hospital finance, 1157; welfare work in London, 1202

W

Wakeley, Mr. C. P. G., 120 cases of acute appendicitis, 1071
Walker, Dr. N., General Medical Council, Scottish election, 947
Waller, Dr. W. E., anti-dysentery serum treatment of bacillary dysentery, 778, 794
Wallis, Mr. C. D., dental caries in the preschool child, 698
Walls, Dr. W. K., obituary, 663
Walsh, Dr. D., Hutchinson's teeth, 83
Wanklyn, Mr. W. McC., small-pox notes for practitioners, 284
Wanted, a pathognomonic sign of early active tuberculosis, 1095
War Pensions (Administrative Provisions) Bill, 305, 352
War surgery and the surgery of civil life, 79; hysteria, 79; benefit, medical, 81; specimens, national collection, 120; nephritis, after-history, 163; fatigue, influence on general paralysis, 250; medals and home hospital establishments, 266; gratuities for naval nurses (Py Q), 269; gratuity of the Indian Army, 450
War, the Great, Brings it Home (Mr. J. Hargrave) (review), 251; Neuroses and Shell Shock (Sir F. W. Mott) (review), 531; Surgery of the Face (Dr. J. B. Roberts) (review), 1089
Ward, Dr. E., conjugal tuberculosis, 606
Ward, Dr. G., criticism of the memorandum on malaria, 126, 350; anæmias of the hæmolytic jaundice group, 831; chloroma simulating mastoid disease, 888
Warlingham Hospital, breaches of discipline (Py Q), 306
Warner, Dr. F. A., surgical uses of a hairpin, 666
Warren, Dr. R., retrograde intussusception of jejunum through stoma of gastro-jejunostomy, 615
Wassermann, the routine, 664
Water-diviner, the, 1102
Water-supply, Bombay, 298
Water-supply researches, Metropolitan, 27; during April, May, and June, 1919, 600; July, August, and September, 1919, 1116
Waters, Dr. C. H., remarkable gunshot injury of thorax and abdomen, 1096
Watson, Dr. D., and Dr. C. H. Browning, Venereal Disease, a Practical Handbook for Students (review), 484
Watts, Dr. R. C., pseudo-paratyphoid carrier, 1029
Weatherly, Dr. L A., interpretation of Secs. 47 and 321 of the Lunacy Act, 1890, 18; incipient mental diseases, 174; incidence of tuberculosis amongst asylum patients, 456
Webb, Col. A. L. A., reclassification and treatment of pensioners, 785
Weber, Dr. F. P., cryptopodia, 458
Weber, Sir H., Longevity and Means for the Prolongation of Life (review), 251
Weil-Felix reaction in a mild epidemic of typhus (Mr. L. E. Napier), 863; serological test for typhus (Dr. A. Compton), 866
Welfare of the Expectant Mother (Dr. Mary Scharlieb) (review), 202
Wellcome Historical Medical Museum, additions to, 887
Wells, Dr. S. R., elected Vice-Chancellor of London University, 1217
Welsh Board of Health (Py Q), 41, 86, 223; National Medical School, Cardiff, 1051
Wenckebach, Prof. K. F., economic situation in Vienna, 1167
Werdnig-Hoffmann paralysis (Mr. E. A. Barton and Dr. Helen Ingleby), 922
West London Medico-Chirurgical Society (see Medical Societies)
West London Post-graduate College, Hammersmith, lectures, 1174
West of England Eye Infirmary, Exeter, meeting, 874
Whale, Mr. H. L., pituitary tumour treated by operation, 11; Injuries to the Head and Neck (review), 532
Wheat culture-media (Dr. S. Otabe), 576
Whisky for medicinal purposes (Py Q), 854
White and Martin's Genito-Urinary Surgery and Venereal Diseases (E. Martin, B. Thomas, and S. Millhead), eleventh edition, 1919 (review), 880
White, Dr. D., Conspectus of Recent Legislation of Venereal Disease in the British Dominions and United States of America (review), 532; prevention of venereal diseases in theory and in experience, 844; prevention of venereal disease, 945, 1049
White, Dr. Marguerite, malaria from the surgeon's standpoint, 154
White, Dr. R. P., Industrial Medical Service, 36
White, Dr. S. E., early mental homes, 457
White, Dr. W. C., international standards of public health and welfare work, 719
Whiting, Dr. A. J., North-East London Post-graduate College, 899
Whitley Councils, health work for, 24
Whitman, Dr. R., Treatise on Orthopædic Surgery, sixth edition, 1919 (review), 19
Whittaker, Mr. C. R., Nerves of the Human Body, second edition, 1919 (review), 20
Wiley, Dr. H. W., Beverages and their Adulteration (review), 1144
Wilks, Dr. G., obituary, 38
Willcox, Dr. W. H., treatment of malaria, 1105
William Tate Sewell Memorial Fund, 760
Williams, Dr. T. A., war hysteria, 79
Williams, Mr. G., Minor Surgery and Bandaging (review), 1143
Williams, Surg.-Gen. Sir W. T., death of, 172
Williamson, Dr. H., nurse anæsthetists, 708
Williamson, Dr. R. T., relation of Graves's disease to diabetes and glycosuria, 425
Willoughby, Dr. W. G., and Dr. L. Cassidy, Anti-malarial Work in Macedonia (review), 437
Wilson, Dr. C., aneurysm of the heart without symptoms, 199, 209
Wilson, Dr. S. A. K., appointed junior neurologist to King's College Hospital, 846; cervical rib, 978; multiple congenital anomalies, 1197
Wilson, Dr. W. J., specific agglutinins for Pfeiffer's bacillus, 607
Wilson, Mr. A. C., a sleeping cap, 718
Wiltshire, Dr. H., hyperkeratosis of the hair follicles in scurvy, 564
Winch, Dr. G. H., "twilight sleep" in general practice, 563
Winter session, opening of, 340, 587, 628
Wirgman, Dr. C. W., life insurance and war disabilities, 458
"With apologies to Moore," 718
Woman Doctor, Mary Murdoch of Hull (Mr. H. Malleson) (review), 110
Woman in industry, 167, 213
Women, medical, in conference on social problems, 506
Women's Holiday Fund, 136; medical service in India (leading article), 789
Women's medical service, 298
Wood, Dr. N., Health Resorts of the British Isles, second edition, 1919 (review), 287
Wood, Mrs. E. M., abilities of the disabled, 176
Woodcock, Dr. H. de C., complete cessation of fits resembling epilepsy, 60
Wooden houses in Norwich, 1051
Woodhead, Sir G. S., and Mr. P. C. Varrier-Jones, colony treatment and after-care, 526
Worcestershire Insurance Committee, report, 1111
Working day, a shorter (leading article), 534; capacity of disabled man (leading article), 650
Workmen's Compensation Act, suggested reforms, 1087
Worthing Hospital, meeting, 646
Wound shock, initiation of, and its relation to surgical shock (Mr. E. M. Cowell), 137; shock, study of (leading article), 159; shock, the story of (leading article), 1153
Wounds, septic, streptococcal infections of (Mr. A. Fleming and Dr. A. B Porteous), 49; septic, treatment by ionisation (Dr. F. W. B. Young), 529; gunshot, of the chest (Dr. J. B. McDougall), 968
Wrench, Dr. G. T., and Prof. E. H. Tweedy, Practical Obstetrics, fourth edition, 1919 (review), 483
Wright, Dr. J., origin of life, work of the late Charlton Bastian, 216
Wright, Dr. S., death of, 663

X

X ray therapy (Dr. R. Knox), 183
X ray treatment of dysmenorrhœa (Dr. F. Hernaman-Johnson), 432
X rays and radium in gynæcology (Dr. D. Turner), 1018

Y

Yarrow Convalescent Home for Children, reopened, 1000
Yates, Dr. A. L., immunised skin-grafts, 324
Young, Dr. F. W. B., treatment of septic wounds by ionisation, 529
Young, Dr. R. A., Dr. W. O. Meek, and Dr. J. J. Perkins, "heteroserotherapy" in pulmonary tuberculosis, 556
Young, Maj. F. B., The Young Physician (review), 1144
Yule, Mr. G. U., Introduction to the Theory of Statistics (review), 694

Z

Zilva, Dr. S. S., action of ultra-violet rays on accessory food factors, 294; and Dr. A. Harden, œdema observed in a monkey, 780

CONCORDANCE

To enable the reader to determine at a glance the date and serial number of the issue of THE LANCET containing the required page reference.

Pages.	Date of issue.	No.
1–44	July 5th	5001
45–90	,, 12th	5002
91–136	,, 19th	5003
137–182	,, 26th	5004
183–226	Aug. 2nd	5005
227–272	,, 9th	5006
273–310	,, 16th	5007
311–356	,, 23rd	5008
357–416	,, 30th	5009
417–464	Sept. 6th	5010
465–506	,, 13th	5011
507–552	,, 20th	5012
553–600	,, 27th	5013
601–630	Oct. 4th	5014
631–672	,, 11th	5015
673–718	,, 18th	5016
719–764	,, 25th	5017
765–814	Nov. 1st	5018
815–860	Nov. 8th	5019
861–906	,, 15th	5020
907–956	,, 22nd	5021
957–1008	,, 29th	5022
1009–1058	Dec. 6th	5023
1059–1116	,, 13th	5024
1117–1180	,, 20th	5025
1181–1220	,, 27th	5026

END OF THE SECOND VOLUME FOR 1919.

PRINTED and PUBLISHED by the PROPRIETORS, WAKLEY AND SON (1912), LTD., at No. 423, Strand, and Nos. 1 and 2, Bedford-street, Strand, in the Parish of St. Martin-in-the-Fields, in the County of London.—Saturday, Jan. 17th, 1920.

610.5
LA
1919
Oct–Dec
197
Part 2

THE LANCET, OCTOBER 4, 1919.

Theories
ON
CARDIAC MASSAGE AS A MEANS OF RESUSCITATION.

BY LIONEL E. C. NORBURY, O.B.E., M.B., B.S. LOND., F.R.C.S. ENG.,

SURGEON, BELGRAVE HOSPITAL FOR CHILDREN; DEMONSTRATOR OF ANATOMY, ST. THOMAS'S HOSPITAL; ASSISTANT SURGEON TO ST. MARK'S HOSPITAL FOR DISEASES OF RECTUM AND TO MILDMAY MISSION HOSPITAL.

FOR some time past I have been much interested in the subject of cardiac massage as a means of resuscitation in cases of apparent sudden death, and especially when the result of an overdose of an anæsthetic, and in the curious and varied effects which may follow such a procedure.

Not very many years ago if one had ventured to suggest massaging the heart one would have been considered extremely bold, since it was then held that to touch the heart meant instant death, let alone manipulation of this organ; but now we know the heart is much more tolerant than was originally supposed, and already several successful cases of suture of the heart for traumatic rupture have been put on record. Again, thanks chiefly to the researches of Carrel, many operations upon the heart and the great vessels have been devised and have been successfully performed on dogs.

The Experimental Basis of Heart Massage.

Cardiac massage as a means of resuscitation is based upon a series of physiological experiments, the first recorded cases being those of Schiff, who in 1874 succeeded in restoring cardiac pulsation by rhythmical compression of the ventricles with the hand. Defibrinated blood was at first injected, but later on various artificial fluids, resembling blood in their dissolved salts and specific gravity, gave better results. Finally, the addition of 1 per cent. grape sugar yielded the best results. Schiff's earliest experiments were made upon hearts retained in the body, but later hearts removed from the body, even for a long time and even after being frozen, were resuscitated by filling the heart with fluid and the application of direct massage. He proved that it was possible to re-establish cardiac pulsation and respiratory movement even up to 11½ minutes after the heart had stopped in dogs killed by an overdose of chloroform. His method of procedure was to open the thorax at the same time that air was insufflated into the lungs, and then rhythmically to compress the heart at the same time as the abdominal aorta was compressed for the purpose of keeping the brain well supplied with blood. Most of the dogs, however, died within a few hours without showing any signs of voluntary movement, and in some cases after the onset of convulsions. In 1889 Prus, of Lemberg, experimented upon 100 dogs, 21 of which were killed with chloroform. Heart massage, together with artificial respiration, was started in from 55 seconds to 1 hour after the heart had stopped. In 16 of these cases normal cardiac action was restored in times varying from 30 seconds to 20 minutes. All these animals were killed at the end of the experiment excepting one, in which case massage was commenced four minutes after the heart had stopped beating, and normal pulsation did not return until massage had been continued for five minutes. This animal recovered completely. 44 dogs were asphyxiated and only 31 were restored to life by cardiac massage. Similarly, 35 were killed by electricity and only 5 were resuscitated.

Velich, in 1903, placed a heart removed from a dog's body in snow for six hours and was able to re-establish contractions in both auricle and ventricle by massage. In another heart, after lying in snow for 18 hours and after being frozen in salt solution for two hours, contractions of the auricle and slight contractions of the ventricle were obtained.

In 1903 Bourcart succeeded in resuscitating a dog whose heart had stopped beating under chloroform by the subdiaphragmatic method of cardiac massage. Normal cardiac action was restored after three minutes of massage, and the animal recovered completely.

No. 5014

Fibrillary Twitchings.

Experimental research has shown that when fibrillary twitchings of the heart occur as the result of massage, instead of normal contractions, it is very improbable that a successful issue will be obtained. The probability of these twitchings occurring is to a large extent proportionate to the length of time that is allowed to elapse between the stoppage of the heart and the commencement of massage. In one or two of the cases which have come under my own observation, these fibrillary twitchings have been felt, and no further amount of massage appeared to have the slightest effect in restoring normal cardiac contractions.

Theories in Cardiac Massage.

With regard to the way in which cardiac massage acts: D'Halluin believes that by massage the distended heart is emptied of blood, and an artificial circulation is produced through the coronary arteries. This has the effect of restoring rhythmical contraction of the heart, which in turn excites the nerve-centres, restoring respiratory movements. It should be remembered, however, that the heart is not always distended in such circumstances, and that this organ can often be felt as a flabby soft sac, resting upon the diaphragm, in certain cases where massage is being performed by the subdiaphragmatic route. It seems to me quite reasonable to suppose that this is the class of case in which cardiac massage would have to be persevered with for a considerable time before normal spontaneous pulsations are restored, since, in order to re-establish a satisfactory coronary circulation, blood must be allowed to accumulate in the cardiac cavities in sufficient quantities to allow of it entering the coronary arteries when the heart is compressed. The aspirating effect of the recoil of the heart wall, after compression, in all probability determines a flow of blood from the large veins into the auricles, and so into the ventricles. Further evidence in support of the theory that the re-establishment of coronary circulation is the important factor in the restoration of the heart beat, is brought forward by Spina, of Prague, who injected into an artery in the direction of the heart a large quantity of normal saline solution (some 200 c.cm., in a dog), at a temperature of from 35°–40° C. The injected fluid closes the aortic valves and enters the coronary arteries, and so stimulates the heart muscle itself. Spina was thus able to restore the heart beat in many animals in which the brain and cord had been destroyed, and also in animals in which the heart's action had been arrested by poisoning with alcohol, nicotine, and other narcotics. Experiments have also been devised which show that, by injection of certain substances into the coronary arteries of animals, pulsation may be restored in hearts which have ceased to beat for some hours or even days, and one case is recorded of a child, aged 3 months, who died from double pneumonia, in whom the heart's action was revived 20 hours after death and continued to beat for more than an hour. The solution employed in this case consisted of a mixture of sodium, potassium and calcium chloride, and sodium bicarbonate in the proportions in which they exist in the blood, together with a small amount of dextrose. Crile, in his book on "Blood-Pressure in Surgery," lays stress on the fact that in order to restore the apparently dead not only must the heart be made to beat, but the respiration must be re-established and the vaso-motor centres stimulated into renewed activity. Hence he says that with cardiac massage we must combine artificial respiration and also find means to restore vaso-motor activity. The latter essential may be brought about by intravenous infusion of adrenalin in salt solution, combined with Crile's pneumatic rubber suit, to which reference will be made again later on.

Effect of Adrenalin on the Heart.

Experimental evidence goes to prove that the action of suprarenal extract on the heart is not brought about through the intervention of the central nervous system. Hedson showed that in an isolated cat's heart perfusion of suprarenal extract through the coronary arteries produced an increased tone in the cardiac contractions, and that this effect lasted several hours.

Gottlieb showed that if the heart of an animal were stopped by the administration of chloral hydrate its pulsations could be restored by injections of suprarenal extract, even after it had ceased beating for five minutes, provided that at the same time rhythmical compression of the thorax was maintained. Cleghorn demonstrated that a strong solution of suprarenal extract (about 10 per cent. in saline solution), if perfused through the coronary arteries of the dog's heart would produce fibrillary twitchings of the apex of the heart, after several very large contractions. It has also been shown by Crile that adrenalin injected directly into the chamber of the heart or into its wall caused fibrillary contractions, after which the heart could not be resuscitated. Crile mentions the case of a patient in whom, by means of combined artificial respiration, rhythmical pressure of the thorax over the heart, and intravenous infusion with adrenalin in normal saline, the heart, which had stopped beating for 9 minutes, was made to beat for 32 minutes. I have already referred to the great importance which Crile attaches to means which are directed towards the restoration of vaso-motor activity as a valuable accessory to cardiac massage. We have seen that to a large extent this may be brought about by the injection of suprarenal extract, but Crile at the same time lays great stress upon methods for increasing the blood pressure by external compression. He has proved by experiments upon animals that, by external pressure, a rise of blood pressure can be obtained proportionate to the force and to the area of compression. This result may be brought about by bandaging the extremities, or by pressure on the abdominal aorta, or by employing Crile's pneumatic rubber suit, which is composed of a double layer of specially prepared rubber which, when inflated, exerts uniform pressure on the surface, so producing an artificial peripheral resistance. It is constructed in such a manner that one or more limbs, or the abdomen, may separately, or in any combination, be subjected to pressure by inflating the suit with a bicycle pump. Crile has found this apparatus extremely useful in operations attended by shock or collapse, and in certain cases where such a condition was expected to ensue the suit has been placed in position prior to the operation.

Finally, I should mention that Crile has restored cardiac pulsation experimentally, in dogs killed by chloroform, by the forcible injection of a solution of adrenalin into the carotid artery in the direction of the heart. The theory is that the fluid so injected enters the coronary arteries and, by its direct stimulating effect upon the vessel walls, re-establishes the coronary circulation, which in its turn determines cardiac contraction.

Methods Employed.

A brief description of the various methods and routes employed in the operation of heart massage may not be out of place.

1. *The subdiaphragmatic route.*—This is probably the best of the methods at present adopted, and is especially applicable in cases where the abdominal cavity is already open. A hand is inserted between the diaphragm and left lobe of the liver. The heart is defined and may be pressed against the posterior thoracic wall, external counter-pressure being maintained with the other hand against the ribs on the left side; or else the heart may be kneaded through the diaphragm by the closed fist. In cases of cardiac failure where the abdominal cavity is not already opened a rapid vertical incision through the upper part of the left rectus, splitting the muscle, or if preferred a mid-line incision may be employed. The opening in the abdominal wall should be large enough to admit the hand comfortably, since massaging the heart is often a very tiring performance, and the difficulties and discomforts of the operator are greatly increased by the edges of a small incision constricting the wrist or forearm. Another incision that has been advocated is a subcostal one, parallel to the left costal margin. In such an operation there will be no troublesome hæmorrhage from the abdominal wall, at any rate until cardiac action and the circulation have been revived. It is an astonishing fact that, even without preliminary cleansing of the patient's skin or of the operator's hand, the abdominal wound often heals by first intention. In children it is sometimes possible to perform cardiac massage by manipulation below the costal margin, without any preliminary incision.

The subdiaphragmatic route is the only one that I have had personal experience with. I have had occasion to employ this method in some 14–16 cases, with a successful result in 3, not including several cases of temporary stoppage of the heart in which the abdominal cavity was already open, and immediate massage quickly restored pulsation

Of the three cases referred to, one was in a patient, aged 28, suffering from a "ruptured tubal gestation," and who had lost a very large quantity of blood. Intravenous infusion with a mixture of normal saline solution 2 pints, containing 2 drachms of a 1 in 1000 solution of adrenalin chloride, had been employed from the commencement of the operation. When the operation was almost finished the heart and respiration ceased. Artificial respiration was started and the usual hypodermic injections of ether, strychnine, &c., were given, but without avail. After a very short period of massage a contraction of the heart was felt, but regular pulsation was not obtained until about one minute after massage had been commenced. After two or three heart beats a spontaneous inspiration was taken, and normal respiration was soon established, and I am glad to say the result was permanently successful.

The second case was that of a small child suffering from empyema. The heart and respiration stopped during induction of anæsthesia by chloroform; artificial respiration and the ordinary means for resuscitation were employed. After two minutes, since no pulse could be felt, the abdomen was rapidly opened and cardiac massage started. Within a very short time a contraction of the heart was felt, and spontaneous pulsation quickly followed. The abdominal wound was closed in layers and healed by first intention, in spite of the fact that no preliminary sterilisation of the patient's skin or operator's hand was carried out. Unfortunately, the child died a fortnight later from broncho-pneumonia.

In the third case the patient, a soldier, had been anæsthetised with chloroform and ether, and at the beginning of the operation, scraping a sinus in an amputation stump, the patient stopped breathing and no pulse could be felt. No result followed from artificial respiration and a hypodermic injection of strychnine. The abdomen was rapidly opened by means of an incision through the left rectus muscle, and cardiac massage commenced. After about 30 seconds a contraction of the heart was felt, and soon rhythmical contractions were established. Artificial respiration was continued, but spontaneous breathing occurred within a short time after the re-establishment of cardiac pulsation. Recovery was complete. In this case massage was commenced about two minutes after the heart had ceased to beat.

In contrast with these three cases, a boy undergoing a lengthy operation for extensive tuberculous glands of the neck suddenly collapsed, stopped breathing, and his heart stopped beating after four hours of chloroform and ether anæsthesia. Artificial respiration and various other means were adopted to revive the patient. After several minutes the abdomen was opened and subdiaphragmatic massage commenced. Within a very short time the heart began to beat again. Artificial respiration was still continued, but spontaneous breathing quickly followed the restoration of the heart beat. The abdominal wound was closed and the patient hurried back to bed. The pulse at this time was of good volume and the respiratory interchange satisfactory, although breathing was rather sighing in character. The corneal reflex soon returned. The patient lived for 22 hours, but never regained consciousness nor performed any voluntary movement.

Post mortem.—A large number of breaking-down tuberculous, mediastinal, and mesenteric glands were found, but otherwise nothing abnormal.

2. *The transdiaphragmatic route.*—After opening the abdomen an oblique incision is made through the diaphragm from right to left and from before backwards, of sufficient length to allow two or three fingers to be inserted As far as can be ascertained no success has followed this method of cardiac massage, which is not to be recommended owing to the extra time taken in exposing and incising the diaphragm.

3. *The thoracic route.*—This route was the first to be employed in order to gain access to the heart for purposes of massage. A rectangular flap containing two or three of the left costal cartilages and ribs, and in some cases a portion of the sternum, is reflected, and the pericardium is exposed. The pericardium may or may not be opened, and massage is easily performed. There is apparently no advantage gained by opening the pericardium, and the risk of septic infection goes a long way to negative such a procedure in these cases. One successful result is recorded by Igelsrud[1] after employing this method, and in this case other means had been adopted for some three or four minutes without avail; the third and fourth ribs were resected on the left side and the pericardium exposed and incised. After massage for one minute the heart commenced to beat feebly, and at the end of another minute rhythmical contractions were obtained.

Three other cases are recorded in which this route was used with temporary success. In one of these, described by

Maag,[2] the heart responded to massage by beating for eight hours, and spontaneous respiration was re-established for a time, but the patient never recovered consciousness. In another case the operation was for suture of a bullet wound in the heart wall. Contractions were successfully obtained by cardiac massage and the patient lived for five hours, in spite of the fact that the bullet was afterwards found to have traversed the diaphragm, stomach, and liver.

The third case, described by Sick,[3] was that of a boy, aged 15, suffering from tuberculous peritonitis. Towards the end of the operation the patient struggled; more chloroform was given, when the heart and respiration suddenly failed. Artificial respiration and compression of the chest wall were tried with very temporary success. Some 45 minutes after the heart had first stopped massage by the thoracic route was performed. In 15 minutes the heart commenced to beat, and spontaneous breathing was restored. Massage was continued for another 15 minutes until good firm cardiac contractions occurred. The patient recovered consciousness some two hours later and lived for 24 hours. There is no record as to whether the pericardium was opened or not. Post mortem signs of pericarditis were present.

This is a very instructive case, showing (1) the length of time that the heart may be inactive and yet may be revived by appropriate massage; (2) the long time that massage may have to be persevered with before the heart beat is restored; (3) the recovery of consciousness after a long period of apparent death.

Crile's method.—This method has already been considered more or less in detail, and consists essentially of a combination of cardiac massage or rhythmical compression on the chest wall over the heart, with intravenous infusion of normal saline solution containing adrenalin, and the application of the pneumatic suit, in order to raise the blood pressure. At the same time means are taken to produce artificial respiration. The strength of adrenalin employed varies from 1 in 25,000 to 1 in 50,000. The pneumatic suit is kept on for some time after normal breathing and the pulse have been restored, and is gradually deflated.

Importance of Prompt Action.

Inasmuch as a large number of cases, details of which I do not propose to enumerate, are recorded in which patients apparently dead have been restored by cardiac massage after other methods of resuscitation have been unsuccessful, it is an obvious duty to perform heart massage before giving such a case up as hopeless. Statistics show, however, that the time which is allowed to elapse between the stoppage of the heart and the commencement of massage must not be unduly prolonged if a permanently successful result is to be expected.

The longest delay in beginning massage recorded in connexion with complete recovery of an apparently dead individual is eight minutes, and in this case the heart did not contract spontaneously until massage had been continued for five minutes (Sencert). It is quite possible to restore rhythmical cardiac pulsation after a much longer interval than eight minutes, but although the patient may be restored to life, as evidenced by the presence of a pulse and spontaneous breathing, permanent recovery is extremely doubtful; the heart and respiration cease, as a rule, within 24 hours, and during this period the patient rarely regains consciousness, although in one case, already mentioned, consciousness was temporarily restored. In this class of case the corneal reflex may quickly return, but no voluntary movements occur, although muscular spasm appears to be a late manifestation.

The reason of this incomplete restoration, and as to why permanent recovery does not follow the re-establishment of rhythmical cardiac and respiratory movements, has given rise to much speculation. It is well known that in man, if the higher nervous centres be deprived of oxygenated blood for even a few minutes, degenerative changes quickly follow; so it is argued that in such cases of imperfect restoration after cardiac massage the higher centres have suffered irreparable damage, and that the individual is acting as a mere automaton, life being maintained for a short time through the medium of the subcortical centres. Again, if the period before cardiac massage is started be unduly prolonged, the only attempt at contraction will be the occurrence of fibrillary twitchings, which, as has been emphasised already, are of evil omen. Green,[4] in an exhaustive paper on heart massage, makes the following remarks: "It has been frequently shown by Leonard Hill and others that sudden occlusion of the cerebral vessels, whether from ligature or spasm, gives rise to definite convulsive attacks, and sudden occlusion of the coronary arteries has also been shown to cause fibrillary contractions of the myocardium. Whether then the onset of muscular spasms some time after the pulse and respiration have been restored (in Lenormant's case the interval was one and a quarter hours and in my own case one hour) can be accounted for by a sudden and sustained cerebral anæmia, or whether, as has been suggested by Walker Hall, they are due to the accumulation of metabolic or even autolytic products, further investigation into the condition of the urine and tissues in similar cases may determine. At all events, we cannot exclude the possibility that in these cases the re-establishment of the circulation does not necessarily indicate the reconstitution of metabolism in the chief metabolic tissues, or even in the cerebral or spinal cells, and as regards the latter it is well known that when the circulation is arrested actual autolytic changes soon appear in the ganglionic nerve cells concerned in the mechanism of voluntary movement, though those of the heart and respiratory centre retain their vitality for a longer period. The practical point is that if either of these views is correct the commencement of massage must not be delayed too long, not only for fear that fibrillary contractions of the myocardium may supervene, but also to avoid permanent loss of consciousness and the development of spasms of the voluntary muscles." Further, Carrel,[5] in an article on the Surgery of the Thoracic Aorta and Heart, makes the following statements: It is well known that the heart loses its excitability very slowly, and that by using a proper method, it can be revived after a long period of immobility. We do not know exactly for how long it is safe to keep the heart motionless, but the complete stopping of the circulation is more dangerous for the organism than for the heart. Such a condition is called general death, but it is merely unmanifested life or latent life. The organs, being deprived of circulating blood, are not able to manifest life any longer, but they are still living and could revive, if they were given back their normal physico-chemical condition. Latent life is a very unstable state; without the circulating blood the tissues are not able to protect themselves against the microbes and the autolytic ferments which bring about protoplasmic degeneration—that is, elemental death. Immediately after the stopping of the heart the organism is placed in a condition intermediary between general and elemental death. This condition, from a medico-legal standpoint, is death. Nevertheless, as long as elemental death has not taken place, the organism can be resurrected. Therefore the length of time during which we can allow the heart to be stopped safely depends on the rate of development of elemental death. The brain disintegrates first. It is well known that complete ischæmia of the encephalon produces irreparable lesions, nevertheless, a short interruption of the circulation is not very dangerous.

Artificial respiration must be continued during the whole time that heart massage is being employed, and must still be persevered with after the re-establishment of normal cardiac contractions until normal breathing is established. In one successful case recorded by Lane normal cardiac pulsation was restored within a few seconds, but spontaneous breathing did not occur until artificial respiration had been employed for 12 minutes.

Choice of Cases.

With regard to the cases which are suitable for the performance of cardiac massage, those recorded have for the most part been patients suffering from an overdose of an anæsthetic, usually chloroform, and heart massage would appear to be eminently suitable as a means of resuscitation in such a state. Other cases have been those in which an operation has been commenced before the patient was properly under the anæsthetic (usually chloroform), and the stimulating effect of the scalpel has produced reflex inhibition of the heart; such cases, however, are usually quite easily brought round by ordinary restoratives, and heart massage is rarely called for.

Green, in his paper previously referred to, states that the kind of cases in which cardiac massage may be employed with a fair prospect of success are: 1. Cases of primary arrest of the heart in a condition of acute dilatation from poisoning by an overdose of a powerful volatile drug, such as chloroform. 2. Cases in which the gradual accumulation of volatile poisons, such as chloroform, leads to primary paralysis of the respiratory and vaso-motor centres, followed by stoppage of the heart. 3. Cases of asphyxia. 4. Cases of paralysis of the vital centres from exhaustion or injury, followed by stoppage of the heart.

Most of the cases which have fallen to my lot come under the first two headings. I also remember trying the effect of cardiac massage on a child who had undergone tracheotomy for laryngeal diphtheria. The tube was successfully inserted, but breathing stopped and the pulse could not be felt. Artificial respiration was started, but the heart could not be made to beat by ordinary measures. Subdiaphragmatic massage by means of an abdominal incision was begun some 3–4 minutes after the heart had stopped, but it could not be made to beat again. I think, however, that in such a condition cardiac massage is well worth a trial, and I see no reason why a successful result should not be obtained. Such a case would come under the heading of "cardiac arrest due to asphyxia," although there is no doubt that diphtheritic toxins circulating in the blood may so paralyse the heart and vital centres as to negative success.

Conclusion.

In conclusion, I should like to emphasise the following points:—

1. In cardiac massage we have a very important adjunct to the methods of resuscitation, applicable in cases of heart failure during surgical operations, as also in certain other conditions already mentioned. With stoppage of the heart during the performance of an abdominal operation no time should be lost before starting subdiaphragmatic massage, and valuable time should not be wasted in the administration of drugs. Artificial respiration and cardiac massage should be carried out simultaneously. In such circumstances a very few compressions will usually re-establish the heart beat.

2. If heart massage be contemplated it should be commenced certainly within five minutes of cardiac arrest. I should personally be inclined to resort to massage after giving other methods a trial of only two minutes.

3. It may be necessary to continue rhythmical compression of the heart for several minutes before spontaneous contractions occur. In one temporarily successful case, mentioned earlier in this paper, the heart was massaged for 30 minutes before it could be made to beat; previous to this ordinary measures had been tried for 45 minutes.

4. The subdiaphragmatic route is undoubtedly the most satisfactory of the various methods of access to the heart for purposes of massage.

5. Artificial respiration should be commenced as soon as normal breathing has ceased, and should be persevered with until spontaneous breathing is re-established. As has been previously shown, it may be necessary to continue artificial respiration for some minutes after the heart beat has been restored.

6. In obstinate cases means should be adopted for raising the blood pressure, either by pressure on the abdominal aorta, bandaging the extremities, or the application of Crile's pneumatic suit, if this be at hand. Intravenous infusion of weak solutions of adrenalin in normal saline is also very efficacious, and this will be especially applicable in cases where intravenous infusion with saline has already been started before the heart stopped, when adrenalin can be quickly added to the solution. In cases where an intravenous infusion is not being already carried out this may be done quickly by using the internal saphenous vein, since the arms will be wanted for performing artificial respiration, or, as an alternative, the common carotid artery may be exposed in the neck, and a weak solution of adrenalin in normal saline solution be forcibly injected towards the heart by means of a syringe with a fine needle attached.

7. Injection of adrenalin solution into the heart cavities or wall is liable to set up fibrillary twitchings, and is of no use as a means of restoring normal cardiac contractions.

8. Never give up a case of apparent death under an anæsthetic as hopeless until cardiac massage and its various accessories have been given a fair trial.

References.—1. Igelsrud, 1901: Therapeutic Gazette, 1904. 2. Maag, 1900: Centralblatt für Chirurgie, 1901. 3. Sick, 1902: Centralblatt für Chirurgie, 1903. 4. Green: THE LANCET, 1906, ii., 1712. 5. Carrel: Transactions of the American Surgical Association, 1910.

PRELIMINARY REPORT ON THE INTRAVENOUS INJECTION OF ANTIMONY IN FILARIASIS.

BY LIEUT.-COLONEL SIR LEONARD ROGERS, M.D., F.R.C.P., F.R.C.S., F.R.S., I.M.S.

THE remarkable success of intravenous injections of tartar emetic in kala-azar, as first shown by Caronia in the Mediterranean form of the disease and independently a little later by the writer in the Indian form, has now been followed by the discovery of its value in bilharzial disease by Christopherson[1] in the Sudan, who found that the ova disappeared from the urine and the symptoms subsided, presumably as the result of the destruction of the adult worms in the abdominal blood-vessels. As it appeared to me to be possible that the adult filarial worms might be not less susceptible to soluble antimony salts than bilharzia, I recently went on short leave to Puri in Orissa, where filarial disease is extremely common, to commence an investigation on this important problem.

In the case of bilharzial disease the ova tend to pass fairly rapidly into the urine and fæces in order to escape from the body and proceed with the extra-corporeal stages of their development, so the complete and lasting cessation of their appearance in the excreta may be taken as evidence of the death of their parents. In filarial disease the problem may not be quite so simple, as the embryo filaria live for long protected by their sheath in the blood without further development, and presumably not absorbing much nutriment from the plasma. They may therefore prove to be less susceptible to the harmful influence of a toxic drug than the parent worms and thus live for long in the blood after the death of the latter, in which event prolonged observations will be necessary to establish the effect of any toxic drug on the parent worms. Our knowledge of the duration of the life of embryo filaria in the human circulation appears to be deficient, if we may judge from the scanty and varying statements on the subject. Thus Bancroft thought that filarial embryos may live for a number of months in the circulating blood, while Sir Patrick Manson records that after attacks of lymphangitis, which may result in cutting off the adult worms from the general circulation, he has watched the gradual disappearance of the embryo filaria from the circulation in the course of a year or more, and D. R. Croll,[2] with Australian experience, has recently stated that the embryos may disappear from the blood in about four years in cases not subject to reinfection, although in this case either death or isolation from the general circulation of the adult worms must presumably occur. It is, at any rate, clear that, if the embryos resist a drug which is fatal to the adult filaria, long-continued observations will be necessary to establish the effects of the treatment. In cases presenting periodical filarial fever cessation of the attacks may possibly afford some evidence of the efficiency of any drug.

Owing to the difficulties in India of following up native hospital patients, especially when they suffer so little inconvenience, as in most cases with filaria in the blood, I have not yet been able to obtain conclusive evidence of the permanent value of intravenous injections of soluble antimony salts, but I trust the following data may be of some interest and also stimulate others with greater opportunities and leisure than I have to tackle this important problem on similar lines. It is only through the great kindness of Dr. J. N. Das, Civil Surgeon of Puri, in collecting cases for my visit to Puri, and subsequently sending me blood slides and full reports, that I have been able to do anything in the matter, and I wish to express my deep obligation to him.

Plan of Work.

Before my arrival at Puri Dr. Das had found filaria in three patients, and during my week's stay the number was increased to 13 cases by blood examinations in 105 patients showing possible symptoms of filariasis, such as elephantiasis, lymphangitis, hydrocele or periodical fever, or abscesses. Fresh blood was examined between 9 and 10.30 P.M., and thick blood films made from measured quantities taken up in a Thoma-Zeiss white corpuscle counter up to the mark 0·5, and stained in watery methylene-blue. These were examined, under a low power and with a movable stage, the next morning, when the number of embryo filaria in the measured quantity of blood was counted day by day. One case was kept as a control and 12 were treated, but two have been excluded from consideration as they only received two and four injections respectively and did not attend for later blood examinations. The remaining ten received from five to 11 injections, only two to six of which were full doses of 5 c.cm. of a 2 per cent. solution of sodium antimonium tartrate, or in two cases of 1 in 500 colloid antimony sulphide, which was used in preference to tartar emetic, as I have shown it to be less toxic. One feeble old man of 70 received only 4 c.cm. doses. Cases 9 and 10 were treated with similar doses of a 1 in 500 solution of colloid antimony sulphide, which I have already reported to be effective and only very slightly toxic in kala-azar. In the case of both preparations the first dose was usually $2\frac{1}{2}$ to 3 c.cm., and increased by $\frac{1}{2}$ c.cm. at each injection until the maximum of 5 c.cm. was reached. The injections were made daily for eight days, when the patients remained under observation sufficiently long, and then every other day. I had intended to have continued the injections up to a total of 24 in some of the cases, but, unfortunately, owing to patients prematurely leaving hospital or ceasing to attend as out-patients, less than half this programme was completed in any of the first series of cases. Apart from occasional coughing and slight nausea, and in one case sickness, no toxic symptoms were observed.

TABLE I.—*Daily Counts of Embryo Filaria in Cases under Treatment.*

No. of case.	No. of doses.	Total dose in c.cm.	Cases treated with sodium antimonyl tartrate 1 in 50.															
			Day—															
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	11	46 0	51	—	87	87	89	88	122	70	23	151	107	96	16	3	3	—
2	10	40·5	3	—	1	4	0	0	8	24	3	5	14	3	3	17	6	16
3	10	43·5	2	—	3	10	4	6	6	0	3	13	3	1	0	0	0	—
4	8	37·5	5	—	0	6	2	1	1	4	0	0	0	9	2	—	—	—
5	7	27·0	26	—	—	18	31	—	67	6	3	—	—	—	—		—	—
6	7	31·5	6	3	7	2	1	3	1	—	6	6	3	10	2	—	—	—
7	6	27·0	102	141	60	31	4	43	29	11	15	25	—	—	—	—	—	—
8	6	20·5	90	26	43	16	6	31	43	2	20	36	—	—	—	—	—	—
			Cases treated with colloid antimony sulphide 1 in 500.															
9	5	22·0	2	4	0	0	1	0	0	0	—	—	—	-	-	—	—	—
10	5	22 5	181	—	109	—	129	104	—	-	—	—	158	—	-	—	—	—

Results.

The following are the data which have been obtained by the short trial so far made. In the first place, in the control case repeated counts in the measured quantity of blood taken at the same hour of the evening during two months showed the number found to vary only between 60 and 80 in 22 out of 25 counts kindly made by Dr. Das, while in the other three the figures were 50, 85, and 90 respectively. This control case shows that where numerous filaria are present they do not vary very greatly in numbers from day to day, so any great diminution numbers in treated cases is likely to be due to the drug used. The daily counts in the ten treated cases are shown in Table I., together with the number of doses of the antimony salts injected and the total number of cubic centimetres given. The first count in each case was made before the treatment was commenced, but owing to the shortness of my stay in Puri it was not possible to make repeated preliminary control counts in them. In some of the cases—namely, Nos. 1, 3, and 5—a temporary increase followed by a considerable decrease was noted, as if the drug first stimulated the birth of the embryos—possibly an indication of a slightly harmful effect on the parent worms, resulting in an increased output in an effort to preserve the species under unfavourable conditions. A still more interesting and promising feature was noted by Dr. Das after I had returned from Puri—namely, that in some cases, who had received eight or more doses of the sodium salt, fresh evening specimens of the blood showed greatly diminished activity of the embryos with very sluggish movements as compared with the normal, while in such specimens (protected from drying) the embryos all died during the night; whereas before treatment many of them were always quite active on the following morning and even much later. Moreover, this striking change was followed by a rapid diminution of the number of embryos, both changes having been especially well marked in Case 1, who received the largest amount of the drug. If this is confirmed by further work it will indicate that repeated injections of the antimony salts have some direct action on the embryo filaria, with the additional possibility that they will prove still more harmful to the adult worms, which must absorb a good deal of nutriment from the lymph stream to enable the numerous progeny to be produced.

The figures in the table require little comment. It is noteworthy that the diminution in numbers of the embryos is most marked in those in which the original numbers were greatest—namely, Cases 1, 5, 7, and 8, and especially in No. 1, who received the largest number of doses, but less so in 7 and 8, who received only six injections each. In the cases with low original counts the figures are less definite, No. 2 with ten injections and No. 6 with seven showing no diminution. No. 3 showed disappearance of the embryos for three days, but this result is discounted by the same effect in No. 4, being rapidly followed by a return of the parasites. Nos. 9 and 10, with five injections only of the much weaker solution of colloid antimony sulphide showed no definite effect on the parasites, as the original number was too small in Case 9 for any significance to be attached to their absence for three days after the injections, while in No. 10, with numerous parasites, no reduction occurred. As far as it goes, it points to the sodium antimonyl tartrate being more effective than the colloid antimony sulphide, while the former is also more easily procured.

Lastly, Dr. Das has just sent me a valuable report on an additional case in which he has been able to give 22 injections of the sodium salt in the course of 43 days with blood examinations up to the fifty-ninth day. A slight decrease after ten injections was followed by a slight increase after five days' omission of the drug, but further doses caused the parasites to disappear. Table II. summarises the data of this case in a convenient form.

TABLE II.

Days.	No. of injections.	No. of blood counts.	Average of counts.
Before treatment	—	1	7·0
1 to 15	10	12	8.0
16 ,, 21	0	5	5·0
22 ,, 31	6	8	6·5
32 ,, 45	6 (to 43rd day)	9	0·7
53 and 59	0	2	0·0

The result in this case of numerous injections is thus satisfactory.

Conclusion.

All that can be said at present is that repeated intravenous injections of safe doses of sodium antimonyl tartrate appears to produce a definite diminution of the number of filarial embryos in the peripheral blood, which is probably due to a direct toxic effect on the embryos in view of the great decrease in the activity of their movements observed just prior to a rapid diminution in their numbers. Whether the treatment has any effect on the adult worms in the lymphatics or on the symptoms of the disease remains undecided, but the data so far obtained are sufficiently encouraging to make it advisable to continue the observations. I have now made arrangements to treat a further series of cases which can be kept longer under observation.

References.—1. THE LANCET, Sept. 7th, 1918, p. 325; and Brit. Med. Jour., Dec. 14th, 1918, p. 625. 2. Brit. Med. Jour., Jan. 4th, 1919, p. 28.

ASTLEY COOPER PRIZE FUND.—The trustees of this fund, who are the physicians and surgeons to Guy's Hospital, have been empowered to establish a studentship in connexion with the Gordon Museum of Guy's Hospital. The student will be elected for a period of three years and will be called the Astley Cooper Assistant to the Curator of the Gordon Museum. The present value of the studentship is about £150 per annum, with an additional sum of £50 for expenses. In accordance with the terms of Sir Astley Cooper's will the studentship shall not at any time be awarded to any member of the staff of Guy's or St. Thomas's Hospital or to anyone related by blood or affinity to them. Particulars regarding the studentship can be obtained from Mr. C. H. Fagge, M.S., Guy's Hospital, S.E.1, to whom application for the post should be addressed on or before Oct. 15th, 1919.

CONJUGAL TUBERCULOSIS.

BY E. WARD, M.D. CAMB., F.R.C.S. ENG.,
TUBERCULOSIS OFFICER, SOUTH DEVON.

THE frequency of tuberculosis in the husbands of tuberculous wives and the wives of tuberculous husbands, compared with the rest of the community, has not yet been decided. It has also been much debated whether any increased incidence there may be is due to infection or not. Divers opinions are held, but probably the most authoritative is that conjugal infection, if it occurs at all in tuberculosis, is certainly infrequent, and any increased incidence is attributed to predisposition and causes other than direct infection. It is suggested, for instance, that so-called "assortative" mating will largely explain the difference—that is to say, a person predisposed to tuberculosis is attracted by, and mates with, another similarly handicapped.

Conduct of the Inquiry.

The work of tuberculosis officer in South Devon consists in visiting the homes of all notified cases of tuberculosis—subject to the wishes of the practitioner notifying—the home conditions are observed, and contacts examined *in the home.* Cases once seen are generally kept under further observation at intervals of three months to a year (there are now 4000 cases and contacts on my list), and in this way most of the contacts are examined sooner or later. Special facilities exist, therefore, for studying the problem of conjugal infection. My experience leads me to believe that the authoritative view is wrong, that it is direct infection and not predisposition which is the most important factor in the spread of tuberculosis, and that infection is correspondingly more frequent in a case of man and wife, where the exposure to it is greater and more prolonged.

Out of 156 cases in which the mate of a tuberculous husband or wife was examined 91 were found to be tuberculous, 16 suspect, and 49 negative; if we reduce these figures to percentages it gives approximately 58 per cent. tuberculous, 10 per cent. suspect, and 32 per cent. negative. Considering solely wives whose husband was first notified, we find, out of 120 cases, 66 tuberculous, 12 suspect, and 42 negative; or 55 per cent., 10 per cent., and 35 per cent. While among husbands of tuberculous wives we find, in 36 cases, 25 are tuberculous, 4 suspect, and 7 negative; or 69 per cent., 11 per cent., and 20 per cent. (Chart I.)

CHART I.—*Results of Examination of the Husbands and Wives of Tuberculous Patients.*

—	Number examined.	Tub.	Sus.	Neg.	Percentages.		
					Tub.	Sus.	Neg.
Wives (husband first notified)	120	66	12	42	55	10	35
Husbands (wife first notified)	36	25	4	7	69	11	20
Total	156	91	16	49	58	10	32

These figures have been collected over a period of 5 years at the commencement of which I held no fixed opinion either way. In 15 cases the tuberculous mate first notified has died, and in 7 both husband and wife have died of tuberculosis. In deciding to which category a contact belongs the examination was not made so punctiliously that few could escape the net; two or more definite indications were required. Crepitations at one apex alone would not be called tuberculosis, but crepitations at one apex, plus a history of hæmoptysis, would so be called. Similarly dullness and crepitations at one apex would be classed as tuberculosis; and also failing health, hæmoptysis, and dullness, with crepitations, at one base. If the signs found were suggestive, but not sufficiently conclusive, the contact was classed as suspect.

Comparing now the results of examining contacts other than husband and wife: out of 1057 examined, 219 were tuberculous, 284 suspect, and 564 negative; or, roughly, 20 per cent., 27 per cent., and 53 per cent. (Chart II.) Taking as a further control the contacts of cases seen for an opinion and diagnosed non-tuberculous, either at the time of the first visit or later, out of 81 examined, 4 are found to be tuberculous, 7 suspect, and 70 negative; or in percentages 5 per cent., 8 per cent., and 87 per cent. (Chart III.) Cases of definite surgical tuberculosis, and their contacts, are included, but the number of such cases was relatively small.

CHART II.—*Results of Examination of the Contacts of Tuberculous Patients other than Husband or Wife.*

Number examined	Tub.	Sus.	Neg.	Percentages.		
				Tub.	Sus.	Neg.
1057	219	284	564	20	17	53

CHART III.—*Results of Examination of Contacts of Non-tuberculous Patients, including Husband or Wife.*

81	4	7	70	5	8	87

Discussion of Results.

In Dr. H. Sutherland's book ("Pulmonary Tuberculosis in General Practice") he states that out of 723 dispensary contacts examined 303 were tuberculous and 420 negative; he does not distinguish suspects. His figures for tuberculous contacts are higher, therefore, than mine, probably because they refer to contacts who went to a dispensary for examination, and a higher proportion of delicate contacts would be likely to go there than would be examined at home.

To consider for a moment the question of "assortative" mating (I think selective mating would be a better word), to which great importance has been attached by Pope and others. Among the working-class population, with whom my work is mainly concerned, I cannot discover that this factor comes into the question at all. Mating seems to be not so much selective as fortuitous: between the men and women who are most thrown in contact with one another. If a man or woman of a tuberculous type marries I do not find that they usually marry another of a tuberculous type. Moreover, by this time I know most of the markedly tuberculous families in South Devon and can recollect extremely few cases where two such families have intermarried, as they certainly would have done frequently in out-of-the-way places, where there are reasonable opportunities, if this sort of selection were an important factor.

No doubt a statistical study such as this is open to many criticisms. Different observers may place different interpretation on facts, and so classify them differently. For instance, take a family consisting of tuberculous father and mother and five children, three of whom are tuberculous: one observer will see a clear case of infection and another may consider it a case of family predisposition and selective mating. The important point in the present investigation is that the observations on man and wife contacts, on contacts other than man and wife, and on contacts of non-tuberculous patients are all made by the same observer and so may be justly compared with one another. Moreover, the records were made in the course of everyday work and not for the purpose of proving or disproving anything. The differences shown are more marked than could be accounted for by occasional errors, even if it was granted, for the sake of argument, that the error always occurred on the same side. Many more wives of tuberculous husbands than husbands of tuberculous wives were examined, partly because the wife is usually more available, partly because the husband was sometimes in the army. The higher percentage of tuberculous husband contacts is perhaps accounted for by the greater readiness of a man who is not feeling well to stay at home and be examined. I have not tried to discriminate between open and closed cases, or in cases where bacilli were found or not, because the closed cases often become open sooner or later, and because the examination for tubercle bacilli, if negative, must be several times repeated to be of any value. It must also be added that the figures here given are compiled almost entirely from the working and lower middle classes; the number of better class patients included is negligible.

The views held as to conjugal infection have been prejudiced to some extent by the well-known case of Metchnikoff, who married a tuberculous lady, and though exposed for years to infection never contracted the disease. This is after all only one case, and it is as unjust to argue from it as it would be to argue about diphtheria antitoxin from the death of the daughter of an early investigator in this field after a first injection. No one can deny that the individual resistance to tuberculosis varies within wide limits, or, indeed, that there may be families of low resistance, but the main factor concerned in spreading the disease that suggests itself when visiting the homes of tuberculous patients is infection.

After following up cases of conjugal tuberculosis for some years I take the view that the great majority of the mates of tuberculous husbands or wives do sooner or later show signs or develop symptoms of tuberculosis; but I further believe that the great majority of those infected recover, and make a speedier recovery than most tuberculous patients. This may reasonably be attributed to an enhanced immunity conferred by the graduated doses of bacilli which they usually receive.

Well knowing the difficulties in the way of any statistical investigation such as this I make no claim that the present contribution is a final settlement of the question, but am sure that this important subject should be reconsidered in the light of the greatly increased material now available. On the opinion generally held regarding infection the success or failure of all our anti-tuberculosis work depends. Either we take the fatalistic view of a universal infection and family predisposition (I almost wrote predestination), and therefore direct our efforts to help the tuberculous individual, or we look upon the disease as infectious, and take means to prevent it by isolating highly infective cases; there being as yet no method of universal vaccination against tuberculosis. I estimate that over 50 per cent. of all cases seen are due to direct personal infection, and am therefore a strong advocate of preventive measures.

ON THE OCCURRENCE OF

SPECIFIC AGGLUTININS FOR PFEIFFER'S BACILLUS

IN THE BLOOD SERUM OF INFLUENZA CASES.

By W. JAMES WILSON, M.D., D.Sc., D.P.H.,

LECTURER IN HYGIENE AND DIRECTOR OF THE PUBLIC HEALTH LABORATORIES, QUEEN'S UNIVERSITY, BELFAST.

(*A Report to the Medical Research Committee.*)

AT the present time the ætiology of influenza is attracting much attention. Many and various are the micro-organisms which are being advocated as the primary infective agents. Most investigators are in agreement as to the importance of pneumococci and streptococci in the infective process, especially in the later stages; but as to whether the *B. influenzæ* or a filtrable virus is the pioneer that prepares the way for these parasites opinion seems to be divided.

Some would appear to regard Pfeiffer's bacillus as being of little importance in the disease. The object of this short communication is to show that Pfeiffer's bacillus causes a very pronounced immunising response on the part of the influenza patient, and that this indicates that its presence is no mere coincidence, but that it is in some important way associated with the disease.

Nearly all who have studied the flora of the sputum of cases of influenza have succeeded in cultivating the *B. influenzæ* from such material in the majority of instances. Personally, both in France and in Ireland, I have readily obtained cultures from the bronchial expectoration. I may say that for many years I have used blood agar as a medium for examining sputum, and it is only since the present epidemic of influenza started that I have frequently encountered Pfeiffer's bacillus.

Agglutinin Experiments.

This investigation comprised the examination of 43 separate specimens of blood. Ten of the specimens were from cases that were definitely not influenza, but included such conditions as vaccinia, mumps, bronchitis, &c. In all of these no agglutinins for the *B. influenzæ* were found. The remaining 33 cases were typical examples of influenza of a severe type and all of them were suffering from or were convalescing from broncho-pneumonia at the date of the examination. As my investigation was made towards the close of the epidemic in Belfast my findings deal only with cases presenting lung complications, and I am unable to say whether agglutinins are present where the lungs escape.

Of the 33 the blood serum of 11 showed distinctly the presence of agglutinins for Pfeiffer's bacillus. Now the important point emerged that the positive cases were all still running a temperature, whilst those that were negative had been afebrile for periods varying from 6 to 32 days. The study of three cases showed me that the agglutinins very rapidly disappear from the blood when the patient becomes convalescent.

CASE 1.—T.S. on 29/3/19 agglutinated in a dilution of 1 in 160. The onset of the disease was on 24/3/19. His temperature became normal on 24/4/19 and on 7/4/19 his serum failed to agglutinate in dilutions varying from 1 in 2 up to 1 in 800.

CASE 2.—W. J. B. on 7/4/19 agglutinated in a dilution of 1 in 80. The onset of the disease was on 4/4/19. His temperature became normal on 8/4/19, and on 12/4/19 his serum failed to agglutinate in any dilution. This patient had been admitted to hospital on 6/3/19 with a temperature of 104° and signs of broncho-pneumonia. His temperature became normal on 14/3/19, but on 4/4/19 his temperature again rose to 100° and he had a sore throat, and it was at this period that the blood tests were made.

CASE 3.—W. N. was admitted to hospital on 6/4/19, and his temperature was 102°. After 12/4/19 there was no pyrexia. On 7/4/19 his serum agglutinated the influenza bacillus in a dilution of 1 in 1000. On 12/4/19 agglutination occurred only in a dilution of 1 in 80, and on 17/4/19 agglutinins were entirely absent from his serum.

The titre of the 11 positive cases was as follows: One in a dilution of 1 in 1000, four in 1 in 160, three in 1 in 80, and three in 1 in 40.

Technique.—In small test-tubes 0·5 c.cm. of 1 in 10, 1 in 20, 1 in 40, and 1 in 80 dilutions of the serum were put up, and to each of them an equal volume of the bacterial suspension in salt solution was added. The tubes were placed in a water-bath at 50°–52° C. for four hours, and at the end of this time the reading was taken. As a rule the results at the end of four hours were the same as at the end of two hours. After this preliminary test higher or lower dilutions were employed.

The bacillary suspension was prepared from cultures in Petri dishes and in Roux bottles of Pfeiffer's bacillus, the growth being washed off in normal saline solution. The emulsion was opalescent and of a similar uniform turbidity to that employed in the serological diagnosis of enteric fever. As a preservative 0 1 per cent. formalin or 0 5 per cent. carbolic acid was added. Large quantities of the emulsion were prepared at a time and each new batch was tested with serum of a known titre, so that my results are quite consistent and constant throughout. Moreover, in determining the course of development and fall of the agglutinins in a case specimens of serum taken at an earlier date were tested along with those more recently procured.

Five different strains of Pfeiffer's bacillus were employed separately. Three of these strains were found to be identical in their agglutinability, one was less agglutinable, and one was totally unaffected by the sera employed in our tests. This inagglutinable strain was isolated from a case a few weeks before my agglutination experiments commenced, and I had not an opportunity of trying the effect of the patient's serum on her bacillus. It may be that there are several types of the *B. influenzæ*, but it would seem from my limited number of experiments that the great desideratum in the agglutination test is to employ a bacillus which is readily agglutinated by influenza cases, and on which normal serum has no effect in any dilution.

The medium employed consisted of agar to which blood was added and boiled, or of agar with which was incorporated blood treated with normal sulphuric acid and then neutralised in accordance with Fleming's procedure.

Complement-fixation Reaction.

The method employed was a modification of No. 4 Medical Research Committee, Special Report Series, Wassermann test. The antigen was a fresh saline (0 85 per cent. saline and 0·5 per cent. phenol) suspension prepared from 48 hours growth of Pfeiffer's bacillus on Fleming's medium. The antigen was titrated alone and in the presence of normal serum, and in the test at least half the strength of that fixing complement in the presence of normal serum was employed The inactivated serum was diluted 1 in 20, as experiments showed that with the comparatively strong antigen I was employing a dilution of 1 in 5 of the serum was liable to give false positive results. The complement was a 1 in 10 dilution of guinea-pig's serum, and a serum was regarded as yielding positive result if, in the presence of antigen, it fixed 3 M.H.D.

Soon after my technique had been developed the supply of clinical material was exhausted, but I had a supply of sera of Cases 2 and 3 taken on 7/4/19. Experiments with these two sera showed that in the conditions above mentioned complete fixation of complement occurred whilst the sera of five controls were quite negative.

Complement-fixation is not likely to be of any value in the diagnosis of influenza, but I am quite satisfied from my results that an immune body appears early in the blood of the patients and disappears quickly during convalescence.

Toxic Effect of Cultures on Rabbits.

Pfeiffer early demonstrated the toxic effects produced in rabbits by the intravenous injection of living or dead cultures of his bacillus. The animals presented symptoms of profound muscular weakness and pronounced dyspnœa and death occurred in 2–24 hours. In these cases the fatal result has usually been attributed to the action of an endotoxin on the central nervous system.

The following experiment performed by me would seem to indicate that the condition of the lungs may be a contributory cause of the symptoms.

A rabbit was inoculated intravenously with 0·5 c.cm. of a moderately strong suspension of the *B. influenzæ* in normal saline. For half an hour after the injection no symptoms were noticed, but the rabbit was found dead two hours later. A post-mortem examination conducted within two hours showed no gross lesions beyond some congestion of the lungs, distension of the heart, and other evidence of death from asphyxia. Microscopic sections of the lungs displayed distinct hyperæmia of the arterioles and capillaries, and emigration of the leucocytes into the air cells. The alveoli in scattered areas contained a material which stained faintly red with eosin, and resembled that often found in the lungs of human cases. It would seem to be of an albuminous nature and to be indicative of œdema of the lungs. The air cells lost their distinct outline, the congestion of the capillaries and the emigration of leucocytes, as well as the œdema, contributing to this result. Other air sacs in the neighbourhood showed over-distension and acute emphysema. The leucocytes in the vessels are greatly increased in number; in a section of an arteriole there was on an average one white cell to every four or five red cells. It is surprising that these results could be produced in two hours, but the effect of the influenza bacillus on the rabbit's tissues is well worth further study and may throw some light on the pathology of the disease in man.

Conclusions.

(1) Agglutinins for Pfeiffer's bacillus early appear in the blood of cases of influenza. The titre may be as high as 1 in 1000.

(2) These agglutinins rapidly diminish as soon as the temperature falls, and are absent at the end of a week's convalescence.

(3) These agglutinins for the strains of bacilli studied by me are absent from the blood of normal individuals and of influenza convalescents even when tested for in a dilution of 1 in 2

(4) Complement can be fixed by an immune body present in the serum of influenza patients at the height of or early in the disease.

(5) The intravenous injection of rabbit with cultures of Pfeiffer's bacillus causes death in a few hours and the congestion and œdema found in the lungs may account for the dyspnœa and asthenia which precede the fatal issue.

In conclusion, my best thanks are due to Colonel Egan, R.A.M.C., the O. i/c. Military Hospital, Belfast, and to Dr. A. Gardner Robb, the medical superintendent of the Belfast Fever Hospital, for the facilities they so willingly afforded me of procuring the material on which my investigation is based. I am indebted to Dr. N. C. Graham for help in obtaining specimens.

MEDICAL MAGISTRATE.—Dr. John W. Staniforth has been added to the commission of the peace for the North Riding of Yorkshire.

BRONCHO-SPIROCHÆTOSIS IN EGYPT.[1]

BY NAJIB FARAH, M.D.,

FORMERLY INSTRUCTOR IN THE AMERICAN SCHOOL OF MEDICINE, BEIRUT.

THE geographical distribution of broncho-spirochætosis has not yet been well determined. The disease was first described in 1905 by Castellani in Ceylon. It was later found in India, the West Indies, Philippine Islands, and in other parts of the tropics by Waters, Branch, Jackson, Chalmers, O'Farrell, and others. Cases were recently reported from certain parts of Europe by Castellani in the Balearic-Adriatic zone, by Galli Valerio in Switzerland, and Lurie in Serbia. Violle was the first to find it in France in 1916, attacking Europeans who had never been in tropical countries before, as well as colonials.

In view of the fact that I have met with the disease recently for the first time among the natives as well as among the foreigners in Alexandria, it would be worth while, I think, from a clinical standpoint, to write a few words about the disease as it came under my observation.

It should be noted that the sputum was collected in every case in a sterile receptacle, after the patient had rinsed his mouth and gargled with an antiseptic solution, and was carefully examined microscopically. Cultures were also made, and I believe this should be done in every doubtful case of bronchitis to determine its ætiological factor. I am indebted to my distinguished colleague, Dr. Milton Craindiropoulo, director of the bacteriological laboratories of the Sanitary Quarantine Service in Egypt, for his kind collaboration in my bacteriological investigations. Bronchial spirochætes, tubercle bacilli, ova of *Distoma westermanii*, and fungi were particularly looked for in every sputum examined, and out of 22 cases who spat bloody expectoration I found 6 were due to bronchial spirochætes, 12 to tubercle bacilli, 2 to *B. Pfeiffer*, and 2 to broncho-moniliasis.

The stain we have been using for our spirochæte specimen is Leishman's stain. The spirochætes we have found are polymorphous in character. Cultures for hyphomycetes were made on Sabouraud's maltose-agar. I have not yet met with a case where there was an associated infection.

The cases I have seen were between the ages of 20 and 40.

Symptoms.—The majority were more or less chronic coughers. In one case the disease was of four years' standing. The general health of these patients was satisfactory and they complained of no, or little, pyrexia. Hectic temperatures were, however, reported. Practically all the the cases complained of a sense of oppression behind the sternum. The cough began either acutely or insidiously and varied in intensity from slight to severe. The expectoration differed in amount and character, from scanty to moderate, or, rarely, abundant; mucoid, or muco-purulent, often bloody or streaked with blood. Attacks of hæmoptysis not infrequently occurred. The physical examination of the chest often revealed nothing particular; few showed signs of bronchitis with varying râles, and seldom signs of consolidation. Among the acute cases the disease in one of the patients declared itself abruptly, with chill, fever, and symptoms of acute bronchitis, with headache and rheumatoid pains, followed by marked debility and impotence for about five months. In another case the patient was suddenly taken with a severe hæmoptysis amounting to about 400 g. of blood, followed by another one after a quiescent period of 35 days, during which he scarcely coughed. In another the patient complained of chill, fever, trifling cough, and a stitch under the right nipple, with signs of pleurisy, without effusion, followed 25 days later with a severe hæmoptysis. The temperature in these acute cases was not high, ranging between 38°–39° C., and did not last longer than ten days. The acute cases often passed into the chronic condition. I have not yet met with a fulminating case.

Diagnosis and prognosis.—Practically all the cases of broncho-spirochætosis I have observed were taken for phthisis. Examination of the sputum revealed total absence of tubercle bacilli and the specimens were swarming with bronchial spirochætes of varying shapes. In no one case have we found tubercle bacilli in association. Branch described one such case.

---

[1] I think I am also the first to find broncho-moniliasis in Egypt, which I am making a subject for further investigation. I am inclined to believe also that it is not infrequently to be met with here. The two cases I have observed have already been confirmed by Mr. Albert Chalmers, Director of the Wellcome Tropical Research Laboratories at Khartoum, to whom I have sent cultures and to whom I am indebted for the identification of the causal fungi.

The condition should also be well differentiated from endemic hæmoptysis by the absence in the sputum of ova of *Paragonimus westermanii*, from broncho-mycosis by the absence of fungi, and from influenza by the absence of Pfeiffer's bacillus. The prognosis is favourable more especially when the patient is properly treated. I have not yet met with a relapse after my treatment, notwithstanding the continual presence of very few spirochætes in the sputum of some of the patients.

Treatment.—Besides the hygienic and dietetic measures, arsenic, specially arsenobenzol and tartar emetic, have been used with satisfactory results. In all my cases I have been trying lipiodol (Lafay) intramuscular injections of 2 c.cm. each. Lipiodol is an iodine preparation analogous to iodipin, and according to the formula of the maker every c.cm. contains 0·54 g. of pure iodine. The preparation is not painful, or only slightly so, when injected. The cases with hæmoptysis were kept in bed, and calcium chloride was administered as well as a daily injection of one ampoule of lipiodol. A course of six to ten injections of 2 c.cm. each were given to every patient, one injection daily, followed by 20 more injections on alternate days. In no case have symptoms of iodism appeared.

The majority of my patients were practically well after this treatment, as proved by the improvement in their general condition and the disappearance of cough. A few continued to have a slight cough with a little mucoid or muco-purulent but never bloody expectoration, which contained very few spirochætes compared with their great number before commencing the treatment.

I have also tried lipiodol injections on the two cases of broncho-moniliasis mentioned above on the assumption that the anti-parasitic action of potassium iodide, used so far as specific in broncho-mycosis in general, was due to the iodine. Besides, I have refrained from administering potassium iodide, as it has the disadvantage of deranging the stomach. In the one case a severe form of one and a-half years' standing with fever and pneumonic-like exacerbations and attacks of hæmoptysis, and in the other of eight years' standing, after four intramuscular injections of lipiodol of 2 c.cm. each, one injection daily, to every patient, the monilia in the first case was entirely absent from the sputum, as proved by our cultures of seven days' duration; in the second case we found only one single colony in our Petri dish on the fifth day. This was accompanied by a great amelioration in the symptoms in both cases. The fungus could no longer be found in the sputum, subsequent to the treatment, as the iodine in the lipiodol had evidently put an end to it. It is hoped that both patients will be cured eventually if not cured already, as witnessed by the great improvement in their chest condition and general health. The action of the iodine in this respect may be compared to the action of emetine in dysentery. But, unlike the emetine, which only destroys the amœbæ which penetrate the mucous membrane of the gut, leaving those on the surface and the cysts unattacked, the iodine in the lipiodol in broncho-moniliasis most probably not only destroys the monilia in situ, but also, in the course of its elimination through the mucous membrane of the respiratory tract, kills the organism lying quietly on the surface of the air-passages awaiting a chance for further evolution.

I greatly recommend full trial of injectible iodine in both: broncho-spirochætosis and broncho-moniliasis or broncho-mycosis in general.

Alexandria.

LITERARY INTELLIGENCE.—Mr. William Heinemann announces that he has in preparation a book on "The Medical Prevention of Venereal Disease," by Sir Archdall Reid, with an introduction by Sir Bryan Donkin.

OPHTHALMOLOGICAL CLINIC IN PARIS.—We have received notice of an ophthalmological clinic conducted by Professors Laparsonne and Terrien and their assistants at the Hotel-Dieu in Paris. The course is to consist of 16 lectures, clinical meetings, and practical demonstrations, commencing on Tuesday, Oct. 14th, at 4 o'clock, and continued daily. The course is open to medical practitioners and students, both French and foreign, the fee for the course being 50 francs. Those who attend the course will be entitled to a certificate. Particulars can be obtained from the Secretary of the Faculty of Medicine.

FOREIGN BODIES IN THE ŒSOPHAGUS AND RESPIRATORY PASSAGES.

REMARKS ON THE DANGERS ARISING FROM THEIR IMPACTION AND SOME DIFFICULTIES WHICH MAY BE MET WITH IN THEIR REMOVAL:

A PLEA FOR THE ABOLITION OF THE COIN-CATCHER, THE BLIND USE OF THE BOUGIE AND PROBANG, AND THEIR REPLACEMENT BY THE DIRECT ENDOSCOPIC METHODS OF EXTRACTION.

BY IRWIN MOORE, M.B., C.M. EDIN.,
SURGEON TO THE THROAT HOSPITAL, GOLDEN SQUARE, W.

(Concluded from p. 575.)

PART II.

FORCEPS FOR THE REMOVAL OF FOREIGN BODIES.

IT has been shown by many cases reported that considerable difficulty is frequently found in removing foreign bodies when impacted, since they may be securely grasped by and wedged between the œsophageal wall, and often embedded; moreover, the forceps in general use have often proved to be too delicate and liable to break or slip off when an object has been seized. The non-slipping foreign-body forceps (Figs. 35 and 38*) which I have designed and described [65] have done away with these difficulties, for they will grasp and hold any shape or kind of foreign body so securely that when, for example, a coin is seized it is impossible for it to slip from the blades of the forceps during extraction.

In Fig. 36 the forceps are seen seizing the coin, whilst Fig. 37 shows the forceps blades, having drawn the coin upwards on to the spatula portion of the tube, acting as a wedge in the tube, thus holding the coin so securely that the coin, forceps, and tube may be removed en masse without any fear of the coin slipping, the weight of the electroscope and tube against the forceps blades only further increasing their holding power. As previously stated, endoscopic tubes with plane—i.e., non-bevelled—extremities are much better suited for the removal of the majority of foreign bodies—especially those of large size—than those with spatula extremities.

In Fig. 38 the movable jaw of the forceps is shown opening posteriorly towards the spine. The shank can be turned round through two right angles so that this movable jaw opens out either anteriorly or posteriorly, showing the advantages—especially in the case of impacted coins—of reversing the blades of the author's forceps, by revolving the shaft on the handle. The movable blade, opening posteriorly instead of anteriorly, may be passed down in close contact with the post-œsophageal wall, thus pressing back any fold, or insinuating itself posteriorly between the fold and the upper edge of the coin. (Fig. 39.)

Since writing this paper in 1915, the publication of which has been deferred on account of the war. the author's attention has been drawn to a short notice by Chevalier Jackson [66] introducing a pair of downward action œsophageal forceps on the principle of the alligator forceps (as used in America) for the same purpose and to overcome the same difficulties as described by the author. That the author's forceps have been in use in this country for the past five years is probably unknown to Chevalier Jackson. The actual seizing of a coin often has to be done blindly because the blades and shanks of the forceps nearly fill the lumen of the tube, especially in children. It is a popular error, even amongst endoscopists, that in order satisfactorily to remove foreign bodies from the œsophagus or respiratory tract the forceps require to be so slender in proportion to the diameter of the examining tube that they will not obstruct the view through the tube. This is generally only necessary where pins or other fine-pointed foreign bodies have to be dealt with, and where their seizure is only possible under the direct guidance of the eye.

Fletcher Ingals [67] very aptly suggests that the forceps, before insertion through the endoscopic tube, should be measured off to the length of the tube and marked by a narrow strip of adhesive plaster wound round it so that the operator may know when it reaches the lower end of the tube. He also points out that having located a foreign body—e.g., in the lung—one may sometimes grasp it while it is in sight, but commonly the forceps so obstruct the view that this is difficult. In such cases, if a forceps is used that has no sharp teeth to injure, e.g., the lungs, the instrument may be passed down in such a position that when the blades are open they must pass on each side of the foreign body; then when the mark over the stem shows that the end of the forceps has nearly reached the body the blades are opened and the instrument passed in about 1·5 cm. further, when the blades may be closed with as much assurance of catching the object as though it were done under direct inspection.

---

* Figs. 35 to 40 inclusive were published with Part I. of this paper.

[65] Irwin Moore, "On Removal of Foreign Bodies from the Œsophagus and Bronchi." THE LANCET, 1916, i., pp. 992–996.

[66] Laryngoscope, 1918, xxviii., p. 49.

[67] Trans. Amer. Laryngol., Rhinol., and Otol. Soc., 1909, 377.

In Fig. 40 the author's forceps are seen in position in the endoscopic tube attached to the Kahler electroscope, which is recommended by the writer in preference to that of Brünings for the removal of foreign bodies, since it allows more room to work and the easier application of larger and heavier instruments.

The author's case previously referred to, was reported to the Laryngological Section of the Royal Society of Medicine with the object of emphasising the great advantage of the more modern direct-vision method of removal over the old-fashioned coin-catcher which should now be obsolete; also to draw attention to the important point that coins almost invariably lie against the posterior wall of the œsophagus, and have their flat surface antero-posterior; the anterior wall being flaccid and easily stretched, thus allowing œsophagoscopic tubes in many cases to pass easily up and down in front of a coin without touching it, which accounts for frequent difficulty in finding them.

COINS IN THE RESPIRATORY PASSAGES.

Since this article deals to such a large extent with coins, it would be incomplete without reference to those cases where they have been aspirated into the respiratory tract.

Examination of the literature shows that this is a rare occurrence. Coins or buttons which pass into the air-passages are usually arrested in the larynx, but they may also lodge in the trachea, and small ones may enter the bronchi. On account of its larger diameter coins are more like to enter the right bronchus than the left. It is important to note that the left bronchus will just allow a sixpence (19 mm. diameter) to enter, whilst the right bronchus will admit one to a distance of an inch. (Fig. 41.) A shilling (23 mm. in diameter) will just enter the right bronchus, but not the left bronchus.

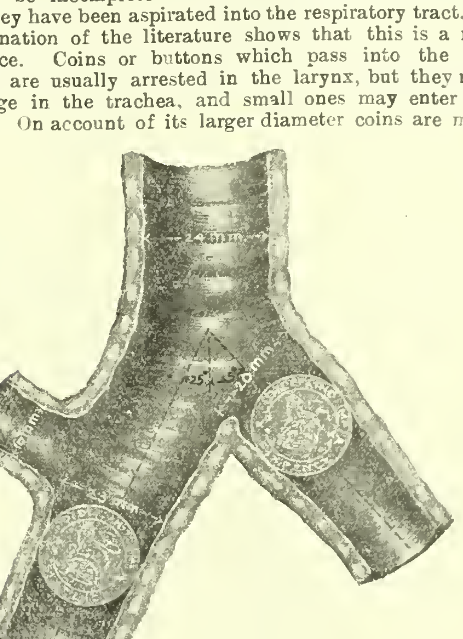


FIG. 41.—Vertical transverse section of the bifurcation of the trachea, viewed from the front, specially drawn to illustrate the fact that a sixpenny-piece will just enter the left bronchus, whilst it will pass down the right bronchus for one inch. The diameter of the trachea, right and left bronchus, and right epi-arterial bronchus are shown, also the inclination of the bifurcation angle showing why it is easier for a foreign body to pass into the right bronchus than into the left.

It is astonishing how the larynx and bronchi can tolerate the presence of coins. Instances are on record of large ones impacted and remaining for a long time in the respiratory passages without causing death, and in some cases only giving rise to minor symptoms, such as slight irritation and cough, whilst in other cases the violent attacks of coughing from which the patients suffer in their attempts to dislodge the foreign body has led to rupture of the pulmonary vesicles, followed by emphysema and pneumothorax. The impaction of a foreign body may also terminate the patient's life by acute bronchitis, followed by suppuration or gangrene of the lung. In other cases the foreign body serves as a nucleus, around which tuberculous deposit may take place. Guisez † (Paris) believes that many children die from the effects of an aspirated foreign body—e.g., from bronchitis, pneumonia, or tuberculosis, without the cause being diagnosed. J. D. Rolleston[68] found, from the statistics of the fever hospitals under the Metropolitan Asylums Board, that during the 15 years (1899-1913) there were only 6 cases of foreign bodies in the air- and food-passages which had all been certified as diphtheria—3 were foreign bodies in the larynx, 1 in a bronchus, and 2 in the œsophagus.

Since a number of deaths have been reported from acute or chronic affections of the lungs, where the diagnosis has been obscure, and foreign bodies found post mortem, it is important to keep in mind that unilateral affections of the lungs, especially in children, may be the first indication that a foreign body has been inhaled.

Statistics of Coins in the Respiratory Passages

Gross[69] (Louisville, U.S.A.) in 1854 tabulated 183 cases of foreign bodies in the air-passages, of which only seven were coins.

Poulet,[70] in his work on "Foreign Bodies in the Respiratory Passages," published in 1880, refers to only six cases of coins.

Durham[71] in 1883 collected together 706 cases, and mentions only two coins.

Weist[72] (Richmond, U.S.A.), in 1883, amongst 1000 collected cases, does not specially refer to coins, but evidently includes a few under the heading of miscellaneous foreign bodies.

Roe[73] (Rochester, N.Y.) in 1893 collected together 762 cases of foreign bodies in the air-passages, amongst which were six coins.

Hoffmann[74] (Leipzig), in 1897, amongst his tabulated list of 160 cases, only refers to four coins.

Hodge,[75] in his superadded list to that of Hoffmann of 92 cases, only mentions two coins.

Thomas Claytor[76] (Washington) in 1906, in his observations on 50 cases, only refers to one coin.

Chevalier Jackson[77] (Philadelphia) in 1915, amongst his 369 tabulated cases of foreign bodies in the food- and air-passages, records that only 19 were coins and 10 were buttons. Of the 19 coins only 1 was situated in the respiratory passages, whilst the 10 buttons were equally divided between the food- and air-passages.

The author can only trace 33 cases of coins in the respiratory passages recorded during the pre-bronchoscopic days—i.e., a period of 80 years, from 1819 to 1900—and 4 since the introduction of bronchoscopy in 1904—i.e., during the past 14 years. These cases are of such interest that the author takes this opportunity of condensing and publishing them altogether.

Lescure[78] (Paris) reports a case where a louis d'or was impacted in the right bronchus, at the level of the bifurcation of the trachea, for five and a half years. Patient was unable to lie down and finally died of *phthisis*. At the autopsy the right lung was found nearly destroyed by suppuration and the right thoracic cavity was filled with pus.

Key[79] (Camberwell) reported the case of a sixpence in the right bronchus of a man aged 35. Patient suffered from a violent cough and was unable to stoop or lie down without exciting the cough. At the end of the fifth week attempts to remove the coin (believed to be in the larynx) by laryngo-fissure failed. Three months later a tracheotomy was performed, but the patient died one hour afterwards from *apoplexy*. At the autopsy the coin was found in the right bronchus—the mucous membrane of which was thickened and ulcerated.

Dupuytren[80] (Paris) reports a case in which a half-franc piece remained in the bronchus (which one was not stated) of a man, aged 26 years, for 10 years before producing death. The coin was movable for the first five years, patient being inconvenienced by a cough and occasional attacks of dyspnœa, after which it became impacted and caused no further trouble. Death resulted from *phthisis*, and at the autopsy the coin was found embedded in a tubercular cavity.

---

† Du diagnostic des corps étrangers trachéo-bronchiques, Journ. des Praticiens, 1913, xxvii., p. 421.

[68] Proc. Roy. Soc. Med., 1914, viii. (Sect. Dis. Child.), p. 39.

[69] Foreign Bodies in the Air Passages, 1854. Cited by Burnett. Dis. Nose and Throat, 1893, ii., p. 517.

[70] Foreign Bodies in Surgery, 1880, ii., pp. 1–95.

[71] Holmes's Syst. of Surgery, 1883, i., p. 709. Cited by Burnett, op. cit., p. 515.

[72] Trans. Amer. Surg. Assoc., 1883, i., p. 117.

[73] Cited by Burnett, op. cit., p. 516.

[74] Specielle Pathologie und Therapie, 1897: also Nothnagel's Encyl. Pract. Med., 1903, Eng. edit., pp. 39–59.

[75] Op. cit., pp. 59–69.

[76] Amer. Med., 1906, xi., p. 396.

[77] Per-oral Endoscopy, 1915, Phila., pp. 382–396.

[78] Mem. de l'Acad. Roy. de Chir., Paris, 1819. cccli. Cited by Gross, Foreign Bodies in the Air-passages, Phila., 1854, p. 448. Cited by Hoffmann, Nothnagel's Encyl. Pract. Med., 1903, Eng. edit., p. 40.

[79] THE LANCET, 1829, ii., p. 661. Cited by Gross, op. cit., p. 403.

[80] Leçons Orales, Paris, 1833, iii., p. 584. Amer. Journ. Med. Sci., 1830, vi., p. 518. Cited by Gross, op. cit., p. 449. Cited by Poulet, Treatise on Foreign Bodies in Surgery, 1880, ii., p. 63.

Hochsteter[81] (Augsberg) refers to a Portuguese ducat as having been inhaled into the "respiratory tract," causing only hoarseness on exertion. It was expectorated 2½ years later and patient recovered.

Benjamin C. Brodie[82] records the case of the celebrated engineer Brunel, who accidentally inhaled a half-sovereign into the right bronchus, resulting in a troublesome cough. Tracheotomy was performed on the 24th day without result. Sixteen days later patient was inverted and the coin was coughed up.

James Duncan[83] (Edinburgh) had a case where a shilling passed into the larynx of a man and became impacted there. At first violent fits of coughing and difficulty in breathing occurred, soon followed by comparatively mild symptoms. The voice was reduced to a whisper. Inversion was carried out, the patient well shaken, and the coin expelled.

Lenoir[84] (Paris) reports the case of a man who inhaled a 50-centime coin, and it entered the right bronchus. By inversion and striking the patient on the back the coin was coughed out.

Edward Cock[85] (Guy's Hospital) records the case of a man, aged 35, with a sixpence in the right bronchus. He had a violent cough, expectoration of blood, and movement of the coin up and down the trachea. After a few days the coin was expelled during sleep.

J. O'Reilly[86] (New York) refers to another case of a sixpence in the left ventricle of the larynx in a male aged 30 years. Patient suffered from dyspnœa, loss of voice, and cough. Twenty-six days later, by inversion of the body, the coin was expelled.

T. G. Geoghegan[87] (Dublin) reports the impaction of a fourpenny-piece in the larynx, probably the ventricle, of a lad aged 17. It was followed by cough and great difficulty in breathing, which speedily subsided. Three days later the coin was expelled, during a fit of coughing.

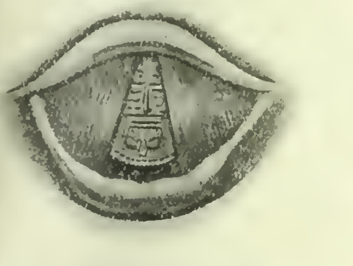


FIG. 42.—Half-a-sovereign impacted in the larynx—between the ventricular bands and cords—leaving only a small breathing space posteriorly. (To illustrate Henry Smith's case.)

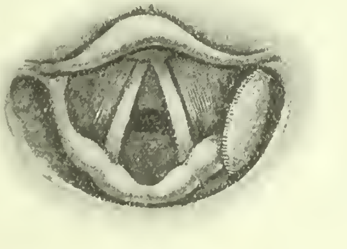


FIG. 43.—A 10-cent. piece standing upon its edge in the left pyriform fossa. (To illustrate Frank Ive's case.)

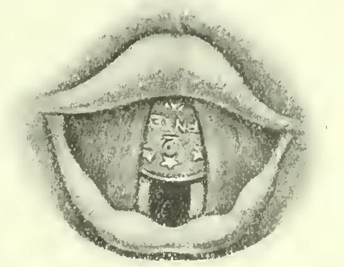


FIG. 44.—A 2-centime piece fixed in the ventricles—lying horizontally across the anterior two-thirds of the vocal cords—leaving only one-third of the glottis free for respiration. (To illustrate Grazzi's case.)

Adam Leith[88] (Manchester), had a case where a sovereign was impacted against the side of the larynx in a soldier, aged 23, causing difficulty in breathing and occasional fits of coughing, with hoarseness of voice. Two months later the coin was removed by laryngotomy after inversion had failed.

G. B. Halford[89] (Westminster Hospital) succeeded in expelling a shilling from the larynx by inversion and shaking.

Burdon Sanderson and J. W. Hulke[90] refer to a case in which a sixpence was lodged in the larynx of a man, aged 27, during ten weeks. It was horizontally placed in the larynx below the false vocal cords. Between its free edge and the arytenoid cartilage was a transversely oblong breathing space 1/10th of an inch wide from back to front. The first symptom was suffocation, but later perfectly tranquil breathing ensued. Patient was unable to speak above a whisper. Laryngotomy was performed, but during the operation patient coughed up the coin into the mouth and swallowed it, the coin passing into the stomach and being evacuated per anum the following morning.

Petrie[91] (Liverpool) refers to the case of a child, aged 10 years, who had a penny impacted in the larynx for six years, during which time it gave rise to no urgent symptoms. It was diagnosed by the laryngoscope and was successfully removed by endolaryngeal forceps, having become very corroded and losing 18 gr. in weight.

Cameron[92] (Liverpool) also reports the same case and mentions that the coin was embedded in the posterior wall above the vocal cords, in the vertical position. Beyond a cough, some stertor, and snoring at night, there were no symptoms.

Thomas Watson[93] refers to an instance in which a piece of gold lodged for years in one of the ventricles of the larynx without causing any distressing symptoms. It was finally coughed up.

Charles Roberts[94] (York) reports the case of a woman who inhaled a half-sovereign into the larynx. Alarming dyspnœa immediately occurred, necessitating tracheotomy. Search failed to find the coin, and on the third day the patient coughed up the coin.

Henry Smith[95] (King's College Hosp.) records a case where a half sovereign was impacted in the larynx of a male whilst under the influence of alcohol. It was diagnosed by the laryngoscope. It lay between the two vocal cords, almost completely filling up the inlet of the larynx, only a small space being left behind, very little air being admitted to the lungs. Patient could only whisper. (Fig. 42.) The coin was removed by laryngotomy.

West[96] (Birmingham) performed laryngo-tracheotomy to recover a shilling in the larynx of a youth, aged 22 years. Early symptoms of suppuration occurred which were later relieved and lasted a month followed by cough and dyspnœa. The foreign body was felt movable in the trachea and the patient could not lie on the left side. Attempts at removal failed, so laryngo-tracheotomy was performed and the coin successfully removed. Patient made a rapid recovery.

Heider[97] refers to the case of a child, aged 3½ years, who inhaled a coin. Frequent cough with difficulty in breathing ensued, with emaciation. Physical signs indicated that the coin was present at the bifurcation of the trachea. All symptoms improved and recovery became complete during the ensuing years.

Krishaber, M.[98] (Paris) refers to three cases in his experience, the first a male, aged 36, who aspirated a 30-centime piece during an outburst of laughter. It became impacted in the larynx, and was seen lying flat across the vocal cords, with its edges caught between the ventricles of Morgagni. Extraction was attempted next day by laying the patient face down across a bed, with the head hanging over the side. The finger of the left hand was introduced as far as the epiglottis as a guide for a pair of forceps which were passed into the larynx. The coin was seized but slipped. Another attempt with patient in the sitting-up position shifted the coin, which was swallowed and later evacuated per anum. The second case was also a male, aged 35, who aspirated a 50-centime piece whilst drinking. The coin became impacted in a similar position to the last, but leaving only a small space for respiration. An urgent tracheotomy became necessary, and a few days later patient was placed on the back with the head hanging over (the Rose position), and under an anæsthetic a bougie was introduced through the tracheal wound which dislodged the coin, and it was expectorated. The third case was a girl, aged 9 years, who aspirated a small copper coin whilst laughing, which was seen six hours later lying in the larynx in the usual position across the cords. With the patient lying face downwards across a bed and the head hanging over forceps were introduced and the coin was seized and removed. Krishaber advocated this position as the most likely to dislodge a coin and cause a natural tendency for it to fall out of the mouth on to the floor.

Joseph Bell[99] (Edinburgh) had a case where a sixpenny-piece was inhaled into the left bronchus of a male. A few days later patient was inverted and tapped smartly on the back opposite the left bronchus, when the coin was coughed out. No laryngeal or pulmonary symptoms were present. Laryngoscopic examination showed the coin lying edgeways in the left bronchus, just at the bifurcation.

Frank Ives[100] (New York) refers to two cases of foreign bodies (coins) in the larynx; removal. The first case was a girl, aged 16, with a 10-cent. piece. Laryngoscopic examination showed the coin standing up on its edge in the left pyriform sinus. (Fig. 43.) It caused only trifling inconvenience. Removed by forceps. The second case was that of a man, aged 47, with a 10-cent. piece which caused violent attacks of coughing and the voice was reduced to a whisper. Laryngoscopic examination showed the coin lying horizontally in the anterior portion of the larynx, resting upon the vocal cords, the edges anteriorly being under the vocal cords. Upon attempted phonation the cords were separated about a quarter of an inch. Two attempts to remove it by forceps failed. Next day, following a bad coughing attack, patient found his voice restored and believed he had swallowed the coin. Laryngoscopic examination showed that the coin was not in the respiratory passage or chest.

Grazzi[101] (Florence) refers to another case where a 2-centime piece was fixed in the ventricles and lay horizontally across the anterior two-thirds of the vocal cords leaving the posterior one-third of the glottis free for respiration. (Fig. 44.) He successfully removed the coin by means of horizontal-grasping laryngeal forceps under guidance of the laryngeal mirror.

---

[81] Cited by Gross, op. cit., p. 130.

[82] Med. Chir. Trans., Lond., 1843, xxvi., p. 286. Cited by Gross, op. cit., p. 356. Cited by Poulet, op. cit., p. 73.

[83] North Journ. Med. Edin., 1845, ii., p. 220; Lond. Med. Gaz., 1845, N.S., i., p. 218. Cited by Gross, op. cit., p. 202. Cited by Poulet, op. cit., p. 73.

[84] Journ. de Malgaigne, 1845, iii., p. 55. Cited by Poulet, op. cit., p. 73.

[85] Lond. Med. Gaz., 1845, N.S., i., p. 554. Cited by Gross, op. cit., p. 132.

[86] New York Med. Gaz., 1852, iii., p. 224. Cited by Gross, op. cit., p. 301.

[87] Dub. Med. Press, 1854, p. 225. Cited by Roaldes, Trans. Amer. Laryngol. Assoc., 1894. p. 104.

[88] THE LANCET, 1858, ii., p. 395. Cited by Roaldes, op. cit., p. 104.

[89] Cited by Holmes, Principles of Surgery, 1861, ii., p. 308. Cited by Poulet, 1880, p. 73.

[90] Dub. Med. Press, 1854. p. 225. Cited by Roaldes, op. cit., p. 104.

[91] Brit. Med. Jour., 1870, ii., p. 186.

[92] Liverpool Med. and Surg. Rep., 1870, iv., p. 188. Cited by Bosworth, Dis. Nose and Throat, 1892, p. 700.

[93] Pract. of Physics, 1871 (5th edit.), ii., p. 261. Cited by Arthur E. Durham in Holmes's Surgery, 1883, i., p. 760; and Morell Mackenzie, Dis. of Nose and Throat, 1880, i., p. 414.

[94] Brit. Med. Jour., 1871, i., p. 61.

[95] Ibid., p. 7. Cited by Roaldes, op. cit., p. 104.

[96] THE LANCET, 1877, ii., p. 722. Cited by Poulet, op. cit., p. 32.

[97] Cited by Poulet, op. cit., 1880, ii., pp. 51–52.

[98] Ann. des Mal. de l'Oreille, du Larynx, 1880, tome vi., p. 319.

[99] Edin. Med. Jour., 1881, xxvi., p. 1104.

[100] Archiv. of Laryngol., N.Y., 1883, iv., p. 204. Cited by Roaldes, op. cit., p. 104.

[101] Boll. delle Mal. dell'Orecchio, &c., 1884, N. 4. Cited by Bosworth, op. cit., 1892, i., p. 70.

Fauvel[102] (Paris) reports the case of a 50-centime piece impacted in the larynx for two days. It was fixed in the ventricles, its inferior aspect reposing upon the vocal cords and between its posterior edge and the arytenoid region was a space of 2 or 3 mm. It was removed by thyro-fissure.

Beverley[103] (Norwich) refers to a man, aged 42, who had inhaled a threepenny-piece into the larynx, causing difficulty in breathing which soon subsided. Laryngoscopic examination showed the coin lying across the true cords, impacted above their anterior extremities. Inversion and succussion was tried twice without avail. Thyro-fissure was performed, but the coin slipped back into the throat, and passed into the stomach, to be evacuated 9 days later per anum.

A. W. de Roaldes[104] (New Orleans, U.S.A.) reports a similar case to that of Grazzi—a male, aged 25, with a gold piece in the larynx. There was at first intense dyspnœa, and severe cough which soon abated. The coin was seen by laryngoscopic examination impacted between the vocal cords and ventricular bands. (Figs. 45 and 46.) It was removed by laryngeal forceps and mirror.

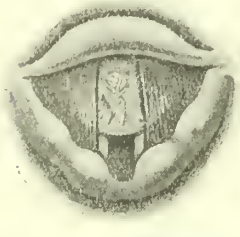


FIG. 45.—A gold coin in the larynx. View on quiet respiration.

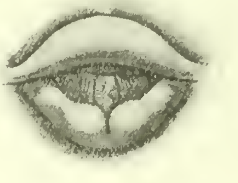


FIG. 46.—The same, on attempted phonation. (To illustrate A. W. de Roaldes case)

Binswanger[105] (Portland, U.S.A.) refers to a man having swallowed a dime which entered the right bronchus. It was coughed up after three months.

Wyman[106] (Detroit, U.S.A.) refers to the case of a man who inhaled a 10-cent. piece into the air-passages. Dyspnœa and cyanosis followed. Patient was suspended by the feet and the dime fell out of the mouth. Recovery.

Walker Downie[107] (Glasgow) reports the case of a man who swallowed a threepenny-piece during intoxication. Loss of voice and some difficulty in breathing followed for four weeks. Symptoms were attributed to a cold. The coin entered the larynx and was impacted across the vocal cords, so that their anterior and posterior extremities only could be seen. It was successfully removed by rectangular laryngeal forceps, opening antero-posteriorly.

Macintyre[108] (Glasgow) reports a case where a half-sovereign was aspirated into the right bronchus "some years previously." A severe spasm of the larynx occurred at the time, followed by another three months later, after which there was no further recurrence. X rays showed the coin in the right bronchus. Up to the date that the case was reported patient was contented to leave well alone, and so no attempts had been made to remove it.

H. Burger[109] (Amsterdam) refers to the case of a man, aged 34, who "swallowed" a silver coin. Little inconvenience followed. Per-oral bronchoscopy was carried out without narcosis, and the coin removed from "the lower part of the bronchial trunk" (whether right or left is not stated). No bad effects followed. Recovery.

Somerville Hastings[110] scored a great success for per-oral bronchoscopy in the case of a newsvendor who accidentally inhaled a half-sovereign. Nearly two years afterwards the coin was discovered by Mr. Hastings in the right bronchus and removed by per-oral endoscopy. Death unfortunately occurred ten days later from pulmonary tuberculosis caused by the long sojourn of the foreign body in the lung.

Chevalier Jackson[111] (Philadelphia) reports a case where a coin (a nickel) measuring 21 mm. (just over ¾ inch) in diameter was impacted in the trachea of a child, aged 3 years, for one day. The child suffered from extreme dyspnœa. The coin was successfully removed by bronchoscopy.

Summary of Results.

Of the 37 cases of coins in the air-passages collected by the author during a period of nearly a century (from 1819 to 1915), 22 were impacted in the larynx, 3 were in the trachea, 9 in the right bronchus, 1 in the left bronchus, whilst the remaining 2 were stated to be in a bronchus (in which lung was not stated). Seventeen were coughed up (8 assisted by inversion), and 2 coughed up into the mouth, swallowed, and later evacuated per anum. Death occurred in only 4 cases; from pulmonary tuberculosis in 3, and apoplexy in 1. Thyro-fissure was performed in 1, laryngotomy in 2, and laryngo-tracheotomy in 3 cases (in 1 of these the coin was coughed up, swallowed, and later evacuated per anum). Laryngeal forceps were used in 6 cases, no attempts at removal in 2 cases, and per-oral endoscopy employed with success in 3 cases. The longest sojourn of a coin in the larynx was six years (the case of Petrie) and in the bronchi 10 years (the case of Dupuytren).

It is astonishing that the remote effects of the sojourn of coins in the respiratory tract—judging from the records of these 37 cases—were so rarely associated with death. Only 4 deaths in 37 is a small number compared with the deaths reported as resulting from the impaction of coins in the food passages. The inaccessibility of the respiratory passages to the coin-catcher, bougie, and probang, and their consequent safety from the rough treatment generally meted out to the œsophagus, would appear to be the chief reason of these happy results.

Since the risk of inversion has so frequently been referred to in the removal of foreign bodies from the respiratory passages, it is interesting to note that amongst these 37 cases of coins no death occurred as a result of removal by this method, nor even when success did not follow this treatment.

THE BLIND USE OF THE BOUGIE AND PROBANG.

Reference to a few cases from amongst the many reported are here given to emphasise the dangers. Felix Semon[112] refers to a case which illustrates the danger of forcibly pushing down angular foreign bodies which have entered the mouth. A piece of rabbit bone having been swallowed, a practitioner attempted to push it down with a bougie and caused dangerous traumatic perichondritis of the larynx. Thyrofissure was performed during the acute stage of the perichondritis and the rabbit bone successfully removed. D. R. Paterson[113] showed at the Section of Laryngology, Royal Society of Medicine, on Dec. 6th, 1912, a piece of chicken bone 1¼ in. long removed from the œsophagus just below the cricoid. Both its extremities were sharp and illustrated the danger of attempting to push down such a body with a bougie. The same author[114] reports the case where a large irregular piece of bone, 1 in. (23 mm.) by ¾ in. (17 mm.), was accidentally swallowed in some soup and became impacted in the œsophagus. It was successfully removed by œsophagoscopy, but the patient died six days later from septic absorption from a lacerated œsophageal wall as a result of previous attempts made by a non-specialist to push it down with a bougie.

It is surprising to find that Mosher[115] refers to the bristle probang as *permissible only* in cases where a bolus of meat or a smooth foreign body like a coin or button is lodged at the back of the cricoid cartilage, and says that it is often successful in such cases and without danger, but that when rough foreign bodies like meat bones are to be dealt with its use is contra-indicated. In the author's experience it is in these very cases where a bolus of meat has become impacted that the risk of blindly using a probang is inadvisable, for a sharp piece of bone may be attached to the meat and may not be shown by the X rays. By the blind use of the probang in such a case a tear of the œsophageal wall may occur, followed by sepsis and death. Again, the suggestion still made by some surgeons to push down a foreign body into the stomach by means of a bougie, to be later removed by gastrotomy, cannot be too seriously condemned. Lambert Lack[116] refers to having in one case of impaction of a large tooth plate pushed it down into the stomach, and left it to the surgeon to deal with it by that route. He says "some foreign bodies which will not come up can be pushed down easily."

Friedberg[117] (Chicago), on the other hand, refers to a case of a young child having swallowed a piece of ham bone. A physician attempted to remove it and under the theory that "what would not come up must go down," pushed i with a bougie, as he thought, into the œsophagus, but really through the œsophageal wall. Suppuration in the tissues o neck followed, and the bone was removed by externa excision. Death resulted from the infection. Chevalie Jackson[118] maintains, and quite rightly, that it should b possible under general anæsthesia and with full muscular relaxation to retrieve by the same route any foreign body that has gone down the œsophagus. Force, he says, must be avoided, and turning or morcellation employed if the foreign body be impacted.

---

[102] Gaz. des. Hôp., August 25th, 1887. Abstract Journ. Laryngol., Rhinol., and Otol., 1887, i., p. 381.

[103] Brit. Med. Journ., 1889, ii., p. 14.

[104] Trans. Amer. Laryngol. Assoc., 1894, p. 102.

[105] Med. Sentinel, Portland, Ore., 1896, iv., p. 329. Cited by Hodge, Nothnagel's Encyc. Pract. Med., 1903 edit., p. 62.

[106] Physician and Surgeon, Detroit and Amer. Arbor, 1897, xix., pp. 198–207. Cited by Hodge, op. cit., p. 65.

[107] THE LANCET, 1899, ii., p. 1018.

[108] Journ. Laryngol., Rhinol., and Otol., 1900, xv., p. 357.

[109] Nederl. Tigdscha. v. Geneesk, 1909, Bd. i., p. 671. Abstract Laryngoscope, 1910, xx., p. 351.

[110] By verbal communication to E. D. Davis "On the Importance of a Very Thorough Examination in Cases of Foreign Bodies Alleged to have been Swallowed or Inhaled," THE LANCET, 1914, ii., p. 493.

[111] Per-oral Endoscopy, 1915, p. 382.

[112] Journ. Laryngol., Rhinol., and Otol., 1894, p. 149.

[113] Op. cit., 1913, xxviii., p. 258. [114] Op. cit., 1916, xxxi., p. 149.

[115] Trans. Amer. Laryngol., Rhinol., and Otol. Soc., 1909, p. 409.

[116] Journ. Laryngol., Rhinol., and Otol., 1916, xxxi., p. 151.

[117] Ann. Otol., Rhinol., and Laryngol., 1917, xxvi., p. 771.

[118] Trans, Internat. Cong. Med. Lond., August, 1913, Sect. xv., p. 2 Journ. Laryngol. Rhinol. and Otol., 1914, xxix., p. 375.

Tilley[119] relates the case of a man, aged 52, who swallowed a tooth-plate during sleep. The following day he visited a *general hospital*, where two prolonged but ineffectual attempts were made to force the denture into the stomach by bougies. 48 hours later he was admitted to University College Hospital very ill and collapsed. By direct œsophagoscopy the denture, which was seen surrounded by folds of œdematous and lacerated mucous membrane, was successfully removed, patient dying the third day after from septic pulmonary symptoms. Post-mortem showed two large sloughing perforations of the œsophagus, through one of which it was obvious the bougie had passed 4 inches downwards into the adjoining mediastinum. The same author[120] also refers to another case where a piece of turkey bone was removed by œsophagoscopy from the gullet and where previous attempts on three occasions had been made to push it down with a probang, causing serious ulceration of the œsophagus.

Kelson,[121] in referring to the dangers of blind instrumentation, reports a case where a piece of nut stuck in the man's gullet. The following day "vigorous and painful instrumentation was carried out by a doctor with a probang," resulting in recurring deep abscesses in the neck, which required many operations before they were cured. Loubet Barbon[122] (Paris) reports the case of a woman, aged 60, suffering from difficulty in swallowing due to a stricture in the upper third of the œsophagus. A bougie was passed which caused a false passage resulting in subacute emphysema and death. The same accident may occur in strictures caused by impacted foreign bodies where bougies are used.

Guisez[123] (Paris) has related some cases of mediastinitis resulting from the passage of œsophageal bougies, and he considers that the instrument ought to be proscribed. Chevalier Jackson,[124] in condemning the use of the bougie in the localisation of œsophagically lodged foreign bodies, refers to "the useless waste of time lost by the blind passage of bougies, whether disease or a foreign body is suspected," and he considers "the last defence of the blind bougie for diagnosis is based upon obsolete conditions," and that "the œsophagoscope passed by sight is safer than the bougie—the latter being a relic of pre-bronchoscopic days." He thinks it is "a crime to pass an instrument blindly into the œsophagus in an attempt to remove a foreign body." Gordon King[125] (New Orleans) remarks that since the advent of the X rays and the perfected œsophagoscope the detection and removal of foreign bodies of the gullet and air-passages have been greatly facilitated. Anyone called upon to relieve such cases is no longer justified in resorting to the older methods of probang, œsophageal sounds, or the coin-catcher. Killian[126] has emphasised the danger of blind attempts at removal of foreign bodies from the œsophagus. He says ulceration or mediastinitis may as a result develop and fistulæ open into the trachea, or the aorta may be punctured. Tilley[127] says, "blind groping in these regions has been responsible for an appalling number of fatalities. For this reason coin-catchers, umbrella-probangs, and such like should be relegated to the historical sections of anatomical museums." The author of this paper has previously referred[128] to cases exemplifying the serious results which may follow ill-advised and blind attempts to push down foreign bodies with the bougie.

Importance of Considering Practical Points.

In all cases, therefore, in dealing with foreign bodies in the œsophagus and respiratory passages it is important that the many practical points referred to in this paper should be considered. No unnecessary delay should occur in extraction. In the case of foreign bodies in the œsophagus, the post-œsophageal wall should be especially carefully searched by tilting the distal end of the endoscopic tube, both during its downward passage and during its withdrawal. It is well to remember that the local application of cocaine, or a mixture of cocaine and adrenalin to the œsophageal walls, will greatly assist the successful extraction of foreign bodies by contracting the swollen mucosa and overcoming spasm. Preference should also be given to larger tubes with circular extremities, and the largest size used compatible with safety.

In the removal of foreign bodies from the œsophagus under general anæsthesia, and for this purpose chloroform is best, the passage of the œsophagoscope is exceedingly liable—especially in children—to produce pressure on the larynx or trachea, thus impending or even causing cessation of respiration. It is important, therefore, in these cases to obtain the services of an expert anæsthetist; the breathing should be carefully watched so that due warning may be given to the operator when the airway becomes obstructed, and the tube should be immediately withdrawn for a few minutes until the breathing has again become normal.

THE LANCET in a leading article[129] on "Foreign Bodies in the Lower Air-Passages and Œsophagus" says, "there are still those who use for removing foreign bodies from the lower air-passages and from the œsophagus methods which can at best be described as antiquated, and which should no longer be thought worthy of consideration where an endoscope is available."

Another leading article[130] in THE LANCET on Foreign Bodies in the Bronchi, referring to the rapid progress that has been made during recent years in this special branch of surgery says: "Every general hospital should be provided with the latest instrumentarium necessary for the practice of these direct methods of exploring the food and air passages, and the laryngologist who is expert in using them should be the first person summoned when emergencies of this sort reach the hospital." With a foreign body in the œsophagus or respiratory passages the patient is not free from danger until it is successfully removed.

It is the duty, therefore, of the specialist to devise such means for overcoming the many varied and unexpected difficulties which beset the path of this—one of the greatest advances in surgery. By drawing attention to these cases, along with the opinions expressed by competent authorities, it is hoped that it may help towards the early elimination of these obsolete methods of treatment in the surgery of foreign bodies in the air and food passages, and encourage the more scientific and practical methods of bronchoscopy and œsophagoscopy.

Bibliography.

Ballenger, W. L. (Chicago): Diseases of Throat and Ear, 1914.

Bosworth, F. H. (New York): Diseases of Nose and Throat (American edition), 1892.

Brünings, W. (Jena): Direct Laryngoscopy, Bronchoscopy, and Œsophagoscopy, English edition, translated by W. G. Howarth, 1912.

Burnett, C. H. (New York): Diseases of Nose and Throat, 1893, ii.

Coolidge, A., Junr. (Boston): Four Cases of Foreign Body in a Bronchus, Trans. Amer. Laryngol. Assoc., 1904, xxvi., p. iii. The Extraction of Foreign Bodies from the Bronchi, Boston Med. and Surg. Journ., 1904, cli., p. 395. Foreign Bodies in the Trachea and Bronchoscopy, Trans. Amer. Laryngol. Assoc., 1906, xxviii., p. 302.

Claytor, Thos. A. (Washington): Foreign Bodies in the Bronchi, Amer. Med., 1906, xi., p. 396.

Davis, E. D.: On the Importance of a Very Thorough Examination in Cases of Foreign Bodies Alleged to have been Swallowed or Inhaled, THE LANCET, 1914, ii., p. 493.

Durham, Arthur: Holmes's System of Surgery, 1883, i., p. 786.

French, J. Gay: The Removal of Foreign Bodies from the Œsophagus by means of Brünings's Direct Œsophagoscope, Brit. Med. Jour., 1909, ii., 1794.

Friedberg, Stanton A. (Chicago): Foreign Bodies in the Œsophagus: An Analysis of Fifty Cases, Ann. Otol., Rhinol., and Laryngol, 1917, xxvii., p. 768. Œsophagoscopy, Ibid., 1914, xxii., p. 123.

Guisez, J. (Paris): Maladies de l'Œsophage, 1911.

Gross, S. D. (Louisville, U.S.A.): Foreign Bodies in the Air-Passages, 1854.

Halstead, Thomas (Syracuse, N.Y.): Personal Experience in the Use of the Bronchoscope, Œsophagoscope, and Gastroscope, with Report of 14 Cases, Trans. Amer. Laryngol. Assoc., 1908, xxx., p. 102. The Practicability of Bronchoscopy and Œsophagoscopy, Ibid., 1909, xxxi., p. 383.

Hodge: Nothnagel's Encyl. Pract. Med. (English edition), 1903, p. 82.

Hastings, Hill (Los Angelos): Removal of Foreign Bodies from the Larynx, Disproving Previously Made Diagnoses, Trans. Amer. Laryngol. Assoc., 1917, xxxix., p. 110.

Hastings, Somerville: A Foreign Body Removed Through the Posterior Wall of the Œsophagus, Middlesex Hosp. Journ., 1918, xx., p. 208.

Hill, William: The Present Position of Endoscopic Surgery of the Throat, Trachea, Bronchi, and Gullet, Journ. Laryngol., Rhinol., and Otol., 1916, xxxi., p. 164.

Hoffmann, F. A. (Leipzig): Nothnagel's Encyl. Pract. Med. (English edition), 1903, pp. 37–81.

Ingals, E. Fletcher (Chicago): Œsophagoscopy and Bronchoscopy, Trans. Amer. Laryngol. Assoc., 1904, xxvi., p. 97; Journ. Amer. Med. Assoc., 1904, xliii., p. 1514. Bronchoscopy for Foreign Bodies in the Lungs, N.Y. Med. Journ., 1905, lxxxii., p. 53.

---

[119] THE LANCET, 1918, i., p. 283.

[120] Proc. Roy. Soc. Med., 1917, x. (Laryngol. Sect.), p. 88.

[121] Op. cit., 1917, x. (Laryngol. Sect.), p. 93.

[122] Journ. Laryngol., Rhinol., and Otol., 1913, xxviii., p. 560.

[123] Ibid.

[124] Per-oral Endoscopy, 1915, pp. 218–219.

[125] Trans. Amer. Laryngol. Assoc. 1905, p. 202.

[126] Trans. XVIIth Internat. Cong. Lond., 1913, Sect. xv., p. 7. Abstract Journ. Laryngol., Rhinol., and Otol., 1914, xxix., p. 327.

[127] THE LANCET, 1918, i., p. 287.

[128] Proc. Roy. Soc. Med., 1917, x. (Laryngol. Sect.), pp. 94–97.

[129] THE LANCET, 1918, i., p. 302.

[130] Op. cit., 1910, i., p. 1280.

Ingersoll, John M. (Cleveland): Bronchoscopy and Œsophagoscopy: The Technique, Utility and Dangers, Trans. Amer. Laryngol. Assoc., 1909, xxxi., p. 362. Two Cases of Bone Impacted in the Larynx, Ibid., 1906, xxviii., p. 24.
Jackson, Chevalier (Philadelphia): Bronchoscopy and Œsophagoscopy, Journ. Amer. Med. Assoc., 1902, liii., p. 1009. Foreign Bodies in the Trachea, Bronchi, and Œsophagus, Laryngoscope, 1905, xv., p. 257. The Recent Progress of Endoscopic Methods as Applied to the Larynx, Trachea, Bronchi, Œsophagus, and Stomach, Trans. XVIIth. International Congress of Medicine, London, 1913, Sect. XV., p. 1. Per-oral Endoscopy, Phila., 1915. The Limitations of Bronchoscopy, Trans. Amer. Laryngol. Assoc., 1914, xxxvi., p. 51.
Kahler, Otto (Vienna): Œsophagoscopy and Tracheo-bronchoscopy, 1909.
Killian, G. (Vienna): Short Hints for Examining the Œsophagus, Trachea, and Bronchi by Direct Method, Journ. Laryngol., Rhinol., and Otol., 1902, xvii., p. 505.
King, Gordon (New Orleans, U.S.A.): Two Cases of Foreign Bodies Impacted in the Œsophagus, Trans. Amer. Laryngol. Assoc., 1905, xxvii., p. 200.
Moore, Irwin: Removal of Foreign Bodies from the Œsophagus and Bronchi, THE LANCET, 1916, i., pp. 992–996.
Morton, W. C.: Some New Instruments for Removing Foreign Bodies from the Bronchi by Direct Bronchoscopy, Journ. Laryngol., Rhinol., and Otol., 1906, xxi., p. 12.
Mosher, Harris Peyton (Boston): Some Observations on Œsophageal Cases, and the Presentation of Two New Instruments, Trans. Amer. Laryngol. Assoc., 1909, p. 393.
Paterson, D. R. (Cardiff): The Direct Examination of Œsophagus and Upper Air-Passages, Brit. Med. Jour., 1906, ii., p. 353.
Patterson, Ellen J. (Pittsburgh): Foreign Bodies in the Bronchi and Œsophagus, Report of Cases, Penn. Med. Jour., 1918, xxi., p. 448.
Poulet, A. (Paris): Foreign Bodies in the Air-Passages, 1880, ii., pp. 1–95.
Richards, G. R. (Fall River, Mass.): Discussion on Mosher's Paper on Three Œsophageal Cases, Trans. Amer. Laryngol. Assoc., 1909, xxxi., p. 371.
Roaldes, H. W. de (New Orleans): A Case of Foreign Body (Gold Coin) Engaged in the Ventricles of the Larynx, Trans. Amer. Laryngol. Assoc., 1894, p. 104.
Roe, J. O. (Rochester, N.Y.): Burnett's System of Diseases of Nose and Throat, Phila., 1893, p. 516.
Schwyzer, Arnold (St. Paul, U.S.A.): On Bronchoscopy, Ann. Surg., 1904, xxxix., p. 194.
Shurley, E. L. (Detroit): Diseases of Throat, Nose, and Ear, 1900, p. 164.
Tilley, H.: A Consideration of the Treatment of Foreign Bodies in the Lower Air-Passages and the Œsophagus: A Plea for Endoscopy or the Direct Method, THE LANCET, 1918, i., p. 283.
Weist, J. R. (Richmond, U.S.A.): Foreign Bodies in the Air-Passages, Trans. Amer. Surg. Assoc., 1883, i., p. 117.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A CASE OF
PHLEGMON OF NECK
FROM PERFORATION OF PHARYNGEAL WALL BY A SWALLOWED FOREIGN BODY.

BY W. APPLEYARD, M.B., B.S.LOND., F.R.C.S.ENG.,
HONORARY AURAL SURGEON, ROYAL EYE AND EAR HOSPITAL, BRADFORD; EAR, NOSE AND THROAT SURGEON, BRADFORD CITY EDUCATION AUTHORITIES.

WHETHER any foreign body in a bolus of food passes straight down the œsophagus into the stomach or is caught in some part of its passage depends on three factors: (1) its size; (2) its shape; (3) its position in the bolus of food. A smooth foreign body of such a size as to escape notice in bolting the food by a ravenous eater will almost certainly pass into the stomach. An irregularly shaped foreign body—e.g., a dental plate or portions of the flat bones of animals (shoulder blade or hip bone)—will often be caught in some part of its passage, more generally in the œsophagus than in the pharynx. A sharp-pointed foreign body of small size may be caught at any part of its passage downwards and perforate the walls of the pharynx or œsophagus if it lies on the surface of the bolus of food.

In the majority of cases of perforation of the walls of the food passages, the foreign body does not succeed in completely passing through, but is arrested in its passage so that part of it still remains in the pharynx or œsophagus, where it can be seen by the indirect or direct methods of examination, and its extraction more or less easily carried out. In the remaining minority of cases, where the foreign body completely perforates the walls, its subsequent removal depends on whether it can be localised by means of the X rays or not. If it can be localised, an immediate operation can be performed and the foreign body sought for in the indicated position; otherwise the case has to be carefully watched, as one may be uncertain whether or not the foreign body has been swallowed and entered the stomach. It is notorious, for instance, that many cases come up to hospital complaining of having swallowed something which has stuck in their throat. The most thorough examination fails to reveal any sign of a foreign body; the symptoms gradually abate, and in a few days the patient has entirely forgotten the accident.

Once perforation of the pharyngeal or œsophageal wall has taken place inflammatory changes are set up from infection of the connective tissue spaces and an abscess results. This may occur even after the foreign body has been removed. Patterson[1] reports a case of a woman who swallowed a fish-bone and reported at hospital two days later, saying it had stuck in her throat. No bone could be seen either with the mirror or the œsophagoscope. Next day a fish-bone was vomited up. Two days later there was a swelling in the neck, and five days afterwards pus was evacuated by a free incision behind the sterno-mastoid. Gantz[2] relates a case of abscess of the neck due to swallowing a small piece of bone, which was removed from the left sinus pyriformis; three days later signs of an abscess of the neck began to appear, from which offensive pus was subsequently evacuated; the case ultimately recovered after showing signs of an œsophageal fistula. If the posterior wall of the pharynx is perforated spinal meningitis may be caused, as in the following interesting case reported by Marschik.[3] A girl, aged 4, accidentally swallowed a needle, which was seen sticking in the posterior pharyngeal wall; it was broken during extraction and a part left behind. The parents insisted on taking the child home, and did not come back until a week had elapsed, when the child was readmitted with fever and stiffness of the neck. An X ray photograph showed the remaining fragment of the needle, half a centimetre in length, in the retro-pharyngeal space. An attempt to extract it with forceps failed, though a small area of bare bone on the vertebral column was discovered. External pharyngotomy from the right side was performed, and a fistula, 2 cm. deep, found in the corresponding disc. After some difficulty the fragment was found and extracted, and the child recovered for the time being and was sent home three weeks after the operation. Six weeks later she was admitted to another hospital with signs of meningitis, from which she died in a few days. Autopsy showed a fistula between the bodies of the third and fourth cervical vertebræ communicating with the spinal canal and causing pachymeningitis and then leptomeningitis. There was also a large abscess in the right frontal lobe which had ruptured into the ventricle, and several small abscesses in the left frontal lobe.

Author's Case.

Mrs. X., aged 47, was admitted to the Bradford Royal Eye and Ear Hospital on March 29th, 1919, complaining of having swallowed a piece of glass which had stuck in her throat. A broken jar of marmalade had been delivered at her house, and having cleared it, as she thought, of all fragments, she hastily ate some bread and marmalade at 11.15 A.M. She experienced a sharp cutting pain in the left side of the throat, and immediately went to Dr. Glen Parker, of Bradford, who sent her up to hospital at once. I saw her at 2 P.M., and she was then firmly convinced that the piece of glass was sticking in her throat. I examined her very carefully both by direct inspection from the mouth and by the laryngoscopic mirror, but could see no trace of a foreign body; there was, however, a little blood-stained mucus in the hypopharynx on the left side. She was then examined with the œsophagoscope, again with a negative result, except for a little blood-stained mucus in the œsophagus. Even if a piece of glass had been embedded in the wall of the pharynx it would probably have been very difficult to see, as by its refractive properties it would have taken on the colour of the medium by which it was surrounded.

As I was not satisfied with the result of the examination I kept her in hospital under observation. She continued to complain that the fragment was still in her throat, but had no other symptoms until the evening of April 5th, when she had a temperature of 99·6° F. The following evening it was 100·2°. I saw her on April 7th and found that she had a brawny swelling of the left side of the neck along the anterior border of the sterno-mastoid muscle, with its most prominent part about the level of the lower border of the thyroid cartilage. Examination with the laryngoscopic mirror showed considerable œdema and some bulging of the left lateral pharyngeal wall as far down as the commencement of the œsophagus, and slight collateral œdema of the left ary-epiglottic fold; the whole area was bathed in thin stinking pus, which conferred a very foul odour on the breath.

Operation.—Chloroform was administered, and to avoid an unsightly scar an almost horizontal incision was made over the most prominent part of the swelling, having the anterior border of the sterno-mastoid muscle at its centre. The anterior edge of the muscle was defined and a pair of sinus forceps pushed cautiously in. Almost immediately a quantity of extremely fœtid pus was evacuated. The opening of the abscess cavity was enlarged and the cavity explored with the finger. I then felt what I took to be the foreign body lying in the angle between the vertebral column and the lowest part of the pharynx. A pair of dressing forceps was introduced and a piece of glass, a quarter of an inch long and less than an eighth across at its widest part, brought to light when they were withdrawn. A drainage-tube was inserted and dressings applied. The fœtid discharge ceased in three or four days, and the patient was discharged cured on April 27th.

In this case it was thought at first that the patient had swallowed the foreign body completely, as nothing could be seen except a little blood-stained mucus, with either the mirror or the œsophagoscope. Further, no help could be expected from the X rays, as glass is transparent to them. It is fortunate that she was kept under observation, and further, that the foreign body was discovered in the abscess cavity.

References.—1. Proc. Roy. Soc. Med., Laryngol. Sect., vol. ix., 60. 2. Monatschr. f. Ohrenheilk. u. Laryngo-rhin., xlviii. Jahrg., 183. 3. Ibid., xlvii. Jahrg., 104.

RETROGRADE INTUSSUSCEPTION OF JEJUNUM THROUGH STOMA OF GASTRO-JEJUNOSTOMY.

BY RICHARD WARREN, M.D., M.CH., F.R.C.S.,
SURGEON TO THE LONDON HOSPITAL, E.

As a very rare and late sequela of gastro-enterostomy the following case appears worthy of record.

E. S., male, aged 61, admitted April 2nd, 1919, to London Hospital for hæmatemesis.

Past history.—Thirteen years ago underwent gastro-jejunostomy at another hospital for gastric trouble, with very good result; remaining well for 12 years. One year ago he began to have abdominal pain after meals and vomiting, which relieved the pain. There were intervals of remission of these symptoms of as much as a month. Two days before admission he had a worse attack of pain, associated with hæmatemesis, which continued till his admission to hospital.

Present state.—A very sick patient, with abdominal facies. Pulse 100. Repeated vomiting of large quantities of blood-stained dark fluid, not so thick and clotted as is usual in hæmatemesis; the dark colour suggested the presence of bile, but being seen at night this was uncertain. The abdomen was flaccid, and a vague elongated mass could be felt above and to the left of the umbilicus; this mass struck one as being too soft to be a peptic jejunal ulcer with adhesions about it.

Emergency laparotomy.—A few adhesions of the transverse colon to the abdominal wall were separated, the stomach and pylorus appeared normal in front. Turning up the stomach to examine the stoma the distal loop of the jejunum coming from the stoma was found to be turgid and purple for 8 inches, at which point the entrance of a retrograde intussusception was found. The intussusception passed up the turgid distal jejunal limb, its apex projecting about 3 inches into the stomach through the stoma, and was, in fact, the elongated swelling felt through the abdominal wall. The intussusception was reduced without great difficulty, and had started apparently about a foot below the stoma. The reduced gut was very œdematous and purple, but at no point could any thickening suggestive of ulceration be felt, and the gut appeared viable; the abdomen was closed. Duration of operation 20 minutes.

After history.—After a slight brown vomit the next day the patient improved till the seventh day, when respiration became rapid, and he began to bring up offensive sputum, and finally died on the tenth day.

Post mortem.—The lungs were in a condition of severe broncho-pneumonia with many abscesses; the abdomen, except for slight plastic peritonitis about the site of intussusception and remains of bruising of the gut, was normal.

The gastro-enterostomy as seen at operation proved to be in excellent order, of good size, and well planned. The reason of the retrograde intussusception and its relation to the late dyspepsia and vomiting does not appear certain. At any rate, there was no evidence of a peptic jejunal ulcer before or after death.

Weymouth-street, W.

Reviews and Notices of Books.

The Principles and Practice of Obstetrics. By JOSEPH B. DE LEE, A.M., M.D., Professor of Obstetrics at the North Western University Medical School. With 949 illustrations, 187 in colour. Third edition, thoroughly revised. London and Philadelphia: W. B. Saunders Company, Ltd. 1918. Pp. 1089. 36*s.*

IN the third edition of this very complete work a thorough revision has been carried out. As the author remarks in his preface, although, owing to the war, progress in obstetrics has been slow, yet this has not been altogether a disadvantage since it has given time for the investigation and confirmation or rejection of recent contributions to this branch of medical science.

Further experience of Abderhalden's method of diagnosing pregnancy has led to the conclusion that little of practical value is gained from this complicated biochemical test. If it is negative in the hands of a competent chemist it speaks against pregnancy, but not absolutely. If it is strongly positive, in a case of doubt one might lean a little towards the diagnosis of pregnancy. This appears to us a correct summing up of the value of what after all is a test of little clinical importance. A very interesting account is given of the use of nitrous oxide and oxygen in labour cases, and while not unduly enthusiastic over the method the author states that he uses it very frequently for suitable cases, and recommends it. In this connexion we are interested to see that Dr. De Lee is not in favour of twilight sleep, and states that it is being used as a routine in only a very few hospitals in America. As he rightly says, it requires on the part of the attendant a high degree of obstetric skill apart from his ability properly to conduct the seminarcosis. It demands the constant attendance, or at least proximity, of the accoucheur, and if it is to be properly administered a well-equipped maternity hospital. He is convinced that its employment will result in a repetition of the fœtal and maternal mortalities and morbidity of 12 years ago.

In discussing the treatment of eclampsia the author states that more space is given to the conservative method; apparently, however, he is in favour of the rapid emptying of the uterus as soon as one convulsion has occurred. It is, however, a little difficult, reading the account given of the treatment of this disease, to determine which plan the author adopts in the majority of cases. The chapter dealing with tears of the vulva and perineum is very complete and well illustrated, and evidently the author lays great stress upon the proper treatment and repair of such injuries. An interesting practical point in this edition is the prominence given to the advantages claimed for rectal examination in conducting labour Dr. De Lee points out that it is extremely useful, can be practised with very little pain to the patient, and inasmuch as the chance of infection is practically nil, can be repeated as often as may be necessary without increasing the risks to the patient. The chapter on the treatment of labour in contracted pelves is one of the best in the book, and it is well worth careful note that Dr. De Lee has obtained better results in the treatment of labour in contracted pelves by the use of the exaggerated lithotomy position than by the Walcher position. In discussing hebosteotomy the conclusion is drawn that the operation has been too hastily condemned; the author's own experience has been favourable, and he thinks that it will hold a permanent place in obstetric surgery. In considering home versus hospital practice in cases of contracted pelves, for the general practitioner prolonged expectancy is considered to be the best treatment for all but the absolutely contracted pelves, followed by a trial with the forceps. If this fails craniotomy should be resorted to, as the information gained will enable the attendant to obtain ideal arrangements for any future deliveries.

The chapter on Cæsarean section is very full and well illustrated; the classic variety, Kronig's cervical Cæsarean section, and the extra-peritoneal methods are all described, and their various indications given. At the present time the author only practises the classical method when there is some general indication for the operation, such as placenta prævia or fibroid tumours of the uterus; in all other cases he performs the cervical operation. He claims for this the following advantages: that the incision is made in the lower uterine segment, the uterine and parietal peritoneum may be temporarily united if desired, the intestine and omentum are not usually seen, the uterine sutures are more quickly applied, and the danger of subsequent adhesions is reduced to a minimum. When the patient is positively infected craniotomy is considered the safer operation, and in doubtful or mild cases one of the extra-peritoneal methods. The question of the choice of the cervical or corporeal incision is, however, one for future experience to decide.

This new edition tends to confirm the very favourable opinion we formed of this book on its first appearance, and we can cordially recommend it to students and practitioners.

Forme Inibitorie di Guerra e Isterismo. By Professor SILVIO RICCA. With 33 illustrations. Milan: Soc. Edit. Libraria. 1919. Pp. 174. L. 8.

THIS practical little volume, which might be usefully translated into English, deals with those impairments of the functional activity of injured limbs which were called by Babinski reflex and physiopathic disturbances. There are two directly opposite schools of the psychogeny of these cases—that of Neri who attributes them to simulation pure and simple, and that of Roussy who maintains an hysterical interpretation. Between these conflicting explanations there is much diversity of opinion, according as vaso-motor disturbances and psychopathic influences come into play. The author considers that this kind of functional disability differs in many respects from what is called pithiatism, which is a morbid psychic condition followed as an immediate consequence by motor disturbance. There may be types, which arise suddenly, of psychogenic origin, but these are a minority. In many other cases, however, it is the wound itself, or the treatment of it, which constitutes the initial phenomenon, especially the immobility in which a limb has been kept. In fact, prolongation of immobility, or a tonic contraction, or a faulty attitude, produces in time serious functional results. The state of mind of the patient is intimately connected with efficacious treatment. Professor Ricca obtained brilliant results at the Physicotherapeutic Institute at Rapallo. He does not employ any physical treatment such as electricity, &c., or suggestive treatment, either direct or indirect, but limits himself solely to exercises for the affected limb, arranged in such a way as to compel the patient to apply them. This, combined with therapeutic discipline, is the essence of the treatment. Thus in dropped foot the inhibited muscles are made to act by passive movements applied with various degrees of rapidity and by making the patient walk with a stamping action. Dropped wrist is treated by ordering forcible flexion of the fingers, producing by association hyperflexion of the hand and by flexing the forearm against resistance while keeping the hand passively extended. The disciplinary measures consist in infusing into the mind of the patient that the disability must get well, in demonstrating the cure of similar cases among the other patients, and by a system of rewards and punishments. The various phenomena of functional disabilities are described and discussed at length, and illustrated by typical photographic representation of these conditions. Rigidity, muscular atrophy, trophic skin changes, vaso-motor disturbances, electrical excitability, and the reflexes, are among the chief secondary phenomena dealt with. Part II. of the book is devoted to psychogenic motor disturbances of volitional and automatic types, obsessions and emotional states with hysterism or pithiatism in elucidation of which the author follows more or less closely the conception of Babinski.

# Reports and Analytical Records
FROM
THE LANCET LABORATORY.

1) INFLUENZA PROPHYLAXIS VACCINES; (2) APOTHESINE, A NEW LOCAL ANÆSTHETIC.

(PARKE, DAVIS AND CO., BEAK-STREET, REGENT-STREET, LONDON, W.1.)

(1) THESE vaccines are prepared in the inoculation department of St. Mary's Hospital. They are additional to the vaccines which have been prepared at that institution for some time—namely, those for the prophylaxis of nasal and bronchial catarrh. The new vaccines are as follows: (*a*) anti-influenza vaccine (*B. influenzæ*, *Pneumococcus* and *Streptococcus*) in the proportions prescribed by the War Office; (*b*) mixed influenza vaccine (Wynn's formula), containing the same organisms as (*a*), but in equal proportions, and (*c*) influenza pneumonia vaccine prophylactic (Rosenow's formula), containing *B. influenzæ*, *B. pneumoniæ* (Types I., II., III., and IV.), and also *Streptococcus hæmolyticus* and *Staphylococcus*.

(2) Apothesine represents an attempt to supplant cocaine and its derivatives with the view of providing a powerful local anæsthetic free from the toxic and other disadvantages of that alkaloid. It is described chemically to be the hydrochloride of gamma-di-ethyl-amino-propyl cinnamate, and is therefore not a derivative of cocaine. Apothesine is soluble in water, and the solution may be sterilised by boiling without decomposition of the salt. Its mode of employment for producing local anæsthesia prior to surgical and dental operations is described.

DIABETIC SOLAC.

(SOLAC, LTD., 221, TOTTENHAM COURT-ROAD, LONDON, W.)

This preparation, in the form of a soft cream-coloured powder, is described as a synthetic milk specially made free from sugar for diabetic patients. It readily forms a milk-like emulsion when mixed with water, which tastes not unlike milk and can be used as a substitute for that fluid. Its special food value is obvious, since we found it to contain 51·97 per cent. of fat and 12·80 per cent. of protein. It is not only entirely free from sugar but contains, according to our analysis, no sugar-producing materials in the form of carbohydrate. Moisture was present to the extent of 0·90 and the mineral matter was 4·00 per cent. Other materials present were neutral emulsifying agents. The preparation was brought to our notice by a medical man suffering from diabetes, who states he has derived distinct benefit from its use.

SUBITOL.

(CHAS. ZIMMERMANN AND CO. (CHEMICALS), LTD., 9 AND 10, ST. MARY-AT-HILL, LONDON, E.C.3.)

According to our examination subitol is identical with Tyrolese ichthyol, and consists of ammonium sulphonate with sulphur in organic combination (sulphidic sulphur). Its antiseptic, antiparasitic properties have been well established, and it is also an anodyne. Numerous reports speak in its favour as an application externally in eczema and other skin diseases, and internally it has been used in gastro-intestinal catarrh. It is a viscous brown fluid, which is miscible with water and also glycerine. It responds to the tests for sulphidic sulphur. Subitol may be obtained in capsules, and subitol preparations include an ointment and a soap.

OSMOS APERIENT WATER.

(OSMOS, CROWN WHARF, HAYES, MIDDLESEX.)

The chief claim in regard to this water is that its composition and osmotic properties are identical with those of a well-known Hungarian natural bitter aperient water. We append our own analysis of Osmos, placed side by side with an analysis also made by ourselves some years ago of the Hungarian water referred to. The results are given in grammes of salts per litre of water:—

	Osmos.	Hungarian aperient water.
Magnesium sulphate	18·60	18·22
Sodium sulphate	17·00	17·14
Sodium chloride...	1·75	1·52
Sodium carbonate	0·15	0·91
Specific gravity	1036	1036

The figures show a practically identical composition and specific gravity, and the therapeutic effects may be regarded to be the same, leaving out of consideration the question of the action of rare constituents or of the possible radio-activity of natural waters. It should be a good aperient saline, laxative or purgative according to dose.

SANATOGEN CHOCOLATE.

(GENATOSAN, LTD., 12, CHENIES-STREET, LONDON, W.C.)

We examined a specimen of ordinary chocolate for its protein value and the result was 5·35 per cent. Similarly examined, sanatogen chocolate gave 12·95 per cent. of protein. The addition of a protein substance is therefore confirmed and as this carries in with it an organic phosphorus combination the nutritive value of the chocolate is clearly enhanced.

THE LANCET.

LONDON: SATURDAY, OCTOBER 4, 1919.

"Strike, but Hear Us."

THE precipitate strike of the railway men has hit all classes so hard that on every side reasonable voices can be raised to point out that in some way or other the blow is being felt with a more intense effect than anywhere else by one or another particular section of the community. We make bold to believe that on no section of the community can the strike be conceivably falling harder than on the sick. The breakdown of all intercommunication, save that dependent upon the motor, and to a negligible degree upon the horse, between outlying parts of large cities, as well as between urban centres and rural constituencies, has deprived the sick at a moment's notice of prompt medical attention and of all the advantages that are to be got from consultation. The hospitals are sharing in the huge dislocation of business, while the supply of remedies and medical material is seriously jeopardised. Private patients in the first instance will perhaps suffer more than hospital patients, but undoubtedly those who have to-day the heaviest cross to bear are the sick. When the general needs of the population in respect to food-supply have been met by the vigorous measures that are now being undertaken, we hope that the next step will take into consideration, in a special way, the needs of the sick. Those who may be found to support the strike on its merits, and that smaller body who may be found as advocates of its methods also, are, we are certain, as grieved at heart as any of us, while they appreciate the terrible addition that has accrued to the misery of all that are sick. From their beds, oblivious of arguable questions pertaining to the rights of man, the sick plead the rights of the sick, saying, in parody of THEMISTOCLES, "Strike, but Hear Us."

It is well that there is no need to say more about so obvious a situation; for if there were need it would be difficult for us to comply. With great reluctance we are compelled to reduce the size of the journal considerably this week, so that every line of space is needed. This has meant a ruthless suppression at the last moment of much that we had intended to print, as well as a large refusal of advertisements. We regret sincerely the necessity which has been forced upon us of such an inhospitable reception of valuable support from both sides, trusting that further continuance of these painful tactics will be swiftly rendered unnecessary.

◆

The Consultative Councils of the Ministry of Health.

WE publish in another column a communication from the Ministry of Health in which are set out the names of those who have been selected to form certain of the Consultative Councils established under the Ministry of Health to be advisers to the Ministry upon practical points arising in various directions. In each case there is added to the names a few words of description which supply the reason for the inclusion of the woman or the man in the lists, and the probability is that most of our readers will endorse the general view that the choices have been dictated by discrimination. In considering the make-up of the Committees, however, it will be necessary to remember that, while the function of these bodies is advisory, there is no onus whatever upon the Minister to take the proffered advice. The Minister will have his own policy and the policy of his party to consider, and the extent to which he avails himself of expert counsel is entirely at his discretion.

To the Consultative Council on Medical and Allied Services there will be referred, as might be expected, such problems as "the national development and extension of medical work, including midwifery and nursing," and it is proposed that the Council should act through committees more specialised than itself, these bodies being formed, if necessary, partly by members of the Council and partly by "persons not members of the Council who have devoted themselves specially to the study of nursing and midwifery questions." This is a judicious arrangement, analogous to that successfully used by county education committees, for securing the coöperation of those engaged in certain services ancillary to medicine, and if the recommendations of such mixed committees are treated with due respect there is every chance that both the public and the professional views as to what is right, as far as nursing and midwifery are concerned, will receive due attention. But we see no suggestion that the Consultative Council is not considered perfectly adequate to represent the best views on "the national development and extension of medical work," which is rightly placed in the forefront of the advisory business of the Council, and it is exactly here that we have our doubts. The Council is well constituted under a chairman, Sir BERTRAND DAWSON, of deserved repute, both as a practical man and an idealist; and its individual members are persons of experience along their different lines. But it cannot conceivably be called representative. If a difference of opinion upon "the national development and extension of medical work" should take place what will the Ministry of Health do? As the position is outlined by Order in Council it would seem that the Ministry of Health will then take its own course, which may not be the course which enlightened medical opinion would recommend, or the course which would be good for the public. And, in the long run, what is best for medicine is best for the public. It is clearly designed that there should be a resultant of forces in doubtful cases by pooling the advice of the Council on Medical and Allied Services with that given by the other Councils. The Consultative Councils on Local Health Administration and on National Health Insurance are to consider, respectively, "the administrative problems arising out of proposals for the development and extension of health services," and those arising "in the administration of the cash benefits (sickness, disablement, and maternity) by Approved Societies under the Insurance Acts." These Councils are composed of laymen, and their constitution is representative, so that we can well believe that what they have to say will be received with attention and respect by the Ministry of Health. But the principal executive officers of the work of the Ministry must be the doctors, and we can easily imagine either or both of the non-medical Councils giving advice to the Ministry which would not tend to fair action towards the medical profession at large.

Then it might be expected that the Consultative Council on Medical and Allied Services would step in, but it is just then that the Council would be likely to disagree, because no common attitude on many public questions has yet been assumed by the medical profession.

It is here, we think, that the newly formed body, the British Federation of Medical and Allied Societies, may have a great opportunity, if it obtains support. It is too early yet to prophecy whether this support will be given to it, but it has received a highly encouraging send-off; and inasmuch as its severer judges appear to concentrate most upon its faults of birth and least upon the wisdom of its intentions, we may regard their criticism as beside all practical point. Only those who can find no better reason for abuse allude perpetually to the defective birth of an antagonist—and a good many bastards have turned the course of the world. If the Federation, which has the good-will of many members of the British Medical Association, and promises of affiliation from a large group of bodies, medical and ancillary to medicine, can provide at this juncture a round table where some common views as to many vexed questions would be arrived at, its usefulness when the Consultative Councils of the Ministry of Health were at variance might be very real. The Federation must be judged by its fruits; we suggest that it should be assisted to bear them.

◆

The Place of Cardiac Massage.

For many years cardiac massage has held a place as a means of resuscitation, although one of limited application and small success. One of the earliest successful cases was reported[1] to the Society of Anæsthetists in 1902 by Dr. E. A. Starling, who was giving the anæsthetic, and Mr. W. A. Lane, who was operating. Dr. T. A. Green summarised the results of 40 published cases in our own columns[2] in 1906. Mollison[3] narrated a case of recovery after heart failure during operation for tonsils and adenoids, cardiac massage being performed through an abdominal incision and after the heart had apparently ceased beating for not less than 13 minutes. Quite recently Ashley Daly, Llewelyn Powell, and F. E. Shipway, have reported successful cases,[4] while Dr. Bost and Dr. Neave[5] have published the technique employed with success after 25 minutes of absolute cessation. In an article which appears this week in our original columns Mr. Lionel Norbury again draws together some of the scattered threads in a way which will be of help both to operating surgeons and to anæsthetists. Fortunately, the number of cases requiring resuscitation is diminishing, a result which may be attributed to the more careful choice of anæsthetic in relation to the particular patient. A mixture of gas and oxygen has been increasingly used in cases of severe shock and of nerve blocking in appropriate cases. Doubtless increasing skill on the part of the administrator and gentleness on the part of the surgeon have had their due effect. In 1911 276 deaths under anæsthetics were reported. Dr. J. F. W. Silk, in his position as consulting anæsthetist to the War Office, had cognisance of only 136 fatal cases occurring in military hospitals throughout England, Scotland, and Ireland during the two years 1917 and 1918. But the spectre of sudden death under an anæsthetic is by no means yet banished, and Mr. Norbury's paper is welcome in directing further attention to what may be the only treatment which can save the patient's life in certain cases of heart failure during anæsthesia. Whether heart failure is often due to an overdose of anæsthetic is still undecided. A light or irregular depth of anæsthesia certainly accounts for some of the casualties. The experimental work of Schiff and Crile was confined to animals suffering either from an overdose or from asphyxia, and their conclusions do not necessarily apply to the syncope more commonly encountered by the anæsthetist—namely, that due to ventricular fibrillation.

A word may be in place regarding the position of adrenalin in anæsthetic syncope. Rhinologists have long realised that adrenalin injections are dangerous when associated with chloroform. Dr. J. Blomfield[6] reported in 1911 an alarming case of heart failure after adrenalin injection with chloroform, and at the same meeting of the Section of Anæsthetics of the Royal Society of Medicine two fatalities under similar conditions were referred to. The experiments of Dr. A. Goodman Levy[7] on cats showed under comparable conditions multiple extra-systolic tachycardia developing with light anæsthesia, and always ending fatally with ventricular fibrillation. Chloroform is not a popular anæsthetic in the United States, a fact which accounts for Crile's omission to give a warning against the use of adrenalin. Since the object of giving adrenalin is the increase of blood pressure it can, at least, be of only problematical good when the heart is not acting at all. Turning to the routine treatment of anæsthetic syncope, Mr. Norbury rightly deprecates the waste of valuable time in the administration of drugs. The patient's head should be lowered, the tongue drawn forward, the patency of the air-passages assured, and artificial respiration performed. If these measures are not successful in two minutes heart massage should be, in his opinion, resorted to, artificial respiration being continued.

All the reported cases of success add weight to the maxim, never to give up a case of apparent death under an anæsthetic as hopeless until cardiac massage and its various accessories have been given a fair trial. Heart massage acts mechanically by re-establishing the coronary circulation and must be accompanied by artificial respiration, for, in the words of Crile, "In order to restore the apparently dead, not only must the heart be made to beat, but the respiration must be re-established and the vaso-motor centres stimulated into renewed activity." Mr. Norbury describes the means of access for the performance of cardiac massage: the subdiaphragmatic, the transdiaphragmatic, and the thoracic route. His preference is for the first, and that is the method employed by him in his own cases. The chief difficulty really lies in coming to the decision that the heart will not recover without some desperate measure. Timidity and inexperience may suggest after the event, that recovery might have followed had the abdomen not been opened. But skilled operators and anæsthetists can detect with certainty the suspension of the heart's action, and in the light of accumulating evidence heart massage will be applied more frequently as an immediate measure.

---

[1] The Lancet, 1902, ii., 1397.

[2] The Lancet, 1906, ii., 1709.

[3] Proc. Roy. Soc. Med., Nov. 3rd, 1916.

[4] Ibid., June, 1919.

[5] Indian Med. Journ., February, 1919.

[6] Proc. Roy. Soc. Med., Feb. 3rd, 1911.

[7] Proc. Phys. Soc., Jan. 21st and Oct. 21st, 1911, and Brit. Med. Jour., Sept. 14th, 1912.

In the case of an abdominal operation the subdiaphragmatic massage can be practised at once, otherwise the abdomen should be opened. BOST and NEAVE[8] go further, and urge, should the heart remain unresponsive, incision of the diaphragm, after which the hand is pushed into the thoracic cavity anterior to the pericardium and the base of the heart massaged, since little air can enter the chest by the technique suggested, and in view of the fact that pneumothorax has been shown by war-time experience not to be as serious as it was formerly considered, perhaps even this direct massage should become a routine measure when all else has unavailed.

Annotations.

"Ne quid nimis."

THE RED CROSS: PAST AND FUTURE.

THE Great Peace has brought together friendly rivals as well as enemies, and the British Red Cross Society is henceforward to work hand-in-hand with the Order of St. John of Jerusalem in furtherance of aims which have always been largely identical. The announcement of this working agreement by Sir Arthur Stanley, as chairman of the Joint War Committee of the two corporations, has almost coincided with the death of Sir John Furley, the father of the Red Cross movement in this country. He it was who in 1868 advocated the establishment of a British branch of the International Red Cross, and on the outbreak of the Franco-German War went to Geneva to intimate its successful formation. Thereafter he was to be found on nearly every European battlefield. Sir Arthur Stanley states the intention of the combined corporation to undertake the work contemplated in Article 25 of the Covenant of the League of Nations, which runs:

> "The members of the League agree to encourage and promote the establishment and coöperation of duly authorised voluntary national Red Cross organisations having as purposes the improvement of health, the prevention of disease, and the mitigation of suffering throughout the world."

And he goes on to indicate what are the urgent matters which the Joint Council of the Red Cross desires to bring before the notice of its constituent county committees. Put briefly these are: care of sick and wounded; care of prisoners; tuberculosis; child welfare; hospital garments; hospital libraries; home ambulance.

At the same time the League of Red Cross Societies is completing its arrangements, its headquarters having been transferred from Paris to 9, Cour de St. Pierre, Geneva. The appointment of Dr. Leonard Findlay to be head of the Department of Child Welfare augurs well for the direction of this work with enthusiasm tempered with judgment. Appointments to the other departments are pending. The Mission to Poland, on which Dr. G. S. Buchanan was British representative, has returned with the outline of a comprehensive scheme of relief.

This civilian side of Red Cross effort is not so new as many suppose. In 1846, when he was but 18 years old, Henri Dunant wrote:—

> "I then learned to know misfortune and misery face to face, in dark alleys, in houses more like stalls than dwellings, among men who could call nothing their own save a chain of untold suffering ......; then it was that I first realised the impotence of the individual in the face of overpowering misfortune and the need for the whole of humanity to range itself against these dim forms of darkness."

In 1863 he suggested the use of Red Cross resources in epidemics and disasters such as floods or fires, and at the International Conference of 1869 the principle was accepted of employing the Croix-Rouge for "works of humanity" corresponding to its specific war functions. The principle became, perhaps, better known in Russia than in any other country, where, in the disasters of 1897–8, the bearer of the Croix-Rouge under the patronage of the Empress Marie earned the endearing name of "Krestovik." Nothing but activity of this kind could have kept the Red Cross before men's eyes in the long fruitful intervals of peace, and now that war is a discredited anachronism some permanent outlet is required for the generous enthusiasm which mobilised countless thousands of voluntary workers from home and comfort. Under the Red Cross as conceived by Henri Dunant, inaugurated by John Furley, and organised by Arthur Stanley, there is room for all workers who combine a keen and generous spirit with any kind of physical qualification.

THE VISION OF SIGNALMEN AT SEA.

IN a paper read before the American Ophthalmological Society[1] Dr. Alexander Duane makes some important observations, based upon his personal experience during the war, on the visual requirements of a signalman on the bridge of a United States warship. The work is exceedingly difficult and complicated, and needs, in the first place, a man of decided nervous and mental stability. The ocular requirements for a candidate for signal work should always be considered in connexion with his other physical and mental qualifications, and to a certain extent should vary with these. As to the ocular requirements, perfect colour sense is indispensable, and so is a first-rate light sense, without which the interpretation of many signals in bad weather or against a feebly contrasted background would be impossible. Equally important is a quick reaction time. Visual acuity must, of course, be good, but perfection in this is not so essential as are the first three requirements. The wearing of glasses in such an employment, though distinctly inconvenient, should be allowed to candidates who are otherwise suitable, but their disadvantages must be admitted. They produce disturbing reflections, while they readily become dimmed with moisture or marked with grease, and even when clean, apparently cut off enough light to make the recognition of distant objects more difficult. Duane's own vision was improved with glasses by the ordinary test from 20/40 to 20/20. Yet under nearly all conditions of distant vision he could make out far-away flags, semaphore signals, &c., almost, if not quite, as well without his glasses as with them. In spite of this he would not necessarily disqualify candidates with fairly good distant vision who require glasses to bring it up to the normal. Of 100 men who besides himself served from time to time as signalmen on the bridge, five besides himself wore glasses. Even a myope had signalling ability which was all that could be desired, and a man with mixed astigmatism of two or three diopters was one of the best receivers on the bridge. We commend this paper as the result of a happy union of practical experience with scientific knowledge. It points the way to the definition of visual requirements of other employments in accordance with the special conditions of each.

---

[8] Loc. cit.

[1] American Journal of Ophthalmology, August, 1919.

PANNICULITIS.

ACCORDING to Dr. Frank A. Cummings,[1] of Providence, R.I., panniculitis is a common condition characterised by soreness, œdema, and sclerosis of the superficial layer of fat. On palpation sharp pain is produced by slight pressure and nodular masses are to be found in the skin. The condition occurs more frequently in the female and involves larger areas in obese patients, though it is not confined to them. It is slowly progressive and without acute subjective symptoms. Cummings found that in all his cases the predominant factor was gastro-intestinal disturbances, such as habitual constipation, often of the spastic type. There could also usually be found a diminished supply of oxidising agents such as is furnished by the endocrine glands. The patient usually complains of fatigue and loss of vitality. Headache of the migraine type is very common. He is often very nervous and at times depressed, and complains of soreness in various parts of the body. Treatment consists in massage, which should be limited to frequent short periods such as half an hour three times a week, regulation of the diet, especially reduction of the carbohydrates to a minimum, and increase of elimination and oxidation.

"THE UNIVERSITY OF UTOPIA."

IN this week of the year we usually publish many introductory addresses delivered by leaders of medicine or others at the opening of the various medical schools. We announced last week the metropolitan programme for such functions, and, owing to the strike, we issue this week a notice of their abandonment in most cases. But the medical schools will open as usual. The long quotation which follows is made, by permission, from a privately printed address delivered under the title, "The University of Utopia," before the University of Malta by Sir Archibald Garrod, and as the new Director of Medical Studies at St. Bartholomew's Hospital will have one of the most responsible educational posts in medicine both to create and to develop, our readers will certainly appreciate his eloquent ideal of what university teaching may accomplish and imply:—

> The teacher who has a radio-active mind, and moves naturally upon a higher plane of thought, beckons his pupils up to his level, and reveals to them untold possibilities in subjects which in other hands are dull and uninspiring. He stimulates them to investigate for themselves, and directs their early footsteps on the path of research.
>
> Hardly less is the influence of students upon each other, either for good or evil. They also learn from contact with minds and characters of other types, and this mutual influence is exerted in the playing field as well as around the study fire. It has its greatest scope in the residential university, within whose precincts the students live in a community under collegiate discipline, kneel together in the college chapel, and dine together in its hall. Nowadays such residential universities survive only in the British Isles and in America. Long may they flourish, and may the efforts of would-be reformers pass them by, for of all universities they make the nearest approach to the ideal.
>
> We know that a man's feeling towards his university, if no more loyal than that which he entertains towards his school, is of a different quality. For her alone he reserves the name of *alma mater*.
>
> Within her walls he enjoys a liberty such as he has not known before. It is well for him if he learns self-reliance, tempered by the sense of responsibility. Otherwise it may be his lot to look back upon his student days with regret for wasted opportunities, or even with remorse for time ill-spent. University methods afford more scope for individual temperaments and bents than do school methods. Within defined limits the student is free to select the line of study for which he has most aptitude and inclination. Minds of all shapes and calibres are no longer forced into the same mould, and individuality has fair play. It is obvious to the most superficial glance that no two individuals are alike, but there are many differences in modes of thought and types of mind which escape any but meticulous observation.
>
> I, for one, believe that at an early age the process of "taking the nonsense out of him," to which a boy is subjected at school, is, if not carried too far, a beneficial one. It is a rough-and-ready training in citizenship, and saves many a man from incurring the stigma of the prig or bore. But the "nonsense" should only be scotched, not killed, for disciplined by school experiences it develops in later life into healthy independence, originality, or even genius.
>
> In every existing university there are teachers who fail to quicken their hearers, and students who neglect their opportunities, who abuse their new-found liberties and influence their fellows to their harm. For such students it is not the business of the university to provide, although she is bound to exercise a disciplinary control, to admonish and even to punish when necessary. She can only welcome to her doors those who come to learn and not to idle, nor can she lower her standards to the level of the latter class. At matriculation she demands evidence of good conduct in the past, and of a certain level of general education. She holds out her hand to help those who fail to keep pace with the crowd, and encourages those who possess exceptional talents. In the end she grants her degrees to all who have utilised their opportunities reasonably well, and awards honours to outstanding merit. All this is incumbent upon her, but in reality she does much more towards moulding characters as well as minds. He who emerges from his undergraduate days without a changed outlook upon life, and a more mature grip of its obligations and responsibilities, has failed to avail himself of the gifts placed within his reach.

PANEL PRACTICE AND INSURED PERSONS.

NOT long ago an article in a daily newspaper, claiming to be from the pen of a medical practitioner, urged upon the insured section of the public and their employers the desirability of forming themselves into leagues or associations having for their objects the improvement of the medical service provided by the National Insurance Acts. There is, no doubt, useful work that such bodies, guided by intelligent and industrious committees, might reasonably do, but there would always be a danger of their developing into merely destructive critics of alleged defects of panel practice in their immediate vicinity, and of their taking no hand in the constructive and amending alterations which the present system requires. For nearly five years the war disorganised medical practice throughout the country, redistributed the civil population in recognised centres of industry, besides removing a huge number of workers to reinforce our armies, and creating new industrial areas where none existed before. All this occurred about three years too late to delay the inception of the scheme, and too soon for complicated innovations, or for the consideration and correction of defects.

At the present time the industrial world is itself undergoing reconstruction, and, let us hope, amendment and improvement. Peace has, however, brought a cessation of hostilities indeed, but not as yet a return to anything like conditions of a stable or normal character. We do not propose to enumerate the points at which associations of insured patients, combining with the employers, might best make their influence felt, but we are inclined to think that it will be some time before such associations would be able to agree even as to their general policy. It will be even longer before the insured will find themselves unanimous as to the application of that policy to problems the difficulty of which has been shown by experience. Public attention, for example, focusses itself at times upon instances of practitioners who, it is asserted, have lists so long that they are not able to give proper attention to individual patients. Such practitioners naturally avoid visiting the sick in their homes unless satisfied that it is absolutely necessary, and when they are compelled to do so their patients waiting at their surgeries suffer undeservedly. The cutting down of these congested lists is readily advised by the cursory critic, but when a "league" of panel patients comes to consider the point, it will soon realise that if it supports or calls for legislation that will remove from the list of a particular doctor a thousand of his patients, it will at the same time be taking steps to deprive a corresponding number of insured persons of their chosen doctor. Moreover, if the imagined association be popular and well supported, without which it will be useless, a large proportion of the persons to be directly affected will be its own members, who will probably have something to say in the matter. Nevertheless, in spite of practical difficulties of organisation and selection of policy to be overcome, the scheme has much to recommend it. A combination which would bring employers and the insured into co-operation with the medical profession as to some of the points upon which they are likely to be in agreement might be a very useful one.

---

[1] Boston Medical and Surgical Journal, 1917, clxxxi, 236–7.

GENITAL DEFECTS IN RECRUITS.

Captain Albert E. Mowry,[1] professor of genito-urinary and venereal diseases at the Chicago Hospital College of Medicine, examined 10,000 recruits for genital defects with the following results. Approximately 2100 cases, or more than 20 per cent., showed phimosis. In several hundred there was a manifest under development of the penis due to tightness of the foreskin. Balanoposthitis was often present and the retained smegma was extremely offensive. Many of the cases had ulceration and usually inguinal adenitis. Hypospadias was surprisingly frequent, being met with in 200 cases, though most of them were of a slight degree. Pituitary disturbances were also much more numerous than had been anticipated. The great majority of these were of the pendulous abdomen and small genitalia type. Cases with distinctive feminine features were very few in number, about six all told. Practically all cases of disturbed pituitary function were rejected. Over 100 cases of undescended testicle or testicles were seen, or more than 1 per cent. of all examined. The right testicle was most often involved, and the general health in this type was, as a rule, much below par, especially in cases with bilateral involvement. Captain Mowry suggests that this may be due to lessened testicular secretion due to pressure atrophy or to a possible malignant tendency. Only six instances of sexual perversion were found and, like drug addicts, were promptly rejected as unfit. Forty self-styled masturbators were in evidence. They were mostly of the neurotic type, but were usually accepted if they possessed other requirements. Nocturnal enuresis was encountered in some 20 cases, or 0·2 per cent. If genuine, these cases were discharged, as the condition would be a serious handicap in many ways. A few cases of spasmodic incontinence were noted, but were mostly malingerers. Syphilitic orchitis was found in 8 cases, tuberculous epididymitis in 11 cases, seminal vesiculitis in 14 cases, and what appeared to be teratoma of the testis in 4 cases. Atrophy of the testes was observed in 40 cases after mumps and in 12 out of 30 cases that had been operated on for varicocele. Hydrocele was found in 19 cases, left-sided varicocele in 2100 and right-sided in 200 cases, most of them being of an insignificant type.

THE Harveian Society of London is one of our oldest metropolitan medical societies, Dr. Anthony Todd Thomson and Dr. Marshall Hall, its first presidents, having served in 1831 and 1832 respectively. Meetings continued to be held regularly in the early years of the war, but in 1917 the society suffered an almost complete but temporary eclipse, for a bomb fell at the corner of Titchborne-street and Edgware-road, completely wrecking the rooms in which its meetings were held. Subsequently a few meetings were held at St. Mary's Hospital. The society hopes now to resume its activities. Dr. James Taylor is the president, and meetings will be held, provisionally, in the rooms of the Medical Society of London, at 11, Chandos-street, Cavendish-square. Sir Berkeley Moynihan will open the session on Thursday, Oct. 23rd, at 8.45 P.M., with an address on the Diagnosis and Treatment of Gastric Ulcer, to which all medical practitioners are invited. Sir Thomas Horder will deliver the Harveian Lecture of the Society on a Thursday evening in March to be announced later. A full programme for the rest of the session is being prepared.

THE LISTER MEMORIAL TABLETS.—At University College, Gower-street, London, on Nov. 11th, at 5 P.M., the Lister Memorial Tablets will be unveiled by the President of the Royal College of Surgeons of England, Sir George H. Makins, and by the President of the Royal Society, Sir Joseph Thomson, O.M., Master of Trinity College, Cambridge.

OUTBREAK OF DYSENTERY IN HAYES URBAN DISTRICT.—An outbreak of bacillary dysentery is at present in progress in the urban district of Hayes, in the county of Middlesex. There have already been over 30 cases, persons of all ages, including infants and those over 60 years, having been attacked. The mortality has unfortunately been very high, not fewer than 10 deaths, chiefly among children, having been attributed to the disease. The diagnosis of dysentery has been confirmed by bacteriological investigation of the discharges from the bowel, and Shiga's bacillus has been isolated. The onset in most of the cases is sudden and is accompanied by slight elevation of temperature and abdominal pain, followed by diarrhœa with blood-stained and mucous stools. The duration of the malady varies from a few days to several weeks. The cause of the outbreak, which is being investigated by a medical officer of the Ministry of Health, has, we understand, not yet been definitely established. But the country is at present peculiarly liable to the prevalence of dysentery on account of the large number of recently demobilised soldiers who suffered from one or other form of the malady whilst on active service. The high mortality resulting from the disease in the Hayes urban district demonstrates the importance of careful diagnosis in all cases of illness associated with diarrhœa in order that measures for the prevention of spread of the disease may be undertaken at the earliest possible moment whenever dysentery is in question.

---

[1] The Urologic and Cutaneous Review, 1919, xxiii., 529-30.

THE MINISTRY OF HEALTH:

CONSULTATIVE COUNCILS.

THE Ministry of Health announces: When the Ministry of Health Bill was before Parliament it was made clear that the Ministry when established would seek advice on a variety of subjects within its province from advisory bodies chosen so as to include men and women with full practical knowledge of the questions on which they would be asked to advise. These bodies are called in the Act Consultative Councils, and their constitution and functions will be found in the Order in Council of August 18th, 1919. In the case of England they will be four in number, and will consist of the Consultative Council on Medical and Allied Services, the Consultative Council on National Health Insurance, the Consultative Council on Local Health Administration, and the Consultative Council on General Health Questions. The Secretary will be Mr. Michael Heseltine, C.B., Ministry of Health, Whitehall, S.W. 1. The Councils will consist of 20 members each, including a chairman and vice-chairman, but they may for special purposes appoint committees on which other persons may be co-opted, so that particular problems will be considered with the help of those who have made them a special study.

The membership of the Consultative Council on General Health Questions, which will also be 20 in number, is not yet completely settled, but at least half of its members will be women.

CONSULTATIVE COUNCIL ON MEDICAL AND ALLIED SERVICES.

To this Council will be referred such problems as the national development and extension of medical, nursing, and midwifery work, and it is proposed that for some purposes it should, in accordance with the arrangement outlined above, act through committees more specialised than the Council itself. Its members have been chosen from the fields of specialist medicine and surgery, general practice (both private and insurance), the public health services, the work of women in medicine (particularly the care of mothers and infants), hospital administration, and the application of other branches of science to medicine.

It is intended that when questions are under consideration that specially affect the nursing and midwifery services of the country the Council should be assisted by the appointment of a committee consisting partly of its own members, but also including practising nurses and midwives and other persons not members of the Council who have devoted themselves specially to the study of nursing and midwifery questions.

The Council will consist of the following:—

Chairman.—Sir Bertrand Dawson, G.C.V.O., C.B., M.D., F.R.C.P., Physician to the London Hospital; Dean of the Faculty of Medicine, University of London

Vice-Chairman.—Colonel C. J. Bond, C.M.G., F.R.C.S., F.L.S., Honorary Consulting Surgeon to the Leicester Infirmary; Member of the Medical Research Committee of the Ministry of Health.

Norman G. Bennett, Esq., M.A., M.B., B.Ch., L.D.S. Eng., Dental Surgeon to the Royal Dental Hospital and to St. George's Hospital, London; Chairman of the Representative Board of the British Dental Association.

R. A. Bolam, Esq., M.D., B.S., M.R.C.P., Honorary Physician to the Skin Department, Royal Victoria Infirmary, Newcastle-on-Tyne; Professor of Medical Jurisprudence in the University of Durham.

Victor Bonney, Esq., M.D., B.Sc., M.S., F.R.C.S., Assistant Obstetric and Gynæcological Surgeon to the Middlesex Hospital; Surgeon to the Chelsea Hospital for Women.

T. Eustace Hill, Esq., O.B.E., M.B., C.M., B.Sc., Medical Officer of Health and School Medical Officer for the County of Durham; Medical Adviser to the Durham Insurance Committee; Professor of Hygiene and Public Health in the University of Durham.

F. Gowland Hopkins, Esq., M.A., D.Sc., F.R.S., F.R.C.P., Professor of Biochemistry in the University of Cambridge; Official Analyst to the Home Office; Representative for Cambridge University on the General Medical Council; Member of the Medical Research Committee of the Ministry of Health.

Miss M. H. F. Ivens, M.B., M.S., Honorary Medical Officer for Diseases of Women to the Stanley Hospital and Honorary Surgeon to the Samaritan Hospital, Liverpool; former President of the Northern Association of Medical Women.

Miss Janet E. Lane-Claypon, M.D., B.S., B.Sc., Dean and Lecturer on Hygiene of the King's College for Women, London.

A. Lunell, Esq., M.R.C.S., Chairman of the Insurance Committee and Secretary of the Panel Committee for Northamptonshire.

H. G. Dain, Esq., M.B., M.R.C.S., L.R.C.P., Chairman of the Insurance Committee and Chairman of the Panel Committee of the City of Birmingham.

A. Fulton, Esq., M.B., B.Ch., Vice-Chairman of the City of Nottingham Health Committee; Chairman of the Nottingham Insurance Committee.

Sir William S. Glyn-Jones, Secretary and Registrar of the Pharmaceutical Society of Great Britain; Alderman of the Middlesex County Council; formerly Chairman of the Middlesex Insurance Committee.

T. A. Goodfellow, Esq., M.D., B.Sc., M.R.C.S., L.R.C.P., Member of the Insurance Committee for the City of Manchester; Chairman of the Manchester Local Medical and Panel Committees.

G. E. Haslip, Esq., M.D., D.P.H., M.R.C.S., L.R.C.P., Treasurer of the British Medical Association, and former President of the Metropolitan Counties Branch of the Association.

J. A. Macdonald, Esq., M.D., LL.D., M.Ch., Honorary Physician to the Taunton and Somerset Hospital; direct Medical Representative for England on the General Medical Council; Chairman of Council of the British Medical Association.

E. W. Morris, Esq., Secretary of the London Hospital, Whitechapel, E.

John Robertson, Esq., C.M.G., O.B.E., M.D., M.B., B.Sc., Medical Officer of Health for the City of Birmingham; former President of the Society of Medical Officers of Health.

T. W. Shore, Esq., M.D., M.R.C.S., L.R.C.P., B.Sc., Dean of the Medical School and Lecturer on Comparative Anatomy and Biology to St. Bartholomew's Hospital.

Sir William A. Tilden, D.Sc., F.R.S., LL.D., Emeritus Professor in the Imperial College of Science and Technology; formerly Dean and Professor of Chemistry of the Royal College of Science, London.

CONSULTATIVE COUNCIL ON NATIONAL HEALTH INSURANCE.

This Council will, as its name indicates, consider problems of Approved Societies' work arising in the administration of the cash benefits (sickness, disablement, and maternity) by Approved Societies under the Insurance Acts. Its membership includes persons familiar with the work of all the principal types of Approved Societies and is as follows:—

Chairman.—T. Neill, Esq., J.P., Chairman of the National Amalgamated Approved Society.

Vice-Chairman.—The Rev. Canon F. C. Davies, Past Grand Master of the Manchester Unity; President-elect of the National Conference of Friendly Societies.

Francis Askew, Esq., J.P., Secretary of the United Ancient Order of Druids; Past President of the National Conference of Friendly Societies.

J. Badlay, Esq., Royal Liver Friendly Society.

F. W. Daniels, Esq., Secretary of the Ideal Benefit Society.

James Devonshire, Esq., Managing Director of Metropolitan Electric Tramways, London, and Suburban Traction Co., London United Tramways.

George Dew, Esq., J.P., Past Chairman of the Hearts of Oak Benefit Society; Parliamentary Agent for the National Conference of Friendly Societies.

A. P. Dixon, Esq., Secretary of the Eastern Counties Approved Societies and of the National Association of Approved Societies for the Eastern Counties.

Miss Florence, Secretary of the Women Clerks and Secretaries Friendly Society.

A. Henri, Esq., Secretary of the Liverpool Victoria Approved Society.

Henry Lesser, Esq., Secretary of the South Metropolitan Gas Company's Employees Provident Society, and President of the Federation of Employers Approved Society.

Miss Mary R. Macarthur, Secretary of the National Federation of Women Workers.

William Marlow, Esq., Secretary of the Ancient Order of Shepherds; Parliamentary Agent for the Ancient Order of Foresters; and Parliamentary Agent and Secretary of the National Conference of Friendly Societies.

R. J. Meller, Esq., Assistant Secretary of the Prudential Approved Societies.

W. F. Purdy, Esq., Executive Council of Ship Constructors and Shipwrights' Association.

P. Rockliff, Esq., Secretary of the New Tabernacle Approved Society; Secretary of the Joint Committee of Approved Societies.

Councillor J. H. Steele, J.P., President of the National Conference of Friendly Societies, 1918–1919; Treasurer, Sons of Temperance Approved Society.

The Rt. Hon. J. H. Thomas, M.P., Secretary of the National Union of Railwaymen.

C. Tuckfield, Esq., Secretary of the National Deposit Friendly Society.

G. H. Warne, Esq., Executive of the Northumberland and Durham Miners' Association.

CONSULTATIVE COUNCIL ON LOCAL HEALTH ADMINISTRATION.

This Council will consider the administrative problems arising out of proposals for the development and extension of health services, and its membership has been composed so as to include persons familiar with the work of local authorities of various types, the insurance committees, and the Poor-law guardians. The membership of the Council is as follows:—

Chairman.—Sir W. Ryland Adkins, M.P., J.P., Vice-Chairman, Northamptonshire County Council.

Vice-Chairman.—W. T. Postlethwaite, Esq., LL.B., O.B.E., Clerk to the Swinton and Pendlebury Urban District Council; late Chairman of the Executive Council of the Association of Urban District Councils.

E. R. Abbott, Esq., Clerk to the Middlesex Insurance Committee.

J. R. Anderton, Esq., Chairman of the Public Health Committee of the London County Council.

Francis Bate, Esq., Chairman of the Berkshire Insurance Committee.

Miss Broadbent, Member of the Marylebone Board of Guardians; Chairman of the Marylebone Infirmary Committee; and Member of the Metropolitan Asylums Board.

A. B. Bryceson, Esq., Town Clerk of Woolwich.

Neville Chamberlain, Esq., M.P., late Lord Mayor of Birmingham.

Sir Harcourt E. Clare, Clerk of the Peace for Lancashire and Clerk to the Lancashire County Council.
Sir James Curtis, K.B.E., Clerk to the Guardians of the Birmingham Union.
Mrs. Dimsdale, Cambridgeshire County Council.
Sir Robert E. Fox, Town Clerk of Leeds.
Rev. R. V. O. Graves, J.P., Chairman of the Rural District Council of Maldon (Essex).
W. G. Hodgson, Esq., Clerk to the Liverpool Insurance Committee.
A. J. Lees, Esq., Secretary of the Urban and Rural District Councils Association.
Sir Charles Longmore, K.C.B., Clerk of the Peace; Clerk of the County Council and Clerk to Lieutenancy for Hertfordshire.
Sir William Middlebrook M.P., late Lord Mayor of Leeds.
Sir Douglas Newton, K.B.E., Vice-Chairman, Cambridgeshire County Council.
R. B. Nicholson, Esq., O.B.E., Town Clerk of Lowestoft.
Lieut.-Col. Seymour Williams, Clerk of the Warmley Rural District Council; Chairman of the Executive Council of the Rural District Councils' Association.

WELSH CONSULTATIVE COUNCIL.

In the case of Wales there will be one Council consisting of 30 members. It will give advice and assistance in connexion with such matters as relate to National Health Insurance (Approved Societies' work), medical and allied services, local health administration, and general health questions in Wales and Monmouthshire. The members of the Council will be as follows:—

Chairman.—Sir Edgar R. Jones, K.B.E., M.P.
Vice-Chairman.—Sir Walter P. Nicholas, Clerk to the Rhondda Urban District Council.
Mrs. L. Andrews, Pentre, Rhondda Valley.
Mrs. Breese, Member of North Wales Nursing Association.
Miss Crowther, Inspectress under South Wales Nursing Association.
William David, Esq., J.P., Past High Ruler of the Independent Order of Rechabites.
Miss A. M. Davies, Honorary Secretary of the North Wales Nursing Association.
Idris Davies, Esq., J.P., Secretary of the Breconshire Association of Friendly Societies.
Mrs. F. Rose Davies, Member of the Aberdare Maternity Committee.
D. W. Evans, Esq., General Director of the Welsh National Memorial Association.
J. Harrison Evans, Esq., Divisional Manager of the Pearl Assurance Company.
Leolin Forestier-Walker, Esq., M.P., Member of the Monmouthshire County Council.
E. P. Harris, Esq., J.P., Member of the Pembrokeshire County Council.
Edward Harris, Esq., Clerk to the Swansea Rural District Council.
W. Harris, Esq., Secretary of the South Wales Labour Federation.
Lieut.-Col. D. Hepburn, C.M.G., V.D., M.D., C.M., Dean of the Faculty of Medicine, University College, Cardiff.
D. Rocyn Jones, Esq., M.B., C.M., D.P.H., County Medical Officer of Monmouthshire.
Hugh Jones, Esq., M.B., C.M., D.P.H., Chairman of the Merionethshire Panel Committee.
R. T. Jones, Esq., J.P., Secretary of the North Wales Quarrymen's Union.
Lee Joseph, Esq., M.P.S., J.P., Past President of the South Wales and Monmouthshire Pharmacists' Association.
F. Llewellyn-Jones, Esq., LL.B., Chairman of the Flintshire Insurance Committee.
Lady Ada Mather-Jackson, Member of the Priory for Wales of the Order of St. John of Jerusalem.
Lieut.-Col. Ewen J. Maclean, M.D., M.Ch., M.R.C.P. Lond., F.R.S. Edin., Honorary Gynæcologist, King Edward VII.'s Hospital, Cardiff.
J. W. Morris, Esq., Chairman of Merthyr Tydfil Insurance Committee.
E. Ll. Parry-Edwards, Esq., M.B., M.D., D.P.H., County Medical Officer of Carnarvonshire.
Ellis W. Roberts, Esq., Member of Carnarvonshire County Council.
Lawson Taylor, Esq., Town Clerk of Wrexham.
D. Lleufer Thomas, Esq., M.A., Chairman of Welsh Housing and Development Association.
W. E. Thomas, Esq., M.B., C.M., M.D., J.P., Chairman of Glamorganshire Panel Committee.
D. T. Williams, Esq., Ex-Chairman of the Rhymney Urban District Council, and Member of South Wales Miners' Federation.

Mr. Percy E. Watkins, Welsh Board of Health, City Hall, Cardiff, will be the secretary of the Welsh Consultative Council.

Sept. 26th, 1919.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENT.)

Prevention of Influenza.

MANY valuable preventative measures are discussed in a memorandum by the Officiating Sanitary Commissioner to the United Provinces included in the annual report of the Sanitary Commission. It is claimed that the most that the Government of India could do as a practical measure in connexion with inoculation would be to maintain in its laboratories a sufficient supply of influenza vaccine to meet the wants of medical men in charge of such institutions as jails, schools, colleges, and so on, and of private practitioners who desire to use it in their practice. Sanitary measures, in the ordinary sense of terms, can have no effect on the spread of influenza, otherwise the disease would not spread in epidemic form in countries like England and America, where effective sanitary staffs are in both cases provided, and where efficient sanitary measures are, as far as possible, enforced. Influenza in India is more fatal, but this is not due to the fact that sanitary conditions are worse in India, but to the fact that economic conditions are worse. The people of India are worse housed, worse clothed, and worse fed, and can consequently offer less resistance to disease than those of England and America. The changes necessary for a decrease in the death-rate of influenza and other diseases in India depend on a change of economic conditions, and certainly not on the exertions of the sanitary staff. Reduction in mortality can, however, be effected in two ways—namely, by the general education of the people in elementary hygiene and by the institution of epidemic dispensaries capable of immediate and effective mobilisation when required in any district. These dispensaries need not be expensive, nor need they be provided with elaborate equipment, but each should contain a box of medicine to be supplied from a reserve store ordinarily maintained intact and reserved for use in epidemics at the district headquarters hospitals. District boards should be compelled to make provision in their budgets for the mobilisation of the "epidemic dispensaries," so that when the dispensaries are required for epidemics of plague, relapsing fever, or cholera, as well as influenza, the money to provide for their mobilisation and maintenance would be immediately available. The United Provinces Government, in a resolution on the sanitary report, remarks that "the best promise for countering future epidemics seems to lie in having skeleton dispensary establishments in readiness to be called out should the need arise," and arrangements are now being made to provide these.

Plague in India.

The most recent plague statement for the whole of India shows 229 deaths against 299 seizures. The provincial figures were: Bombay Presidency and Sind, 54 deaths; Madras, 33; Bengal, 2; Bihar and Orissa, 4; the United Provinces, 4; the Punjab, 1; Burma, 54; the Central Provinces, 1; Mysore State, 48; Hyderabad State, 28.

The 219 passengers by the P. and O. mail steamer *Nankin*, which arrived in Bombay about a month ago, are not likely to forget their experiences during a six weeks' voyage from home. The *Nankin* was at Port Said owing to plague cases on board. At Port Said the authorities removed the passengers in three groups to segregation camps and hospitals ashore. One group was sent to camp alongside the canal, another to an island near by, while a third was taken to an infectious fever hospital

The Inspector-General of Civil Hospitals in the Punjab in a report on plague for the year of 1918 makes an interesting statement that there is a distinct change in the attitude of the people towards antiplague measures. "They have come to understand," he says, "the causation and spread of the disease, and although persons are still to be found who are averse from the measures adopted, they are usually relics of bygone days who are too set in their beliefs to wish to imbibe fresh ideas." The truth appears to be that the indifference of the Indian masses to sanitary matters is too often exaggerated. Ignorance is largely responsible for indifference where it exists, and no better method could be adopted to instruct the people than by including elementary hygiene in the curricula of the schools. The present Director-General of the Indian Medical Services has declared in the Imperial Legislative Council that without education of the masses the best organised medical service in the world must work in vain. He added: "To remove ignorance the knowledge must be imparted through schools and colleges of India; this is essential. It is first necessary to educate the teachers. Unfortunately, too, in practically every country in the world the rulers themselves have never received any education on public health. They therefore find it difficult to believe even now in the absolute necessity of giving this instruction in every school throughout the land." The rulers of Great Britain have made considerable progress in the kind of education referred to during the past few years, and a corresponding advance may be hoped for among the rulers of India.

Infant Welfare in Lahore.

The Health Officer of Lahore has presented an important note and proposals with regard to infant welfare in Lahore.

He points out that what is wanted is an effective organisation to carry on the work under the supervision of a competent woman. His scheme is: 1. That a woman supervisor should be appointed who would devote the whole of her time to the work. 2. That there should be one infant welfare centre in each ward. To start with, four centres should be opened. 3. That these centres should be located at present in the Municipal Girls' School. 4. That magic lanterns, lectures, practical demonstrations in feeding, clothing, washing of babies (baby clinics), be held there once or twice a week by the lady health visitors. Free milk for the babies of the poor, and cheap medicines for the ordinary ailments of babies to be supplied at each centre. Prizes in the form of toys to be given at each demonstration to the best clothed, best fed babies, &c., by the supervisor. 5. That with a view to facilitate the supply of trained help at the time of childbirth to the poor the number of dais (native midwives) be increased from four to eight, and the number of municipal midwives reduced to one. 6. That four women, one attached to each centre, be appointed at present for home visitations, help in baby clinics, distribution of medicine, milk, &c. They should possess the certificates of having passed the examination of first-aid, home nursing, and domestic hygiene of the St. John Ambulance Association. The difference between the existing and proposed monthly expenditure in staff would amount to about Rs. 1000 a year, whilst the work done would be doubled. The fees paid to the municipal midwife for the case attended and the cost of medicine and milk used at the "welfare centres" will be, of course, additional charges and will vary with circumstances. The public health subcommittee has recommended that the proposals made by the health officer be sanctioned.

The Commission on Afghan War Medical Arrangements.

Colonel Frank Johnson, who administered martial law so successfully at Lahore, Brigadier-General R. P. Ridgeway, and Colonel R. Heard, I.M.S., constituted the mission to the Frontier to report fully on the medical and general arrangements made for the troops. The British Service, the Indian Army, and the Indian Medical Service were represented in this inquiry, but not the Royal Army Medical Corps.

MEDICINE AND THE LAW.

Professional Secrecy and the Medical Officer of Health.

A CORRESPONDENT has asked our opinion in regard to two situations in which a medical officer of health may be placed, and in which public duty appears to conflict with the principle of professional secrecy. He asks: 1. What is the duty of a medical officer of health when his health visitor reports to him a case of incest? 2. When the health visitor hands on to him the statement made by a midwife that a woman in her district is carrying out abortions?

1. *In Regard to Alleged Sexual Crime.*

In reply to the first question, a medical officer of health has, we take it, no specific duties in relation to information, given him by his subordinates, of sexual crime or vice. But he will generally deem it his duty, on receipt of such information, to require a rigorous inspection of premises concerned, and a severe application of any sanitary regulations that appear infringed. The offence is closely associated, of course, with overcrowding. Whatever be the duty of a medical man who, in the exercise of his calling, becomes aware of the commission of a crime which his peculiar position and knowledge enables him to detect, it cannot be said that a medical man has any special obligation cast upon him, if, in the course of his avocation, he hears from another person of the alleged commission of some form of sexual crime or vice. And this statement is no less true when, as in the present case, the informant is an official subordinate. For the detection of sexual crime or vice is no part of the duty of a health visitor or medical officer of health. If, however, the medical officer of health is satisfied that the information given him is substantially founded, and if, for example, a minor is victimised, common humanity and regard for society will lead him, either personally or through his informant, to set suitable machinery in motion. If, however, the case is one in which adults alone are concerned (a brother and sister, for example, or a father and adult daughter) the case for further interference is still weaker and the medical officer of health will do well to remember that the occasion is certainly not a privileged one, and that action on erroneous information would expose him to serious risk at law.

2. *In Regard to Alleged Abortion-mongering.*

In regard to information received that abortion is being practised by an individual, the medical officer of health as such has definite duties and obligations in respect of persons who are practising midwifery; and if the alleged abortionist is ostensibly or secretly practising midwifery, it is the duty of the medical officer of health to satisfy himself as to her conduct and methods, and, if necessary, to communicate in the proper way with the Central Midwives Board. If the alleged abortionist is not openly or supposedly practising midwifery it would seem advisable that the medical officer of health make some inquiry of the midwife who alleges "abortion-mongering." Should the information obtained from the midwife appear to have any relation to cases of sickness or death in the district, the medical officer of health has then reason to pursue his investigations and to communicate with the registrar of deaths, or perhaps the coroner. It does not, however, appear to be his duty, legally, officially, or otherwise, to communicate to the police the mere fact that he is informed that abortions are being procured by a certain person, and he is not likely himself to obtain evidence justifying such action. The medical officer of health, however, who, without such evidence, communicates with the police may find himself exposed to grave inconvenience; and the police have no grounds whatsoever for calling in question the discretion or action of the medical officer of health who does not repeat to the police something he has heard, albeit in an official capacity.

Correspondence.

"Audi alteram partem."

THE MEDICAL SERVICE AT ST. PAUL'S.

To the Editor of THE LANCET.

SIR,—Will you allow me to call the attention of your readers to the advertisement on another page of the special service to be held in St. Paul's Cathedral at 7 P.M. on Tuesday, Oct. 21st, with the Lord Bishop of London as the preacher? All medical men and students are invited and the Medical Guild of St. Luke, which was founded in 1864, desire that the attendance at this thanksgiving service should be worthy of our profession.

I am, Sir, yours faithfully,
GEORGE COWELL.
Provost.
Sept. 29th, 1919.

NURSE ANÆSTHETISTS.

To the Editor of THE LANCET.

SIR,—In reference to your leading article last week on "Nurse Anæsthetists," it is evident that during the war the shortage of medical men made it incumbent on trained nurse anæsthetists to take the part of the medical men who were themselves specially trained in this department. It was a justifiable step in the circumstances, and right well, no doubt, did these new anæsthetists carry out their duties. But the danger now lies in perpetuating this system. It has its dangers, and they are reviewed in your leading article. It seems that one of the claims of the trained nurse anæsthetist lies in the 35,000 cases of nitrous-oxide-oxygen anæsthesia without a single fatality. Against this we have the well-known fact—not sufficiently emphasised that though nitrous-oxide-oxygen anæsthesia is one of the most difficult to administer it is, at the same time, the safest, and though a higher mortality would be eloquent of our present argument it would also be surprising enough. The question of a midwife administering the anæsthetic (invariably chloroform) during obstetrical operations is another point, and one that can be dismissed in a few words: it is, as everyone knows, the easiest anæsthetic to administer, as well as the safest in the circumstances, in view of the cardiac hypertrophy that accompanies the gravid uterus.

However, nothing is of such great importance for the success of the anæsthetic as the preliminary examination of the patient and the choice of the anæsthetic to be given to suit the case. It would be no exaggeration to state that the question at issue becomes here a highly important as well as a *personal* matter, where the physical consideration of the patient is made in conjunction with the self-conscious capabilities of the anæsthetist. To train a nurse properly, therefore, to act as an anæsthetist, she should be trained as well in the mysteries of inspection, palpation, percussion, and auscultation. It is also to be kept in mind that the trained nurse anæsthetist's claims are chiefly, if not solely, based upon her proficiency among soldiers—men who are essentially picked lives and whose experiences on active service have only added to the initial excitability of the anæsthetic without having much effect upon its dangers.

The legal aspect of fatal cases must not be forgotten, and, finally, it is comparatively easy to administer an anæsthetic to 1000 patients without a fatality occurring, but it is a different thing to administer it to 10,000 with the same result. I am, Sir, yours faithfully,

Tunbridge Wells, Sept. 27th, 1919. W. E. Reynolds, M.D.

IONISATION FOR SEPSIS.

To the Editor of The Lancet.

Sir,—In your issue of Sept. 20th there appears an interesting paper by Captain F. W. Baker Young on the treatment by ionisation of patients suffering from cellulitis and from septic wounds. To those who, like myself, believe that this method of treatment is the most practical one of sterilising wounds by extraneous agents available for ordinary work, anything that is written on the subject and any work recorded is of interest. I am sure that Captain Young, as he continues to practise this method and to perfect his technique, will be more and more pleased with his results.

From his account of his clinical work I believe his success in cases of cellulitis and its effects are due to two things—(*a*) the solvent action of anions—e.g., chlorine on exudates and recently formed adhesions and (*b*) to the nutritional changes which the exchange of ions between tissue cells and the fluids of the body in apposition with them produces. To sterilise an open and accessible wound directly and within a few minutes I believe he will find it necessary to use an ion, such as zinc, which produces a coagulative effect on albuminous substances.

The sterilisation which Captain Young found to occur in his lucidly described experiments I suggest is to be explained by the facts that as most small bodies—e.g., bacteria—are negatively charged they move towards the positive electrode; and that in the immediate neighbourhood of the electrode, when this is formed of a substance with which the ions of the solution do not form a compound, a secondary action takes place when the current is passing, resulting in products inimical to bacterial life. Thus, supposing the electrode to consist of carbon and the solution to be common salt in water, the *ion* chlorine will, when it reaches the carbon, give up its charge of electricity and become an *atom* of chlorine. This immediately attacks the water and seizes the hydrogen, forming hydrochloric acid, while oxygen is set free. This change, of course, does not occur in the wounds which Captain Young treated, as the tissues of the body intervened between the solution and the metal of the positive electrode. The benefit which so many of Captain Young's patients experienced after electrical treatment is an encouragement to others to adopt ionisation. I have been for some years interested in the subject, and have been struck on reading articles by various men at the almost unanimous record of satisfactory results reported.

I am, Sir, yours faithfully,

Devonshire-place, W., Sept. 24th, 1919. A. R. Friel.

NEW RATES OF PAY FOR TEMPORARY COMMISSIONS, R.A.M.C.

To the Editor of The Lancet.

Sir,—Be careful, pray, not to accuse the Government A.M.S. Advisory and Treasury Departments of generosity in pay, even on present offer of six months' contract. And for why? Are these foreign service officers going to use the rupee, the piastre, the franc, or the mark? If the piastre, this remains constant to par, but everything in Egypt is fabulously dear *in piastres*; in other words, the £1 sterling goes only a very little way. If the rupee, which = 2*s*. nominal at present, and there one understands it is fixed pro tem. —1*s*. 4*d*. : 2*s*. : : 16 : 24 = 800 : 1200—which alone neutralises any good pay and more than does so, 1*s*. 4*d*. being the pre-war par value. If the franc or the mark is to be used the officer is in clover, the former being, say, only worth 6¼*d*. and the latter 2*d*.

It seems probable, then, that the newly engaged (or renewed officers) will go to India or Ceylon, the homes of the rupee. It is advised that they should get a signed and witnessed contract that the sterling rate of pay should be stabilised to their satisfaction according to the country in which they may be called upon to serve before they buy or refresh their uniform. We have all "had some" of the Government generosity.

I am, Sir, yours faithfully,

G. L. K. Finlay, B.A. Cantab.,
M.B., C.M. Edin.,
Sept. 21st, 1919. Late Temporary Officer, R.A.M.C. (2 wars).

SURGICAL USES OF A HAIRPIN.

To the Editor of The Lancet.

Sir,—It is the practice of some to wear braces which can be used as tourniquets; an American surgeon employs the tubes of discarded tyres for lung exercise: others shave and operate with the same instrument; and there was once a doctor who gave an enema with a stethoscope. The hairpin, too, has sterner uses. In the last few years I have repeatedly been in places where it was necessary to perform those ophthalmic operations which are a part of general surgery—enucleation, for example, and paracentesis, and where a real eyelid retractor was not available I found that an excellent substitute can be made from a stiff hairpin. The middle part of each limb of the pin is bent to form one of the valves which catches the eyelid. This makeshift stood the test even of a stormy occasion in a foreign convent when I was obliged to open with a scalpel the hypopyon of a nervous patient, and though my retractor disturbed the orthodoxy of a mother superior, it certainly was a means of saving the eye.

In a lesser extremity, when a syringe has failed to dislodge a foreign body from the ear, and when chance has supplied a speculum, the loop of a fine hairpin (always, of course, under visual control), curved and passed like a hand over the foreign body, will often withdraw it. I have once found the thing useful in an urgent predicament when obliged to perform tracheotomy on an infant with a knife only. A hairpin was bent so that the middle thirds of its two limbs projected into the tracheal wound and kept it open, while the looped and open ends respectively were fitted to the circumference of the neck and gave attachment to tapes. This device served until I was able to procure a tube.

I am, Sir, yours faithfully,

Arnold K. Henry, M.B., F.R.C.S.,
Late Consulting Surgeon, 5th Sector, 17th Region,
Dublin. Armée Française.

A CLUB FOR DEAFENED EX-SERVICE MEN.

To the Editor of The Lancet.

Sir,—A committee of the members of the Ebury Bridge Lip Reading Classes for deafened ex-N.C.O.'s and men of both Services venture to ask your kind assistance in making known their proposal to form a club for the benefit of those who have lost or partially lost their hearing in the great war. The idea of the proposed club is to promote the social welfare of a very considerable body of deserving men, when they will have an opportunity of indulging in sports, games, and other recreations according to their individual tastes without the embarrassments which they would be inclined to feel when mixing with others who enjoy their faculties unimpaired.

In course of time we hope to extend the club's sphere of influence and further the material interests of those who find their affliction a great handicap in the struggle of life. As things are at present there must be among your readers many ex-Service men who, while not attending the lip-reading classes, would doubtless be interested in the matter, and it is with this object, Sir, we crave the courtesy of a little of your space so that they may communicate with us.

We are, Sir, yours faithfully,

V. H. C. Edwards, R.A.S.C., } Hon. Secs.
E. C. Moon, R.E., } pro tem.
Westminster Evening Institute, Ebury Bridge,
Victoria, S.W., Sept. 17th 1919.

URBAN VITAL STATISTICS.

VITAL STATISTICS OF LONDON DURING AUGUST, 1919.

IN the accompanying table will be found summarised statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious disease it appears that the number of persons reported to be suffering from one or other of the ten diseases notified in the table was equal to an annual rate of 4·9 per 1000 of the population, estimated at 4,026,901 persons; in the three preceding months the rates had been 4·5, 4·7, and 5·9 per 1000. No case of any of these diseases was notified during the month in the City of London. Among the metropolitan boroughs the lowest rates from these notified diseases were recorded in Kensington, the City of Westminster, St. Marylebone, Hampstead, Holborn, and Wandsworth; and the highest in Hackney, Bethnal Green, Stepney, Southwark, Bermondsey, and Greenwich. The prevalence of scarlet fever was 25 per cent. less than in the preceding month; this disease was proportionally most prevalent in Bethnal Green, Stepney, Southwark, Bermondsey, Deptford, and Greenwich. The Metropolitan Asylums Hospitals contained 1409 scarlet fever patients at the end of the month, against 1066, 1132, and 1516 at the end of the three preceding months; the weekly admissions averaged 184, against 150, 157, and 236 in the three preceding months. Diphtheria was somewhat less prevalent than in the preceding month; the greatest prevalence of this disease was recorded in Stoke Newington, Hackney, Bethnal Green, Stepney, Poplar, and Southwark. The number of diphtheria patients under treatment in the Metropolitan Asylums Hospitals, which had been 1086, 1021, and 1108 at the end of the three preceding months, numbered 1001 at the end of August; the weekly admissions averaged 125, against 145, 138, and 153 in the three preceding months. The prevalence of enteric fever was about equal to that in the preceding month; of the 31 cases notified during the month, 9 belonged to Greenwich, 4 to Hackney, 3 to Poplar, and 2 to St. Pancras. There were 43 cases of enteric fever under treatment in the Metropolitan Asylums Hospitals at the end of the month, against 19, 25, and 34 at the end of the three preceding months; the weekly admissions averaged 7, against 3, 5, and 5 in the three preceding months. Erysipelas was proportionally most prevalent in Hammersmith, Bethnal Green, Stepney, Southwark, Bermondsey, and Woolwich. The 33 cases of puerperal fever notified during the month included 5 in Islington, 4 in Hackney, 3 in Poplar, 3 in Southwark, and 2 each in Paddington, Fulham, and Wandsworth. Of the 15 cases of cerebro-spinal meningitis, 2 belonged to Kensington, 2 to Chelsea, and 2 to Lambeth; while of the 12 cases of poliomyelitis 2 belonged to Hackney.

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING AUGUST, 1919.

(*Specially compiled for* THE LANCET.)

CITIES AND BOROUGHS.	Estimated civil population, 1917.	Notified Cases of Infectious Disease.												Deaths from Principal Infectious Diseases.									Deaths from all causes.	Death-rate per 1000 living.
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cerebro-spinal meningitis.	Poliomyelitis.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Enteric fever.	Diarrhœa and enteritis (under 2 years).	Total.	Annual rate per 1000 persons living.		
LONDON...	4,026,901	—	728	499	—	31	2	33	203	15	12	1523	4·9	—	29	2	31	10	4	103	179	0·6	3072	9·9
West Districts :																								
Paddington	122,507	—	6	16	—	1	—	2	3	1	1	30	3·2	—	—	—	—	—	—	7	7	0·7	93	10·4
Kensington	151,535	—	7	11	—	—	—	1	4	2	—	25	2·2	—	—	—	—	1	—	12	13	1·1	123	10·6
Hammersmith ...	114,952	—	4	11	—	—	—	—	14	—	1	30	3·4	—	—	—	—	—	—	5	5	0·6	81	9·2
Fulham	145,186	—	16	17	—	—	—	2	6	1	—	42	3·8	—	—	—	1	—	—	2	3	0·3	101	9·1
Chelsea	57,368	—	9	4	—	1	—	1	—	2	—	17	3·9	—	—	—	1	—	—	1	2	0·5	39	8·9
City of Westminster	122,046	—	7	3	—	1	—	1	—	1	—	13	1·4	—	1	—	—	—	—	—	1	0·1	89	9·5
North Districts :																								
St. Marylebone ...	92,796	—	12	5	—	—	—	1	4	—	—	22	3·1	—	2	—	—	—	—	3	5	0·7	80	11·2
Hampstead	75,649	—	7	3	—	1	—	—	2	—	1	14	2·4	—	1	—	—	—	—	1	2	0·3	57	9·8
St. Pancras	186,600	—	25	20	—	2	—	1	8	1	1	58	4·1	—	5	—	1	—	—	3	9	0·6	168	11·7
Islington	297,102	—	50	35	—	1	—	5	17	—	—	108	4·7	—	—	—	1	2	—	3	6	0·3	229	10·1
Stoke Newington...	47,426	—	4	9	—	—	—	—	2	—	—	15	4·1	—	—	—	1	—	—	1	2	0·5	28	7·7
Hackney	196,598	—	40	34	—	4	1	4	7	1	2	93	6·2	—	—	—	7	2	1	8	18	1·2	150	9·9
Central Districts :																								
Holborn	35,303	—	1	1	—	1	—	—	1	—	—	4	1·5	—	—	—	—	—	—	1	1	0·4	37	13·7
Finsbury	68,011	—	14	10	—	—	—	1	1	—	—	26	5·0	—	—	—	—	—	—	1	1	0·2	60	11·5
City of London ...	16,138	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6	4·8
East Districts :																								
Shoreditch	89,675	—	12	10	—	1	—	—	5	1	—	29	4·1	—	—	—	1	—	—	3	4	0·6	97	14·1
Bethnal Green ...	107,362	—	31	36	—	1	—	1	15	—	—	84	10·2	—	3	—	5	—	—	3	11	1·3	82	10·0
Stepney	232,010	—	99	56	—	1	—	1	22	1	1	181	10·2	—	3	—	2	—	—	12	17	1·0	180	10·1
Poplar	143,443	—	27	24	—	3	—	3	4	—	—	61	5·5	—	1	1	2	1	—	8	13	1·2	127	11·5
South Districts :																								
Southwark	167,936	—	55	28	—	1	—	3	29	1	—	117	9·1	—	3	1	2	—	—	4	10	0·8	135	10·5
Bermondsey	107,635	—	30	9	—	—	—	—	11	—	—	50	6·1	—	1	—	—	—	—	5	6	0·7	82	9·9
Lambeth	272,038	—	55	27	—	1	—	—	10	2	1	96	4·6	—	—	—	4	—	—	3	7	0·3	224	10·7
Battersea	150,023	—	24	12	—	—	—	—	5	—	1	42	3·6	—	—	—	1	1	—	2	4	0·3	101	8·8
Wandsworth	300,787	—	41	21	—	—	—	2	7	—	1	72	3·1	—	1	—	1	1	—	4	7	0·3	191	8·3
Camberwell	239,461	—	38	33	—	—	—	1	10	—	1	83	4·5	—	4	—	1	—	2	5	12	0·7	184	10·0
Deptford	103,527	—	34	7	—	1	—	1	—	—	—	43	5·4	—	2	—	—	—	—	2	4	0·5	86	10·8
Greenwich	90,440	—	26	11	—	9	1	—	4	1	1	53	7·6	—	2	—	—	2	—	3	7	1·0	71	10·2
Lewisham	161,405	—	37	25	—	—	—	1	2	—	—	65	5·3	—	—	—	—	—	—	1	1	0·1	95	7·7
Woolwich...	131,942	—	17	21	—	1	—	1	10	—	—	50	4·9	—	—	—	—	—	1	—	1	0·1	71	7·0
Port of London ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

* Including membranous croup.

The mortality statistics in the table relate to the deaths of civilians belonging to the several boroughs, the deaths occurring in institutions having been distributed among the boroughs in which the deceased had previously resided. During the four weeks ended August 30th the deaths of 3072 London residents were registered, equal to an annual rate of 9·9 per 1000; in the three preceding months the rates had been 11·1, 9·7, and 9·8 per 1000. The death-rates ranged in August from 4·8 in the City of London, 7·0 in Woolwich, 7·7 in Stoke Newington, 7·7 in Lewisham, and 8·3 in Wandsworth, to 11·2 in St. Marylebone, 11·5 in Finsbury, 11·5 in Poplar, 11·7 in St. Pancras, 13·7 in Holborn, and 14·1 in Shoreditch. The 3072 deaths from all causes included 179 which were referred to the principal infectious diseases; of these, 29 resulted from measles, 2 from scarlet fever, 31 from diphtheria, 10 from whooping-cough, 4 from enteric fever, and 103 from diarrhœa and enteritis among children under 2 years of age. No death from any of these diseases was recorded in the City of London. Among the metropolitan boroughs the lowest death-rates from these diseases were recorded in the City of Westminster, Finsbury, Lewisham, and Woolwich; and the highest in Kensington, Hackney, Bethnal Green, Stepney, Poplar, and Greenwich. The 29 deaths from measles were 35 less than the average number in the corresponding period of the five preceding years; of these deaths 5 belonged to St. Pancras, 4 to Camberwell, 3 to Bethnal Green, 3 to Stepney, and 3 to Southwark. The 2 fatal cases of scarlet fever exceeded the average by 9. The 31 deaths from diphtheria were 2 above the average; of these deaths 7 belonged to Hackney, 5 to Bethnal Green, 4 to Lambeth, 2 to Stepney, 2 to Poplar, and 2 to Southwark. The 10 fatal cases of whooping-cough were one-quarter of the average number; of these. 2 each belonged to Islington, Hackney, and Greenwich. The 4 deaths from enteric fever were 5 less than the average; of these deaths 2 belonged to Camberwell. The 103 deaths from diarrhœa and enteritis among children under 2 years of age were less than a third of the average number; the greatest proportional mortality from this disease was recorded in Paddington, Kensington, Hammersmith, Stepney, Poplar, and Bermondsey. In conclusion, it may be stated that the aggregate mortality from these principal infectious diseases in London during August was 64 per cent. below the average.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.—The opening meeting of the session will be held to-day, Friday, Oct. 3rd, at the West London Hospital, at 8.30 P.M., when Dr. Herbert Chambers will be inducted president, and the Keetley Memorial Medal will be presented to the retiring president, Lieutenant-Colonel E. M. Wilson, R.A.M.C. The presidential address will follow on "London Medical Societies: a Glimpse of their History and Work."

THE LATE DR. DAVID GARDNER.—Dr. Gardner, who died at the Royal Alexandra Infirmary on Sept. 22nd, aged 61, was a well-known medical practitioner in Paisley, where he had been in practice for the past 30 years. He was a student at Glasgow University, where he gained the William Hunter Medal for Medicine and Public Health, and he was for a time surgeon-superintendent in the service of the Queensland Government.

The Services.

ROYAL ARMY MEDICAL CORPS.

Lieut.-Col. F. E. Gunter retires on retired pay.

Major R. J. Franklin to be acting Lieutenant-Colonel whilst commanding a Medical Unit.

N. G. Cooper, late Major, Canadian A.M.C., to be temporary Major.

Capt. A. M. McCutcheon and Temp. Capts. H. Goodman and J. N. Humphrey relinquish the acting rank of Major.

Capt. J. E. Hepper to be acting Major whilst specially employed.

Temp. Capt. R. T. Cox to be Captain.

R. Svensson, late temporary Captain, to be temporary Captain.

Capt. E. Percival relinquishes the acting rank of Lieutenant-Colonel on ceasing to command a Medical Unit.

To be Lieutenants and to be temporary Captains: Capts. E. Parker and W. S. Gross, from Special Reserve; Temp. Capt. C. P. Chambers.

H. J. Theriault, late Captain, C.A.M.C., to be temporary Captain.

W. E. Shipsey to be Temporary Lieutenant.

A. H. Chu to be Temporary Hon. Lieutenant.

Officers relinquishing their commissions:—Temp. Hon. Lieut.-Col. R. G. Gows (retains the honorary rank of Lieutenant-Colonel); Temp. Major and Bt. Lieut.-Col. L. E. Lanyon-Owen (retains the Bt. rank of Lieutenant-Colonel); Temp. Capt. C. H. Fennell (granted the rank of Major).

Temporary Captains retaining the rank of Captain: J. W. Tonks, P. V. Early, C. T. I. Clarke, D. D. Ritchie, J. M. Anderson, L. W. Davies, E. J. Dermott, J. C. O'Farrell, R. P. Weldon, H. Harvey, W. A. Cardwell, C. J. D. Bergin, C. E. Wilson, A. N. Haworth, H. A. Forrester, H. P. Rogers, G. H. L. Fitzwilliams, G. W. Bissett, D. L. G. Radford, C. W. Morrison, J. G. Cronyn, J. M. Elliot, T. D. Webster, N. M. Grace, G. S. Goodwin, J. N. Humphrey, W. Shanks, J. M. Scott, B. M. Smith, C. E. Dnkes.

Temp. Hon. Capt. W. S. Rutherford retains the honorary rank of Captain.

Temp. Lieut. R. A. MacArthur retains the rank of Lieutenant.

SPECIAL RESERVE OF OFFICERS.

Capt. B. M. Tuke relinquishes his commission and retains the rank of Captain.

Capt. J. P. Huhan relinquishes his commission.

Lieutenants to be Captains: F. K. MacMillon, W. H. Duff, A. K. I. Jones, N. B. Peacock, W. Napier, A. S. Goudie, J. W. Mackay, J. B. Potter, W. Scotland, D. Finlayson, A. M. Davidson.

TERRITORIAL FORCE.

Capts. (acting Majors) N. J. Wigram and T. W. Hancock, O.B.E., relinquish the acting rank of Major on ceasing to be specially employed.

Capt. F. W. Squair to be acting Major whilst specially employed.

1st London General Hospital: Capt. (Bt. Major) (acting Major) R. C. Elmslie relinquishes the acting rank of Major on ceasing to be specially employed.

2nd London General Hospital: Major C. J. Symonds is restored to the establishment on ceasing to hold a temporary commission in the Army Medical Service.

4th Northern General Hospital: Capt. (acting Major) G. J. R. Lowe relinquishes the acting rank of Major on ceasing to be specially employed.

2nd London Sanitary Company: Capt. (Bt. Major) G. W. Ellis is restored to the establishment.

ROYAL AIR FORCE.

Medical Branch.—Capt. T. E. Mulvany relinquishes his commission and is permitted to retain his rank.

EAST AFRICAN MEDICAL APPOINTMENTS.

The Secretary of State for the Colonies announces vacancies for posts of Medical Officers in the following Protectorates: East Africa Protectorate, Uganda, German East Africa, Nyasaland, Zanzibar, Somaliland. The salary of a Medical Officer is on the scale of £400–£20–£500 a year, with duty allowance of £40, and after six years' service £525–£25–£600 a year, with duty allowance of £50. Temporary war bonus is paid at present, the annual amount corresponding to a salary of £400, being £55 to single officers and £105 to married officers. The grading of the senior posts in East Africa, which are filled by the promotion of Medical Officers, may be judged from the following arrangements in the East Africa Protectorate: Senior Medical Officer at £600–£25–£750, duty allowance £60; Deputy Principal Medical Officer, or Senior Sanitary Officer, £750–£25–£850, with duty allowance £75; Principal Medical Officer, £850–£50–£1000, duty allowance £85. Certain special appointments are graded as follows: Bacteriologist, as a Senior Medical Officer, Assistant Bacteriologist, as a Medical Officer, higher scale; Medical Officers of Health, as Medical Officers; in Zanzibar the Medical Officer of Health is equivalent to a Medical Officer, higher scale, with additional special allowance of £100 a year, and the Assistant Medical Officer of Health as an ordinary Medical Officer, with additional special allowance of £50 a year. The Principal Medical Officer in Nyasaland is graded as a Deputy Principal Medical Officer. The Principal Medical Officer in Zanzibar is graded as a Senior Medical Officer. The Head of the Medical Department in Somaliland is graded as a Senior Medical Officer. Quarters are provided free of rent, but not of rates or similar outgoings, or an allowance is given in lieu.

Leave is granted with full pay at the rate of two and a half days or three days, according to the officer's station in respect of each month of service, and an equal period of return leave if the officer returns to the Protectorate. A free first-class passage is allowed on first appointment and on leave. All appointments are pensionable, but the scales of pension are at present under consideration. Medical Officers are permitted to retire after nine years' service with a gratuity of £1000, or after 12 years' service with a gratuity of £1250: this gratuity is in lieu of pension. Medical Officers are permitted to take private practice on the understanding that they give precedence to their official duties. Intending candidates should write to the Private Secretary for Appointments, Colonial Office, S.W. 1, for forms of application. Testimonials and other documents should not be sent in until the candidate has received a form of application from the Colonial Office.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Tuesday, Oct. 7th.

SURGERY: SUB-SECTION OF ORTHOPÆDICS (Hon. Secretaries—A. S. Blundell Bankart, R. C. Elmslie): at 5 P.M.

Cases:

Mr. Laming Evans: Coxa Vara after Reduction of Congenital Dislocation of the Hip.

Mr. P. B. Roth: Congenital and Paralytic Scoliosis.

Mr. Elmslie: Infantilism.

Cases will also be shown by Mr. Fairbank and others.

Thursday, Oct. 9th.

OBSTETRICS AND GYNÆCOLOGY (Hon. Secretaries—J. S. Fairbairn, Herbert Williamson): at 7.45 P.M.

Specimens:

Dr. F. J. McCann: (1) Omental Hydatid; (2) Cystic Fibromyoma of the Pelvic Connective Tissue; (3) Fibroma of the Urethra causing Prolapse of the Anterior Urethral Wall.

Short Communication:

Dr. Gordon Ley: Traumatic Rupture of the Uterus.

Paper:

Dr. F. J. McCann: The Precancerous Uterus.

NEUROLOGY (Hon. Secretaries—P. W. Saunders, George Riddoch): at 8.45 P.M.

Presidential Address:

Dr. W. Aldren Turner: The Influence of Psychogenic Factors in Nervous Disorders.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

LONDON HOSPITAL MEDICAL COLLEGE, in the Clinical Theatre of the Hospital.

A Special Course of Instruction in the Surgical Dyspepsias will be given by Mr. A. J. Walton:—

MONDAY, Oct. 6th.—4.30 P.M., Lecture XIX.:—Ætiology and Pathology of Gall Stones and their Complications.

FRIDAY.—4.30 P.M., Lecture XX.:—Symptoms, Complications and Treatment of Gall Stones.

ROYAL INSTITUTE OF PUBLIC HEALTH, in the Lecture Room of the Institute, 37, Russell-square, W.C.

Course of Instruction for Candidates as Tuberculosis Officers, General Practitioners and others. Bacteriological Demonstrations will be given in the Laboratories of the Institute, and visits arranged to Sanatoriums, Tuberculosis Dispensaries, &c.

THURSDAY, Oct. 9th.—5 P.M., Lecture I.:—Dr. H. Sutherland: The Early Diagnosis of Tuberculosis.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE CLINIC.

TUESDAY, Oct. 7th.—4.30 P.M., Lecture:—Mr. W. Thorburn: Prostatic Enlargement.

Appointments.

COFFIN, S. W. (late Capt. R.A.M.C.), has been appointed Assistant Anæsthetist at Guy's Hospital.

DUGGAN, M., M.R.C.S., L.R.C.P., Medical Superintendent of the John Leigh Memorial Hospital for Officers, Altrincham.

OATES, G. E., M.D. Lond., Medical Officer of Health for Bethnal Green.

RICHARDS, OWEN, F.R.C.S., M.Ch., Director of the Egyptian Government School of Medicine and Kasr-el-Aini Hospital, Cairo.

SARGENT, P., F.R.C.S., Consulting Surgeon to the Royal Hospital and Home for Incurables, Putney.

Vacancies.

For further information refer to the advertisement columns.

Bedford County Hospital.—Res. M.O. £150.

Belgrave Hospital for Children, Clapham-road, S.W.—H.P. and H.S. £100 and £75.

Birkenhead Borough Hospital.—Jun. H.S. £170.

Bradford Royal Infirmary.—Two H.S.'s. £200.

Brighton, Royal Sussex County Hospital.—Asst. Path. £200.

Cancer Hospital, Free, Fulham-road, London, S.W.—Asst. S.

Carlisle, Cumberland and Westmorland Mental Hospital, Garlands.—Jun. Asst. M.O. £300.

Colchester, Severalls Mental Hospital.—Temp. Asst. M.O. 7 gs. per wk.

Croydon General Hospital.—Jun. H.S.

Derby, Derbyshire County Council.—Maternity and Child Welfare M.O. £450

Derby, Derbyshire Education Committee.—Sch. M.O. £450.

Dorchester, Dorset County Council Education Committee.—School Dentists. £400.

Downpatrick, Down District Asylum.—Asst. M.O. £250.

Frimley, Brompton Hospital Sanatorium.—Med. Supt. £600.

German East Africa Occupied Territory.—M.O.'s. £400–£20–£500.

Gloucester, Gloucestershire Royal Infirmary and Eye Institution.—Asst. S.

Great Northern Central Hospital, Holloway, N.—Dental S. Also H.S. £150.

Hereford County and City Mental Hospital.—Senior Asst. M.O. £350.

Home Office, Reformatory and Industrial Schools Department.—Medical Inspector. £500.

Hospital for Consumption and Diseases of the Chest, Brompton, S.W.—S. H.P. for six months. 30 gs. Asst. Res. M.O. £150. Asst. P. £250. Asst. in Dept. of Path. £250. Part-time Asst. in Dept. of Path. £250.

Hospital for Sick Children, Great Ormond-street, W.C.—Res. Med. Supt. £200. Also Asst. Cas. M.O., H.S., and H.P. All £50.
Hospital for Women, Soho-square, W.—Phys. Con. Also Hon. M.O.
Hull Royal Infirmary.—Sen. H.S. £200.
King's College Hospital, Denmark Hill, London, S.E.—Hon. Clin. Assts. for Dental Department. Also Junior S., Senior Orthopædist, Junior P., and Junior Neurologist.
London Homœopathic Hospital, Great Ormond-street, and Queen-square, W.C.—Res. M.O. £80.
London Lock Hospital and Rescue Home, 283, Harrow-road, W., and 91, Dean-street, W.—Hon. S. to Out-patients.
Maidstone, West Kent General Hospital.—H.P. £200. Also Second Hon. Anæsthetist.
Manchester, Ancoats Hospital.—H.S. £100.
Manchester Royal Infirmary, Central Branch, Roby-street, Manchester.—Res. Surg. O. £200.
Manor House Orthopædic Hospital, North End-road, Hampstead, N.W.—Res. S.O. £500.
Metropolitan Ear, Nose, and Throat Hospital, Fitzroy-square, W.—Asst. S. Also Clin. Assts.
Mount Vernon Hospital for Consumption and Diseases of the Chest, Northwood, Middlesex.—Asst. Res. M O. £200.
National Hospital for the Paralysed and Epileptic, Queen-square, W.C.—Radiologist.
Newcastle-upon-Tyne, Hospital for Sick Children.—Jun. Res. M.O. £200.
Norwich Poor-law Institution Children's Homes.—Res. M.O. £350.
Nottingham General Hospital.—H.S. £150.
Oldham County Borough.—Asst. M.O.H. £390.
Oldham Royal Infirmary—Third H.S. £200.
Paddington Green Children's Hospital, London, W.—H.P. and H.S. £150 each.
Plymouth, South Devon and East Cornwall Hospital.—H.S. £200.
Poplar Hospital for Accidents, Poplar, E.—Jun. Res. M.O. £120.
Preston, County Asylum, Whittingham, Lancs.—Asst. M.O. £250.
Preston County Borough.—Tuberc. O. and Asst. M.O.H. £550.
Royal Chest Hospital, City-road, E.C.—Asst. P.
Royal London Ophthalmic Hospital, City-road, E.C.—Senior H.S. £150.
Ryde, Royal Isle of Wight County Hospital.—Res. M.O. £250.
St. George-in-the-East Infirmary, Raine-street, Old Gravel Lane, London, E.—Asst. M.O. £350.
St. Marylebone General Dispensary, 77, Welbeck-street, Cavendish-square, W.—Res. M.O. £150.
Scotland Region, Ministry of Pensions.—Medical Referees.
Sheffield City Education Committee.—Sch. Dent. S's. £400.
South London Hospital for Women, South Side, Clapham Common, S.W.—Female Asst. S. and Temp. Asst. S.
Stroud General Hospital.—H.S. £200.
Sunderland Royal Infirmary.—Sen. H.S., Two Jun. H.S.'s. and H.P. £250 and £200 respectively.
Victoria Hospital for Children, Tite-street, Chelsea, S.W.—In-patient P. and Two Out-patient P.'s.
Whitehaven and West Cumberland Infirmary.—Res. H.S. £180.
Willesden Urban District Council.—Two Dentists. £400.
Wolverhampton and Staffordshire General Hospital.—Res. M.O. £200. H.S. £200.

Births, Marriages, and Deaths.

BIRTHS.

DRAKE-BROCKMAN.—On Sept. 28th, at Studland House, Worthing, the wife of Ralph E. Drake-Brockman, D.S.O. (late Lieutenant-Colonel, R.A.M.C.), of a son.

MARRIAGES.

BARNARDO—LLOYD.—On Sept. 24th, in London, Dr. Barnardo, of Southport, to Frances Mabel, elder daughter of the late Charles Rees Lloyd, of Berkeley, California, U.S.A.

DEATHS.

CLARKE.—On Sept. 22nd, at Charing Cross Hospital, George Fernandez Mitchell Clarke, M.R.C.S. Eng., L.R.C.P. Lond., L.S.A., aged 46.

VERDON.—On Sept. 21st, at Charlotte-street, Hull, John Verdon, late Staff-Surgeon, Royal Navy.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Communications, Letters, &c., to the Editor have been received from—

B.—Board of Agriculture and Fisheries, Lond.
C.—Colonial Office, Secretary of State, Private Secretary to, Lond.; Miss G. Cowlin, Lond.; *Canadian Medical Quarterly*, Toronto.
E.—Mr. V. H. C. Edwards, Lond.; Rev. E. H. Enys, Brighton.
F.—Mr. J. G. French, Lond.; Dr. G. L. K. Finlay, Lond.; Dr. C. Flandin, Paris; Dr. A. R. Friel, Lond.; Food Education Society, Lond., Hon Sec. of; Col. N. Faichnie, A.D.M.S.
G.—Dr. A. D. Gardner, Broxbourne.
H.—Mr. S. Hastings, Lond.; Dr. H. Head, Lond.; Dr. A. Harden, Lond.
J.—Dr. W. Johnson, Lond.
L.—Miss E. C. Lewis, M.B., Lond.; Messrs. Lawson and Co. (Bristol), Ltd.
M.—Medical Women's Federation, Lond., Sec. of; Mr. G. Mayall, Bolton; Dr. J. McIntosh, Lond.
P.—Dr. J. J. Perkins, Lond.; Mr. R. E. C. de Pury, Paris.
R.—Dr. J. Regnault, Toulon; Dr. H. Rainsford, Lond.
S.—Society for the Prevention and Relief of Cancer, Lond., Hon. Sec. of; Dr. W. C. Sullivan, Lond.; Dr. J. W. Staniforth, Hinderwell; Dr. E. G. Stanley, Paris.
T.—Dr. A. H. Thompson, Lond.; Dr. D. Turner, Edinburgh.
W.—Dr. C. Watson, Edinburgh; Westminster Evening Institute, Lond.; Dr. W. J. Wilson, Belfast; Mr. L. Wasserman, St. Albans; Messrs. Watson and Sons, Lond.; Dr. F. Wetterwald, Paris.

Communications relating to editorial business should be addressed exclusively to the Editor of THE LANCET, 423, Strand, London, W.C. 2.

Medical News.

UNIVERSITY OF ST. ANDREWS.—In the Third Professional Examination for Degrees of M.B., Ch.B., the following candidates passed in the subject indicated:—

Materia Medica.—Isabella Dron Kilgour, Nona Smith Lesslie Katharine Duff Macfarlane, Gracie MacGregor McRorie, Elizabeth Wills MacVicar, and William Lofley Tullis.

LECTURES ON THE HISTOLOGY OF THE NERVOUS SYSTEM.—Ten public lectures on "The Histology of the Nervous System," with demonstrations, by Dr. C. D. Da Fano (Captain, Italian R.A.M.C.), will be given at King's College, Strand, London, W.C., on Tuesdays, at 4.30 P.M., beginning on Oct. 7th. These lectures are free to all students of King's College and to students of other London colleges and medical schools.

THE OPENING OF THE WINTER SESSION.—The annual dinners in connexion with the opening session at the various London medical schools were not held during the week on account of the railway strike, notice to this effect having been given in the daily press. At St. Mary's Hospital the presentation of prizes by Sir John Goodwin took place on Oct. 1st.—The introductory address by Sir John Bland-Sutton and the distribution of prizes by Sir Robert Hill to students of the Middlesex Hospital Medical School, fixed for 3 P.M. on Wednesday, Oct. 1st, was postponed.

ST. BARTHOLOMEW'S HOSPITAL AND COLLEGE.—The following scholarships have been awarded:—Entrance Scholarship in Arts (value £100): F. A. Bevan, Merchant Taylors' School. Jeaffreson Exhibition (value £50): R. N. Curnow, Devonport High School, and H. F. Hiscocks, Highgate School (equal). Senior Entrance Scholarship in Science (value £75): J. N. Kerr, University College, Cardiff. Junior Entrance Scholarship in Science (value £100): E. J. Blackaby and A. B. Cooper (equal).

THE LONDON MEDICAL EXHIBITION.—The ninth of these exhibitions, which have been in abeyance during the war, is arranged to be opened at the Central Hall, Westminster, on Monday next, Oct. 6th, and will remain open until Friday, Oct. 10th, from 12 noon to 7 P.M. each day. Admission to the exhibition is limited to members of the medical profession, to all of whom resident within 50 miles of London invitation cards have been issued. Medical men from a distance can obtain admission cards from the Secretary, 194–200, Bishopsgate, London, E.C. 2, or at the hall itself during the exhibition week.

THE ALVARENGA PRIZE OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.—The next award of the prize, amounting to about $250, will be made on July 14th, 1920, if an essay is submitted worthy of the prize. Essays intended for competition may be upon any subject in medicine not previously published. They must be typewritten, and if written in a language other than English should be accompanied by an English translation, to be received by the Secretary of the College (19, South 22nd Street, Philadelphia, Pa., U.S.A.) on or before May 1st, 1920. The successful essay will remain in possession of the College. No award was made for 1919.

BOOKS, ETC., RECEIVED.

CAXTON PRESS, London.
Motionism, or the World's True Religion. By E. J. McCarthy Morris, F.R.C.S.E. Pp. 130. 5*s*.

GRIFFIN, CHARLES, AND CO., London.
Practical Sanitation. By G. Reid, M.D., D.P.H. 19th ed. Pp. 367. 7*s*. 6*d*.

HEFFER, W., AND SONS, Cambridge.
Some Questions of Phonetic Theory (Chapter V.): The Perception of Sound. By W. Perrett. Pp. 40. 2*s*.

HEINEMANN, WILLIAM, London.
Naval Hygiene. By J. C. Pryor, M.D., Medical Inspector, U.S. Navy. Pp. 508. 12*s*. 6*d*.

LIPPINCOTT (J. B.) COMPANY, London and Philadelphia.
Atlas of Operative Gynæcology. By B. C. Hirst, M.D. Pp. 292. 30*s*.
Internal Medicine. For the Practising Physician on Diagnosis and Treatment, with a complete Desk Index. By N. B. Potter, M.D., and J. C. Wilson, M.D. 5th ed. Vols. I. and II.: Medical Diagnosis. Pp. 658 and 843. Vol. III.: Treatment. By Prof. N. Ortner. Pp. 666. Index, pp. 166. Price complete, £3 15*s*.

LONGMANS, GREEN, AND CO., London, New York, Bombay, Calcutta, and Madras.
The Simple Carbohydrates and the Glucosides. By E. F. Armstrong, D Sc. 3rd ed.

RICHARDS, GRANT, London.
Human Life and How It May be Prolonged to 120 Years. By Brevet Lieut.-Colonel F. F. MacCabe, attached R.A.M.C. Pp. 296. 6*s*.

UNIVERSITY OF LONDON PRESS, London.
Shell Shock. By André Léri, Professor to the Faculty of Paris. Edited by Sir John Collie, M.D., C.M.G. Pp. 249. 7*s*. 6*d*.

Notes, Short Comments, and Answers to Correspondents.

THE AERIAL COMBATANT:

HIS PSYCHOLOGY AND NERVOUS PHYSIOLOGY CONSIDERED IN THE LIGHT OF ATHLETIC ANALOGIES.

BY THE LATE H. G. F. SPURRELL, M.A., M.B., B.CH. OXF.,
CAPTAIN, R.A.M.C.

PART II.

WHEN a man who wishes to become an aerial combatant has overcome the difficulties of learning to fly he has accomplished one-fourth of his task. But before he can be regarded as a flying combatant he must surmount, secondly, the difficulties of using the weapons of aerial warfare—he must, in fact, learn to fight in the air; thirdly, he must attain the highest skill for which he has the inherent capacity in aerial tactics and strategy; and fourthly, he must learn the relation of aerial fighting to the other military activities of an army.

Difficulties in the Selection of Flying Men.

It is extremely desirable, and also extremely difficult, to recognise the kind of nervous system which offers the best return for education, that is, to choose a man who will make a good flyer, a good fighter, and a good soldier. One can hardly expect that anything so complex will present itself in the form of a definite and easily recognisable type. Different individuals attain the same ends by widely different means. In the case of flying men it appears that one man will depend for equilibration mainly on labyrinthine stimuli, another on visual, and a third on muscular, and yet all three fly well. Experience has shown that the very stable, imperturbable type and the high-strung neurotic type may both excel or both fail through the defects of their qualities. Among recruits for the flying army, given general soundness and a certain level of intelligence, one can only with confidence reject a very few as altogether unsuitable for training. One may pick out some individuals who strike one as showing particular promise, and one may reject a few as never likely to reach a sufficiently high standard; but with the majority one can, at present, only experiment. In a great many the deciding point will be the way in which they are handled by their instructors.

The first essential is what we call intelligence. If a man is clearly stupid it is not worth while, for this reason apart from any others, to attempt to train him for an aerial combatant. Some men without being actually stupid are thick-headed, but if the time can be spared to compensate for their deficient mentality, they may develop remarkably quick and accurate reflexes. On the other hand, there is the recognised philosophic type who cannot outgrow a tendency to think before he acts even when his reflexes are educated. Of the over, as of the under, cerebral type, one does not like to speak dogmatically. Even if he does not become a very effective fighter himself, he may originate novelties in tactics which will be applied with startling results by quicker men.

In a learner, the association centres of whose brain are adequate in dealing with new ideas and capable of educating his reflex centres accordingly, it is equally necessary that the reflex mechanism should be capable of education. Assuming general soundness and the efficiency of the reflex apparatus, much information may be gained as to special suitability by studying the candidate's athletic record. Time is an important element. A man who has learned to fence fairly well during the past few months has shown that he can train his reflexes quickly and late in life; whilst no such evidence is given by the man who rides exceptionally well, but almost from infancy has lived among horses. Further information on the value of the athletic record in selecting candidates for the Air Force should prove very interesting.

The Effect of Past Injuries.

Another important point is the history of past injuries. The effect of a pupil's past injuries on his capacity for education, and the effect of a trained man's injuries on his prospects of resuming full duties, should be considered apart. In an unselected sequence of pupils and pilots discarded as "permanently unfit for the duties of a flying officer in any capacity," a history of past injury to the head will be found one of the most frequent antecedents. On the other hand, such a grave history has been found in some of the best fighting pilots that recovery from prolonged unconsciousness following a bad crash has been suggested as evidence of high powers of recuperation. The whole subject appears to be one of compensation, and further knowledge on these points is greatly needed. Unfortunately, the results of accidents involving head injuries are usually stated in the terms of the surgeon, not the neurologist. Adequate statistics are required of the whole number of men who are rendered unconscious by crashes and the proportion of these who recover completely. The opinion seems to be gaining ground that it is not advisable to attempt training men who have a history of head injuries followed by a prolonged period of unconsciousness.

The difference between impairment of the nervous system in men who have yet to learn to fly and men to whom fighting in the air has become second nature is very great. I once remarked to a very skilful flyer, "I suppose you could fly your machine when you were drunk, if you were not too drunk?" and he promptly replied, "I have." However, I do not believe that an aerial combatant can afford the handicap of cerebral impairment in fighting. In the case of a man who even does no more than drink the fine edge off his wits each night, one can only look for steady deterioration.

Psychological Phenomena.

So far I have been endeavouring to map out the physiological accommodation of the nervous system to the needs of flying, but this cannot be done adequately without reference to those phenomena which in the present state of our knowledge we have to call psychological. The career of an aerial fighting man is not infrequently brought to an end by loss of confidence. Part of the equipment of a normal man is a complex of deep-seated ideas. One of the most important is the idea that no harm will ever come to *him*: confidence in his own safety. Another is the idea that no evil is to be apprehended in the life with which he is familiar: confidence in his own environment. A third is the conviction that life is worth living: a confidence in the general order of things. Not one of these is logically unassailable, but for the purposes of the species they must dominate the individual or its life would not go on. But it is impossible to forecast the suggestion any particular experience may leave. A man who survives being torpedoed at sea may have his faith in his individual immunity rudely shaken; he may only be unable ever to feel safe on a ship again, or he may even be fortified by the experience: "Anything may happen, but I never come to any harm." Closely associated with suggestion in relation to a sense of personal security is the whole cult of charms, amulets, and mascots.

The bearing of all this upon the psychology of flying is surely obvious enough. It is absolutely essential that a pupil bring to his first experience of flying these sanguine instincts in a robust state. It is then extremely important that nothing should be done to weaken them. It is not unusual for an observer to tell me that he is so fed up with being crashed by pilots that he is determined either to give up flying or to keep the safety of his life in his own hands by becoming a pilot himself; he does not as a rule make the best type of pilot. Observers, as a rule, make sound, steady flyers, but are apt to be over-cautious; brilliant and daring flying is more to be expected from the youngsters who start fresh, so full of confidence that they need a few "crashes" to sober them down. But it is very important to guard against the development of a positive fear: a fear of height, of crashing, of wind, of a first solo, or even a fear of ridicule.

Loss of Confidence.

The final problem I shall touch upon here is loss of confidence in aerial combatants who have seen service. This may be a sequel to physical injuries, but it is a thing distinct in itself, and the two conditions should be considered separately. Since learning to fight in the air is a separate thing from learning to fly, and the education for the former follows upon the latter, it is not to be expected that a loss of confidence will necessarily embrace both. One neurasthenic officer, with a fine record, but worn out by stress of service, came and told me that at last his nerve was completely gone. He had been attacked in the air by two machines, and instead of engaging them he had turned tail and fled home. He asked for a rest from warfare, but begged to be given a flying job as ferry pilot or instructor or at testing machines. His fighting nerve was shaken; his flying nerve was unimpaired. In another case an officer who crashed in a fight told me that he recovered his nerve completely and resumed fighting, crashed again, not in a fight, and since then, though he could contemplate aerial fighting with complete confidence, he was nervous about flying. Here the flying nerve was shaken apart from the fighting nerve.

It is noticeable that in most of these cases it is an accident, sufficiently severe to cause grave bodily injuries but leaving the nervous system functionally competent, that has a damaging effect on the stability of the protective instincts of security. In this connexion the history of the prize-ring will repay study. Many of the greatest pugilists have never suffered a defeat till late in their career. But it appears that when a man's success is due largely to a belief in his own invincibility he never recovers completely from the moral effect of being knocked out at the end of a hard fight. An exception occurs to me in the case of an unbeaten amateur who was knocked out for the first time, accidentally, by the professional who trained him, just before his first public contest. To his friends and backers it seemed a most unfortunate occurrence; but the man won his fight a few days later in spite of receiving a good deal of punishment in the earlier stages. The essential point here seems to be that the misfortune at the hands of his instructor was in no way associated in the man's mind with defeat.

The Novelty of Flying.

Flying is still so recent an accomplishment that few flyers are young enough not to remember the general surprise and excitement at the discovery that it was possible at all. Then came a period when aviation accidents were so frequent that it was hotly debated whether aeroplanes could ever be made safe enough to serve any practical purpose. Last of all came the war, when the exigencies of aerial warfare introduced fresh dangers into flying just as the defects of the older machines were being overcome. Hence the fundamental note in flying is novelty. Even the pilot under present conditions is often flying his own machine within a few weeks of the first time he has ever been taken off the ground. And flying is still, even for the most hardened pilot, associated with danger. Pilots, as a rule, hate flying as passengers; their confidence is in themselves, not in the air. Education may suggest safety, but this is a recent suggestion, and the counter suggestion of a bad crash can easily upset it. When a new generation has grown up with the idea of flying, has been carried from infancy in aeroplanes as the present one has been in railway trains, and has ceased to distinguish death or injury in a crash from death or injury from any other cause, then possibly loss of confidence in the air may be much harder to induce than it is now, while we are still in a stage of transition.

Conclusion.

I am afraid that I cannot frame any very definite conclusions as the result of this discursive survey of the nervous physiology and psychology of the flying combatant. The fact which seems to me to stand out clearest is that, as man has been able to adapt himself to flying by reason of his nervous versatility, it is unreasonable to expect that all individuals will overcome the difficulties of flight in the same way. Consequently very different types will prove successful by utilising their peculiar advantages, and the treatment of those who fail in the air will have to be individual, not routine, and will therefore offer from day to day widely differing problems to medicine. Only by systematic study will the necessary knowledge be gained which will lessen the constant drain upon the personnel of the Royal Air Force, at present being caused by nervous breakdown.

THE LIFE OF A BACILLUS.

IN a paper communicated to the Académie des Sciences J. Danysz describes a series of experiments, undertaken with a strain of paratyphoid bacilli isolated in 1891, with a view to ascertain the viability of the microbe under different conditions. In broth contained in sealed ampoules maintained at ordinary temperature the bacillus retained all its biochemical properties and its virulence for a period of 12 years, whereas if kept in an incubator at 37°–38° C., these were retained only for one to two years. On the other hand, if the ampoules were closed with a pledget of cotton-wool and placed in an apparatus compensating the loss of water without renewing the broth, the same bacillus died within three months. In connexion with the latter experiment, Danysz found that during the first 48 hours the broth first becomes acid and then strongly alkaline. This is due to the transformation of the sugars present in the broth into lactic and carbonic acids, followed by the transformation of the peptones and proteins into amino-acids, and finally into ammonia. At the same time, two distinct strains of the bacillus are formed: the one, aerobic, growing on the surface of the broth; and the other, anaerobic, existing at the bottom of the test-tube. He assumes that the increasing alkalinity of the broth is responsible for the inhibition of growth and for the death of the bacillus. On reinoculating the culture of the bacillus from one test-tube into another every 24 hours, he found that the bacillus retains all its biological and biochemical properties for at least five years. At the beginning nine generations are produced within 24 hours, whereupon the rate of multiplication increases, so that at the end of 12 months nine generations are produced within 12 hours; this represents on an average 5000 generations per annum, or 25,000 generations in five years.

However, Danysz draws attention to the fact that in the case of unicellular organisms which multiply by successive scissions it is impossible to distinguish between the individual and the species. In the case of pluricellular organisms, the individual plant or animal is produced, grows, and on death disappears as a unit. With unicellular organisms which multiply by scission into two individuals it is impossible to retain these distinctions. The original microbe, by scission, gives rise to two microbes, these in turn yield four; we have apparently three generations, but in reality this is not the case, as we have no dead bodies and the four bacilli representing the third generation embody the substance of all the individuals of the preceding generations. Consequently, a microbe must be regarded as being a body endowed with the property of continuous and unlimited growth, of which the single units, retaining limited dimensions, become independent of each other. It follows that all unicellular organisms which multiply by scission are endowed with an infinite lease of life, if placed in suitable conditions of nutrition.

THE AROMA OF FISH FRYING.

The Rye justices have held that the aroma of fish frying is a nuisance, and a demobilised soldier, who had set up a business at this Cinque Port, has been served with an order for its abatement. The justices were loth to place any impediment in the way of an ex-Service man's return to civil and business life, but whatever the calling may be they held that there must be no infringement of the Public Health Act. The evidence against the business—at least as it had been carried on—was overwhelming. The corporation received a petition from the inhabitants in the vicinage of the premises; witnesses complained of sleeplessness and even illness necessitating medical advice in consequence of the aroma, which was described as "abominable"; and the medical evidence showed that even in the house next door to the fried-fish shop everything was pervaded with the smell. Defendant told the justices he was willing to take further steps to prevent any complaints, thus admitting that however well fitted his shop was there was still something left undone that ought to have been done originally, and the justices gave him time to comply with the order.

REPORTS OF INQUESTS IN CASES OF SUICIDE.

A CORRESPONDENT has called our attention to an inquest upon a woman who took her own life by jumping in front of a train, and to the details published in a report of the inquest. These describe the deceased as having suffered from nervous breakdown and neurasthenia, and extracts are printed from a letter left by her in which she dwelt with morbid religious introspection upon the supposed sinfulness of her past life. Our correspondent deprecates the publication of such details and particularly the use of medical terms, such as neurasthenia, as likely to lead persons affected, or believing themselves to be affected, with the disease named to apply the case of suicide to themselves, and to follow the evil example thus brought to their notice by the public press. We discussed this subject in a leading article[1] recently in connexion with a proposal made by a London coroner that inquests on cases of suicide should be held in camera. To this course we were disinclined to give support on public grounds, but we conceded that the publication of details, such as those which draw attention to an easy method of suicide, might have a dangerous and even fatal influence upon some occasions. We also referred to the undesirable publication of scandalous details in those cases where they are, necessarily or unnecessarily, brought out in the coroner's court. We should not regard it as desirable to omit altogether from published details of the evidence at an inquest matters strictly relevant to the cause of death, such as medical testimony and that of other witnesses which establishes the case as one in which some person is to blame. It is, however a matter of discretion for those conducting newspapers to publish or to withhold details of this kind. Much that appears with regard to inquests appears to be inserted on account of its "dramatic" interest—that is to say, it is printed with a view to titillating the imagination of a public which gloats over anything in the nature of a "tragedy of real life." Into this category would fall distressing letters written by persons broken down by distress, real or morbidly imagined, and it should be realised that such letters are more likely to prove suggestive to readers who are, or who fancy themselves to be, similarly situated. A medical term may also have a sinister influence in connexion with suicide through a morbidly-minded reader of a report applying it to himself, and we are fully in accord with the principle that the unrestricted use of medical terms in the lay press is undesirable. They are apt to be misapplied or misunderstood, and their use may result in a tendency to drive morbidly-minded persons into the snare of the quack.

---

[1] THE LANCET, August 9th, p. 255.

An Address
ON
THE ARMY MEDICAL SERVICE AS A CAREER.

Delivered at the Opening of St. Mary's Hospital Medical School on Oct. 1st, 1919,

By Sir JOHN GOODWIN, K.C.B., C.M.G., D.S.O.,
DIRECTOR-GENERAL, A.M.S.

Sir John Broadbent, Ladies, and Gentlemen,—Some months ago I was honoured by an invitation to give the opening address here to-day. As you know, I am an old St. Mary's man, and consequently I need hardly tell you how deeply I appreciate this honour. I only wish that I could more adequately and efficiently fulfil the task which I have undertaken. I would crave your indulgence on two pleas: firstly, that I have but little experience in delivering addresses such as this; and, secondly, that I have been extremely busy throughout this summer. The time has passed, and it was comparatively recently that I realised the near advent of the first of October and the fact that my address to you was still unwritten. I cast round for advice. I asked one friend, a man who is well known to many of you, as to the nature of the subject on which I should address you. He replied: "Oh, that's quite simple. Reply to the criticisms which have been directed at the Army Medical Service during the war." My reply to this was that I had only been asked to give one address, and had not been requested to read a series of papers extending throughout the winter session. Finally, I thought that I would simply be guided by the experience of my daily life during the last 18 months, and would talk to you on a subject relative to which I answer innumerable questions almost daily, both verbally and by letter—namely, the advisability of adopting the Royal Army Medical Corps as a career; the present conditions and the future prospects of the service.

Now we have all heard a certain amount of criticism during the last few years, and, looking back over those years, I suppose that we can all see how things might have been somewhat better. We have made mistakes both of omission and commission, but it is always easy to be wise after the event, and I believe that even the most critical of us must own that the Royal Army Medical Corps has emerged from this war with a record of some good work accomplished and much knowledge and experience gained. I think that perhaps some of us do not quite realise the colossal nature of the task which faced the medical authorities at the outbreak of war, nor the enormous strain, anxiety, and labour which the various problems and difficulties entailed. This condition of affairs continued throughout the war; no sooner had one problem of immense difficulty and magnitude been dealt with than another situation arose which was almost appalling, but which had to be grappled with and overcome if disaster were to be avoided

A Record of Work Accomplished.

Let us consider briefly as to what had to be accomplished in the way of personnel, hospitals, and equipment. At the commencement of the war we had in our regular Royal Army Medical Corps 1026 officers and 3168 non-commissioned officers and men. Every one of these had been detailed for his own specific work in the event of mobilisation; every officer knew what his unit was, where it would mobilise, and what his own particular post in that unit would be.

Officers had been selected, so far as possible, in accordance with their special abilities and training, and had been detailed accordingly for specific duties on mobilisation; for example, officers who had worked at hygiene and had taken special degrees, such as the Diploma of Public Health, were posted as sanitarians; others who had held surgical appointments were posted as surgeons to hospitals, &c.

This system was satisfactory so far as it went, but calculations were somewhat upset by the rapid and enormous growth of our Armies and by the expansion of military operations into many different quarters of the globe. Our original medical service of less than 4500 officers and men rapidly expanded until it eventually numbered more than 13,000 officers and over 130,000 non-commissioned officers and men. Comparatively few of these newly commissioned officers had any previous experience of service in the field or knowledge of field-service conditions, and our regular Royal Army Medical Corps officers and men were quickly scattered all over the various theatres of war.

I would say here that the two things which impressed me most during this war were the courage and resource shown by our newly commissioned officers, and the quickness with which they acquired knowledge of their duties. I have known a young temporarily commissioned officer, who had never before seen a shot fired in anger, carry on his duties under a heavy shell-fire with a cool courage which was beyond praise or description; and this not once, but in dozens of cases; and similarly I have seen young men with no previous knowledge of field-service conditions start to work in a field ambulance or casualty clearing station and improve themselves in their work with a rapidity and to an extent which one might have thought impossible.

As regards hospitals, at the commencement of the war we had 7000 beds in military hospitals in the United Kingdom; these were expanded until, at the time of the armistice, we had, in the United Kingdom alone, more than 364,000 hospital beds and 333,000 patients in our charge. The number of hospital beds throughout the various theatres of war totalled, at the time of the armistice, 637,746, and we had under our care 577,906 patients.

As regards material and equipment I shall not weary you with masses of figures, but you may realise the magnitude of the work in this direction when I mention that, quite exclusive of the initial medical equipment taken by units, we sent nearly 526,000 cases and bales of medical stores overseas.

To particularise a few items, I might mention 250,000 surgical instruments yearly despatched, over 96 million bandages, nearly 1½ million splints, and over 6400 tons of lint and wool. Vaccines—typhoid, cholera, dysentery, &c. —we prepare at our Royal Army Medical College at Millbank, and of these we supplied during the war more than 20,600,000 doses; these vaccines, if purchased in the open market, would have cost us more than 1¼ millions sterling. Of the various serums we furnished 11¾ million doses.

I think that these few figures may serve to visualise the enormous quantities of supplies of medical and surgical equipment which are required for a modern army in the field.

The Medical Personnel of the R.A.M.C.

To revert for a few minutes to the question of our medical personnel, it would, of course, have been most desirable to fit every temporary commissioned officer into the particular niche for which he was best suited, but in view of what I have just told you, you may realise the difficulties. There can be no doubt but that one of the most important requirements in the Royal Army Medical Corps—in war time equally with peace conditions—is that the best possible use should be made of every man, that there should, in fact, be no "square pegs in round holes." Theoretically this desideratum should present no difficulties which could not be overcome, and with our present system I think that really satisfactory results are ensured. The aims of this system are briefly as follows:—

1. To record fully the special qualifications of each individual officer, the work done, and the appointments held by him prior to his having entered the service.
2. To obtain, in a convenient and readily accessible form, an accurate record of the movements, stations, and work of each officer.

A Card Index System.

In order to attain these ends a card index system has been established; the qualifications, previous work, appointments in civil hospitals, &c., of each officer are entered on this card, the original is kept at the War Office and the duplicate is forwarded to the headquarters of the command to which the officer is posted. All movements of the officer within that command, and the nature of the duties which he performs are entered on the card at the command headquarters. On the officer leaving the command the duplicate card, recorded up to date, is forwarded to the War Office, and any additional information is there entered on the card in the main index; the duplicate card is then forwarded from the War Office to the new command to which the officer has now been posted. By this method the card constitutes a brief but complete record of each officer's services, and facilitates the employment of officers on the duties for which they are best suited, thus ensuring a more satisfactory form of service to the officers themselves and increased efficiency to the Army. The system will provide a means of continuous and accurate supervision of every officer's work, progress, and career.

ADVANTAGES AND DISADVANTAGES OF THE SERVICE.

With regard to the various advantages and disadvantages of the service I shall endeavour to lay matters before you fairly and without bias or prejudice.

Firstly, as to monetary considerations. I apologise for putting this first, it really should come last; but, sordid though it may be, I suppose that when a career is being decided upon the question of £ *s.* *d.* is bound to be considered by most of us, and, as a matter of practice, I find that this is usually one of the first questions asked by a young medical man who contemplates entering the Royal Army Medical Corps.

Pay and Allowances.

The new Royal Warrant, issued very recently, lays down the pay and allowances for the Royal Army Medical Corps as follows:—

On being commissioned as a Lieutenant in the Royal Army Medical Corps an officer receives pay at the rate of £1 per diem, and he also receives various allowances which bring his total emoluments up to an annual sum of £495 if unmarried and £558 if married.

This pay steadily increases with service: a bachelor Captain (to which rank an officer is promoted after 3½ years' service) receives £622 per annum, a Major £815, a Lieutenant-Colonel £907 (increasing to £1189), a full Colonel £1395, and a Major-General £2001. Should an officer be married he receives slightly higher rates.

Now, if we read between the lines of official documents we may often—in addition to the bald facts so tersely stated—gain hints which may be of value, and, bearing this in mind, I would point out that, as regards the increased allowance for married officers, there is a proviso that an officer is not entitled to draw the increased married rate until he has attained the age of 30, that being presumably the earliest year of discretion; the inference to be drawn is evidently that an officer should not commit matrimony until he is 30 years of age.

Advice on these lines is, no doubt, excellent; it is frequently given and, I am afraid, as frequently disregarded; in fact I think that nearly all advice on the question of matrimony is prone, like the argument of doctor and saint, to go out "by the same door wherein it went." I should not presume to offer any of you advice on this weighty question. In the first place, it is one which every man must judge for himself; secondly, I should be a poor person to advise you, for, despite having received much advice on the subject, I myself married when I was 26; and lastly, I know full well that if I did give you advice you would quite disregard it when the advisability for doing so—in your own minds—arose.

There is, however, another inference which you possibly might—but which I beg you will not—draw from these official rates of pay, and that is due to the fact that the rate for a married officer is only some £50 or £60 more than that for a bachelor. Please do not infer from this—if any of you do not already know that such is not the case—that the additional expenditure involved by matrimony only amounts to some £50 per annum.

All the best authorities will tell you, and will be quite correct in so doing, that a married establishment involves a much greater expenditure than that of a bachelor; as regards one possible item alone, we have it on the authority of *Punch* that a perambulator costs more than a motor-car. Now, as to pension. After 15 years' service an officer can retire on £150 per annum, and thereafter he can retire on steadily increasing rates, depending on his rank and service, the *maximum* rates being £450 a year for a major, £600 for a lieutenant-colonel, £800 for a colonel, and £1000 for a major-general.

From the above you will see that you are not likely to make a fortune in the Royal Army Medical Corps, but I would point out that it is not every man who makes a fortune in civil life, and I would also mention a few of the advantages of the Service. Firstly, the pay is such that a man can live comfortably, it steadily increases, and the provision of a pension ensures that a man is steadily, throughout his service, providing for the future. Another advantage to which I would draw attention is the fact that if an officer's health should fail, an unfortunate occurrence which may happen to any of us, he is granted sick leave up to 12 months on full pay, provided that there is a prospect of his being eventually fit for service. So much for the sordid financial side of the Royal Army Medical Corps. Now let us touch on the far more important question of

WORK IN THE SERVICE.

I was much impressed some years ago on reading the address which Mr. Rudyard Kipling gave at the McGill University of Montreal. He said: "Only use one hand to procure wealth, keep your right for the 'proper work of life,' for if you employ both arms in the game of acquiring wealth you will be in danger of stooping, in danger also of losing your soul."

Now, I have heard men say that there was not sufficient work in the Royal Army Medical Corps. I cannot say that I have ever at any time been so unfortunate as to suffer from an insufficiency of work—the direst evil that can befall any man—and I have more than a suspicion that when a man suffers from an insufficiency of work he is suffering from a neglect to make use of his opportunities. A man must always be ready to make use of his opportunities. Remember that "Fortune only favours the man who is prepared." I say with confidence that if a man makes the most of his opportunities he will always find an abundance of intensely interesting work in the Royal Army Medical Corps.

Specialist Appointments.

Should an officer show special aptitude for a particular subject, and qualify by examination in it, he is eligible for many years of his service—i.e. (and I draw especial attention to this fact), until he attains the rank of full colonel—to hold specialist appointments in the subject. These appointments have in the past carried additional pay at the rate of 2*s.* 6*d.* per diem; but these rates have recently engaged a good deal of our attention as regards revision, and it has now been decided that when we have again settled down to the more or less normal conditions of peace, which we hope will be in the comparatively near future, specialist appointments will be paid at the following rates:—

Operative surgery, medicine, ophthalmology, gynæcology, dermatology	5*s.* per diem.
Otology, laryngology and rhinology, radiology, anæsthetics, mental diseases	2*s.* 6*d.* per diem.

Several of the above rates of pay show a considerable increase over those hitherto in force—e.g., pay for specialist appointments in operative surgery, ophthalmology, gynæcology, and dermatology has been increased from the former rate of 2*s.* 6*d.* per diem to 5*s.* per diem. Medicine, not hitherto recognised and paid as a special subject, under the new scheme, will receive pay at 5*s.* per diem, while radiology and anæsthetics have been introduced as special subjects, appointments in which carry extra pay at 2*s.* 6*d.* per diem. There is also extra pay at rates varying from 2*s.* 6*d.* to 10*s.* per diem for the charge of a hospital or the medical or surgical division of a general hospital.

Hygiene and Pathology.

You may notice that in the above list of special subjects no mention is made of two very important branches of the profession, branches on which the welfare, indeed, the very existence, of an Army depends—I refer to hygiene and pathology. Now these two subjects have been dealt with, in official parlance, in another file, and I may say that that file was a very bulky one and entailed a very great deal of work, work which bore good fruit, for it was finally sanctioned this year that there should be two sub-directorates at the War Office, one in hygiene and one in pathology, each with a director at its head, assisted by a deputy director and a staff. Serving under the direction of these directors there will be assistant directors and deputy assistant directors at the various commands at home and abroad, in Egypt, Gibraltar, Malta, Ceylon, Jamaica, Bermuda, &c., and schools of hygiene will be formed in certain commands for the instruction of staff and regimental officers. By this means we hope to keep up to date with all the most recent developments as regards tropical and other diseases and the methods for their treatment and, even more important, for their prevention.

Administration and Professional Work.

There is one point on which I hear a very great deal, and on which I should like to make my own views clear, and that is the question of administration and professional work. I had very nearly said "administrative *versus* professional work," for from what I sometimes hear I might be led to believe that a combination of the two was impossible, that they were, in fact, incompatibles.

Now, honestly, I cannot see this. Surely,—how can it be seriously questioned or doubted by anyone?—the profession of medicine, to which we all belong, is the bed-rock, the essential, of the Army Medical Service. If you sink the profession you are left as a ship without a rudder. But—here I come to my proviso—every man in the Royal Army Medical Corps should endeavour to make himself acquainted with the organisation of the Royal Army Medical Corps and of the Army, and should hold in his hand at least the threads and principles of administration. It will not only be to his own advantage, but also immensely to the advantage of the Service if he does so, for think of what would happen on the outbreak of war if the officers of the corps were not acquainted with its organisation, with the principles of administering hospitals and other units, and with the functions of field ambulances, casualty clearing stations, &c. The acquiring of such knowledge is most interesting, it is not by any means difficult, and it will in no way whatever divorce him from his profession. Surely every man is the better for being able so to organise and administer any unit that every branch of professional work in that unit may be so carried out as to attain a really high standard of efficiency.

I do not wish to labour the point, but I do desire to impress on you that a man must keep up his professional knowledge, he must never allow it to lapse into the background; he must keep himself up to date, and consequently he must be constantly working. But the whole work of the Royal Army Medical Corps is so interesting that one can hardly call it a labour, it becomes one's life.

There is one point regarding the Royal Army Medical Corps on which I have not touched, and that is the fact that a certain portion of one's service is spent abroad. This fact may be regarded either as an advantage or a disadvantage, according to the tastes of the individual. Personally, I have always loved seeing other countries; some of the happiest and busiest years of my life have been spent abroad, and I think there are very many men who, like myself, can even "voyage in an atlas with the greatest enjoyment"; consequently I regard the foreign service as a great attraction in the Army.

Another point which I think appeals to many is the fact that one is working with, and for the good of, one's comrades in the Army. The soldier is the best man in the whole world for whom to work. He is not always easy to understand, and at first I found it a little difficult to realise the qualities which made certain officers beloved by their men. After I had been on active service, now 20 odd years ago, I understood, and Kipling puts it pretty clearly when he says, "All the years I have known So-and-so I have never known him to say whether he was cold or hot, wet or dry, sick or well, but I've never known him forget a man who was."

I may be biased, though I do not admit it, but I look upon the Royal Army Medical Corps as offering a really good career and a happy life to a medical man, and, were I starting life again as a newly qualified man, I should unhesitatingly choose it for myself.

FUTURE PROGRESS.

The improvements and advances which I have seen take place in the medical service of the Army during the last 25 years have been enormous, and I hope you will not regard me as a visionary or an idealist when I say that I look forward to steady and progressive improvements in the future. I hope and believe that the Royal Army Medical Corps in the years ahead of us will be deservedly looked to as an up-to-date scientific body of men, taking their part in the nation's work in the advancement of science and knowledge, and organised on such a basis that in a time of national emergency they may bear their share—and it is of necessity a very large share—of the nation's burden.

The last five years have taught us much. I do believe that the Royal Army Medical Corps stands now on a better basis with the rest of the Army than it has ever done, and I think that we may now regard the Royal Army Medical Corps and the civil profession as being one. The great majority of the civil profession has been—and very many members still are—in the Royal Army Medical Corps, and I honestly believe that we officers in the regular Royal Army Medical Corps are more closely bound by ties of mutual trials, mutual work and affection to the civil profession than has ever before been the case; and I also hope and believe that the civil profession is in far closer touch, and in much greater sympathy, with the Royal Army Medical Corps than it has hitherto been.

CONCLUSION.

And now, gentlemen, I have endeavoured to lay plainly and honestly before you a few outlines as to the advantages and disadvantages of the service. I have tried to avoid any bias or prejudice, and so far I have carefully avoided offering you advice—even on the subject of matrimony.

However, I have now reached an age when I am forced to regard life in retrospect rather than in prospect, and that being so, I hope you will pardon me if I venture to give you a few words of counsel.

Keep your youth, your enthusiasm, your energy; if you permit your youthful enthusiasm to wane you will find difficulty in regaining it.

If you would be successful and happy in your work you must give ungrudgingly of your best, for that way, and that way only, happiness lies. As Robert Louis Stevenson truly wrote: "If a man love the labour of any trade, apart from any question of success or fame, the Gods have called him."

The finest men—those who most command our respect, admiration, and devotion—are those who give their all to work for the work's sake, and not for any personal reward. We all know such men, and we know how much the profession and the nation owe to them.

And, finally, I would beg you always to be loyal to your profession and to your brother professional men; and if any of you do eventually enter my service you will, I know, be loyal to it and to the Army.

I am proud to think of the record which St. Mary's holds in the Army, both in the old days and during the recent war. I am so fond and so proud both of St. Mary's and of the Royal Army Medical Corps that it naturally follows that I earnestly hope that there may always be St. Mary's men in the Royal Army Medical Corps to uphold the honour and traditions of our hospital and school.

A SERIES OF
CASES OF BILHARZIASIS
TREATED BY INTRAVENOUS INJECTIONS OF ANTIMONIUM TARTARATUM.

BY GEORGE C. LOW, M.A., M.D., C.M., M.R.C.P.,
PHYSICIAN, HOSPITAL FOR TROPICAL DISEASES, ENDSLEIGH GARDENS, N.W., AND SEAMEN'S HOSPITAL, ROYAL ALBERT DOCKS, E.; LECTURER, LONDON SCHOOL OF TROPICAL MEDICINE; TEMPORARY MAJOR, I.M.S.;
AND
H. B. G. NEWHAM, C.M.G., M.D., M.R.C.P.,
DIRECTOR, LONDON SCHOOL OF TROPICAL MEDICINE; LATE LIEUTENANT-COLONEL, R.A.M.C.

ONE of us (G. C. L.) published in May, 1919,[1] the details of a case of bilharzial disease treated by the new method of intravenous injections of antimonium tartaratum (tartar emetic), first proposed by McDonagh and subsequently amplified and carried out on a large scale by Christopherson in Egypt. Since that date the latter observer, in conjunction with Dr. J. R. Newlove, has published laboratory and other notes on 70 cases of the disease treated at the Khartoum Civil Hospital. The beneficial results of the treatment are well brought out in that paper.[2]

As regards the case just mentioned (Dr. Low's case), further examinations were carried out during the month of May, 1919, with constantly negative results, no further appearance of blood or ova taking place. At the same time, all clinical signs, such as pain in the back, &c., completely disappeared, and the patient sailed for South Africa on May 29th, perfectly satisfied in his own mind that he was completely cured.

---

[1] Journal of Tropical Medicine and Hygiene, May 15th, 1919.
[2] Ibid., July 15th, 1919.

We have now had the opportunity of studying a further series of cases of the disease, and as the results have again been excellent we think it advisable to publish them at once, as they confirm Dr. J. B. Christopherson's Egyptian experience in every way. It is important, therefore, that all bilharzia cases should have the chance of such treatment, as up to the present no drug has been known that has any specific action on the infection. Many have, it is true, been employed, but, at the best, those have only been palliative, if even that.

Detailed Records of Five Cases.

The following are the records of our cases. For numbers 4 and 5 we are indebted to Dr. C. W. Daniels, under whose care these patients were, and we have to thank him for his kind permission in allowing us to incorporate them in the series :—

CASE 1.—P. Complaint: Passing blood in urine. History: Born in Natal. Lived there till the war broke out. Then served in German South-West Africa and in German East Africa for about 18 months in all. Came to England in 1918 to train for a commission. On account of his having bilharzial disease was not successful, and was discharged from Army in December, 1918.

Previous illnesses: Mumps as a child, no measles, no scarlet fever. Malaria in G.E.A., not very bad; some jaundice after it. No venereal disease.

Present illness: Got bilharzial disease as a boy of 12 in Natal. Bathed in pools of rivers with other young boys. Fairly bad infection. Little or no improvement as he grew up. In German East Africa became very bad, passing a lot of blood. Has continued about the same since. Generally passes a large quantity of blood. Pain in small of back on doing any exercise; also gets tired very easily.

Examination: Apart from his urinary trouble no other signs of disease. Lungs perfectly healthy, heart sound Urine, much blood, many terminal-spined eggs, albumin present; evidently from the blood; no casts. Blood, differential leucocyte count, P.M.N. 44, L.M. 12, L. 24, E 20. After observing the patient for some days he was put on a course of antimonium tartaratum intravenously and stood those well.

The records of his injections and the examinations of his urine are contained in Table I.

TABLE I. (CASE 1).

Abbreviations used.—A.T. = antimonium tartaratum (an intravenous injection). C. = a centrifuged specimen. The numerals after C = the number of specimens made from the deposit. When the deposit became very small in amount all could be examined under one cover-slip, this would read C1, if more required then C. 2, 3, &c. C. by itself a centrifuged specimen, all the deposit examined under one cover-slip.

Date.	Drug. A.T.	Blood	Ova.
1919.			
April.			
24		Yes.	12 to a field.
25		,,	10 ,,
26		,,	8 ,,
28	gr. ½.	,,	7 ,,
29		,,	5 ,,
30		,,	1 ,,
May.			
1	gr. ½.	,,	6 ,,
2		,,	Nil.
3		,,	1 to a field.
5	gr. 1.	,,	1 ,,
6		,,	Becoming scanty.
7		Trace.	1 in 12 fields
8	gr. 1.	Yes.	1 ,, 6 ,,
10		,,	Very difficult to find.
12	gr. 1½.	Trace.	Very scanty.
13		No.	Eggs very scanty.
14		,,	
15	gr. 1½	,,	Eggs more numerous.
16		,,	Eggs very scanty.
17		,,	
19	gr. 2.	,,	2 ova C. 1.
20		,,	No ova C. 1.
21		,,	,, C. 2.
May.			
22	gr. 2.	No.	No ova C. 2.
23		,,	,, C. 1.
24		,,	,, C. 2.
26	gr. 2.	,,	,, C. 1.
27		,,	,, ,,
28		,,	,, C. 2.
29	gr. 2.	,,	,, ,,
30		,,	,, C. 1.
31		,,	,, C. 2.
June.			
2	gr. 2.	,,	,, ,,
Stop injections for present. Total grs. 16.			
4		No.	No ova C. 1.
5		,,	,, ,,
6		,,	,, C.
7		,,	,, ,,
10		,,	,, ,,
11		,,	,, ,,
12		,,	,, C. 2.
13		,,	,, C. 1.
14		,,	,, ,,
July.			
7		,,	,, C.
17		,,	,, ,,
21		,,	,, ,,

Remarks.—April 26th: No centrifuging. 26th: Now in bed. 30th: No centrifuging. May 1st: Fæces negative. 8th; Fæces negative. 15th: Rigor and felt seedy after injection. 19th: Began centrifuging the deposit to-day. 31st: P. 44, L.M. 14, L. 30, E. 12. June 5th: Seems quite cured. 14th: Left hospital to-day for a fortnight's holiday. July 7th: Last drops cloudy, due to spermatic fluid. P. 50, L.M. 13, L. 28, E. 9. Came back from his holiday to-day. All symptoms disappeared. No pain in back or elsewhere. 21st: Urine clear, no deposit.

CASE 2.—H. Complaint: Passing blood in urine.

History: Born at Norwich. In a bank before the war. Joined Army August, 1914. Went to Egypt, October, 1915, and was there till June, 1917, when invalided home for bilharzial disease. Used to bathe in a prepared swimming bath; not in canals or ponds. Walked in canvas shoes over irrigated fields frequently.

Previous illnesses: Measles, chicken-pox, scarlet fever. Malaria after returning to England from Egypt. No gonorrhœa or syphilis.

Present illness: February, 1917, began to pass blood at end of micturition, pains in the back, and tired feeling. The urine was then examined and bilharzia ova found. He was treated by urotropine and by rectal injections of collosol argentum. As he was not improving, was sent to England. Has been at work in the bank since coming home, but as condition was getting worse was sent into the Albert Dock Hospital for treatment.

Examination: Apart from bladder, systems all normal. Urine: Much blood, and many terminal-spined bilharzial eggs. A fair amount of albumin, no casts, epithelial cells numerous. Fæces negative.

Treatment: A course of antimonium tartaratum was given with excellent results, as Table II. shows.

TABLE II. (CASE 2).

Date.	Drug. A.T.	Blood.	Ova.
1919.			
April.			
24		Much.	6 to a field.
25		,,	6 ,,
26		Less.	4 ,,
28	gr. ½.	,,	5 ,,
29		Same.	5 ,,
30		More.	4 ,,
May.			
1	gr. ½.	Much.	1 ,,
2		,,	7 ,,
3		Less.	1 ,,
5	gr. 1.	,,	7 ,,
6		More.	Becoming scanty.
7		Much.	1 in 12 fields.
8	gr. 1.	Less.	1 ,, 6 ,,
10		Little.	No ova.
12	gr. 1½	,,	,,
13		,,	Very scanty.
14		More.	,,
15	gr. 1½	Little.	More numerous.
16		Trace.	Very scanty.
17		No.	,,
19	gr. 2.	,,	No ova C. 1
20		,,	1 ovum C. 1.
21		,,	No ova C. 2
22	gr. 2.	,,	1 ovum C. 3.
23		,,	1 ,, C. 1.
24		,,	No ova C. 1.
26	gr. 2.	,,	,, ,,
27		,,	1 ovum C. 1.
28		,,	No ova C. 2.
29	gr. 2.	,,	,, C. 1.
30		Trace.	,, C. 2
31		No.	1 ovum C. 1.
June.			
2	gr. 2.	,,	No ova C. 1.
Stop injections for present. Total grs. 16.			
4		No.	No ova C. 2.
5		,,	,, C. 1.
June.			
6		No.	No ova C.
7		,,	,, ,,
10		Yes.*	No ova.
11		Yes.	Few ova.
Condition not cured. Go on with more A. T. injections.			
12	gr. 2.	Yes.	No ova C.
13		Trace.	,, ,,
14		No.	,, ,,
16	gr. 2.	,,	,, ,,
17		,,	,, ,,
18		,,	,, ,,
19	gr. 2	,,	,, ,,
20		,,	,, ,,
21		,,	,, ,,
23	gr. 2	,,	,, ,,
24		,,	,, ,,
25		,,	,, ,,
26	gr. 2.	,,	,, ,,
27		,,	,, ,,
28		,,	,, ,,
30	gr. 2.	,,	,, ,,
July.			
1		,,	,, ,,
2		,,	,, ,,
3	gr. 2.	,,	,, ,,
Stop injections again. Total grs. 30.			
4		No.	No ova C.
5		,,	,, ,,
7		,,	,, ,,
8		,,	,, ,,
9		,,	,, ,,
10		,,	,, ,,
11		,,	,, ,,
12		,,	,, ,,
14		,,	,, ,,
Aug.			
8		,,	,, ,,

* Blood in last drops. Cells like kidney and bladder epithelium.

Remarks.—April 24th: 2'3" field. 26th: Is now in bed. 28th: Fæces negative. May 1st and 8th: Fæces negative. 13th: A little upset after injection. 14th: A good lot of albumin in urine 17th: Albumin, faint trace. 19th: Began centrifuging to-day. 26th: Albumin, only faint trace. 31st: P. 58, L.M. 6, L. 22, E 14. June 5th: A few pus cells about still. Otherwise appears cured. 10th: Has complained from time to time of pain in left kidney; ? a stone. 11th: Ova dead, perhaps just a clump came away. 30th: A lot of epithelial cells in urine to-day, evidently being cast from healing ulcer. July 3rd: Spermatozoa and a few cells. 5th: A few epithelial cells. 7th: P. 49, L.M. 10, L. 28, E. 13. 10th and 14th: Perfectly clear urine. 15th: Left hospital to-day. Goes to Yarmouth for a holiday.

CASE 3.—E. Complaint: Passing blood in urine.

History: A labourer before the war. Never out of England till after joining army June 9th, 1914. Then went to France 1914. Came home wounded in hand July, 1915. Went to Egypt January, 1916. Sent home for bilharzial disease February, 1919.

Previous illnesses: Measles, strained his abdomen once. No gonorrhœa. A small sore on penis in Egypt 1918. In hospital a month for it. Said to be a soft chancre. No malaria, no dysentery.

Present illness: First noticed pain on passing water December, 1916. Then in January, 1917, blood appeared and pain in region of kidneys. Urine examined and terminal spined bilharzial ova found. Went on serving in Egypt till February, 1919. In hospital with the condition three times. Passed a lot of blood when in Egypt. Since returning to England not so much. No treatment since coming home. Has not had antimony.

Examination: Anæmic-looking, teeth good. Systems, heart and lungs nothing abnormal. Abdomen, nothing to note, no special tenderness over bladder. Urine, blood and a fair number of bilharzial ova (terminal-spined). Fæces, negative.

Treatment: A course of antimonium tartaratum injections, 20½ gr. in all were administered, again with the most beneficial results. Table III. gives the details.

CASE 4.—P. L. Complaint: Passing blood and mucus in stools.

History: Patient had served most of his time abroad on the West Coast of Africa. When war broke out he went to the Cameroons with the Army, and returned to England from there June, 1916.

Previous illnesses: Nothing of importance.

TABLE III. (CASE 3).—*Record of Antimonium Tartaratum Injections and Urine Examinations.*

Date.	Drug: A.T.	Blood.	Ova.	Date.	Drug: A.T.	Blood.	Ova.
1919 May.				June.			
15		Yes; not much.	Scanty.	16	gr. 2.	No.	No ova C.1.
22	gr. ½.	Fair amount.	4 to a field.	17		„	„ C.
23		Yes.	No ova.	19	gr. 2.	„	„ „
24		Yes; less.	4 ova C. 1.	20		„	„ „
26	gr. ½.	„ „	4 „ „	21		„	„ „
27		Yes.	3 „ „	23	gr. 2.	„	„ „
28		No.	1 ovum C. 1.	24		„	„ „
29	gr. 1.	Trace.	2 ova C. 1.	26	gr. 2.	„	„ „
30		„	No „ C. 2.	27		„	„ „
31		No.	4 „ C. 1.	28		„	„ „
June.				30	gr. 2.	„	„ „
2	gr. 1.	Trace.	1 ovum „	July.			
4		„	No ova „	1		„	„ „
5	gr. 1½	„	„ C. 2	2		„	„ „
6		„	„ C. 1.	3	gr. 2.	„	„ „
7		No.	„ „	Stop injections. Total, 20½ gr.			
10	gr. 2.	„	„ „	4		No.	No ova C.
11		„	„ „	5		„	„ „
12	gr. 2.	„	„ „	7		„	„ „
13		„	„ C. 2.	10		„	„ „
14		„	„ „	14		„	„ „
				17		„	„ „
				21		„	„ „
				28		„	„ „

Remarks.—May 22nd: Stood injection well. 23rd, 26th, 28th: Fæces negative. 31st: P. 48, L.M. 2, L. 36, E. 14. July 7th: P. 54, L.M. 5, L. 29, E. 12. Coming up as an out-patient now.

Present illness: The first symptoms complained of were an uncomfortable feeling in the abdomen in the mornings, this being relieved by the passage of fæces. Blood and mucus were then present in his stools, and a diagnosis of colitis was made. Diet and rest did not improve the condition. He returned to West Africa in October, 1916. During the winter the condition gradually got worse, and in March, 1917, he went into hospital. Emetine injections were then given with some clinical improvement, but a relapse with much blood and mucus again appeared in October, 1917. A fæcal examination then showed lateral-spined bilharzial ova. He remained in much the same condition till coming to England in November, 1918. Since being in England he has complained of lassitude and loss of weight, with mucus in the stools but no visible blood. The number of stools has varied from one to three a day. He was admitted into the Albert Dock Hospital on June 6th, 1919.

Examination: Nothing abnormal noted apart from the condition of the fæces. Urine, no albumin, blood, or sugar. Fæces, mucus, no blood. Microscopically lateral-spined bilharzial ova in small numbers.

Table IV. shows the records of the injections and the fæcal examinations.

TABLE IV. (CASE 4).

Date.	Drug: A.T.	Fæcal examinations.	Date.	Drug: A.T.	Fæcal examinations.
1919			July 4	gr. 2.	Nil.
June 11		3 ova.	„ 5		1 ovum.
„ 12	gr. ½.	1 ovum.	„ 6		Nil.
„ 13		3 ova.	„ 7	gr. 2.	„
„ 14		Nil.	„ 8		„
„ 16	gr. 1.	2 ova.	„ 9		„
„ 17		1 ovum.	„ 11	gr. 2.	1 ovum degenerated.
„ 18	gr. 1½.	Nil.	„ 12		
„ 19		„	„ 15	gr. 2.	Nil.
„ 20		4 ova.	„ 16		„
„ 24	gr. 2.	Not examined.	„ 18	gr. 2.	„
„ 25		Nil.	„ 22	gr. 2.	„
„ 26		1 ovum degenerated.	„ 23		„
„ 27	gr. 2	2 ova degenerated.	„ 24		„
July 1	gr. 2.	Not examined.	„ 25		„
„ 3		Nil.	Total gr. 21.		

Note.—Unless otherwise stated eggs were apparently healthy. On the occasion of each microscopic examination three slide preparations were carefully searched and the numbers recorded are the total number of eggs in such three slides. Eggs are recorded as degenerated when the contents are completely disorganised and no trace of miracidium can be made out.

It will be noted that the first obviously degenerated egg was met with on June 26th—i e., 14 days after the commencement of the treatment and when a total of 5 gr. of the drug had been given. On July 5th one healthy-looking egg was seen, but experiments were not made to see if it would hatch in water. Thereafter eggs were only seen on two occasions and were obviously dead.

Differential blood counts were performed on four different occasions (Table V.). It will be noted that there was a relative rise in the eosinophiles during the course of treatment, a phenomenon previously noted by Christopherson and Newlove.

TABLE V.—*Blood Counts.*

—	Polymorphonuclears.	Large mononuclears.	Lymphocytes.	Eosinophiles.
June 11th ...	26	20	42	12
„ 19th ...	62	10	8	20
July 4th ...	20	6	49	25
„ 24th ...	29	5	56	10

The patient stood the injections very well. There was no cough, but at the end of an injection he often had a feeling of discomfort in the abdomen and a desire to go to stool, which quickly relieved the symptom. On one occasion a rigor followed one of the injections, and headache was complained of on two occasions. Phenacetin and caffeine quickly relieved this.

The patient left hospital on July 25th, 1919, expressing himself as feeling much better and having gained in weight. His stools then showed no ova, no blood, and only an occasional fleck of mucus.

CASE 5.—F. Complaint: Passing blood in urine.

History: Born in England; never abroad until October, 1915, when he went with his regiment to Egypt. Excellent health till November, 1917. Then taken ill with blood in his urine. No fever. Had only bathed in a special military bath.

Previous illnesses: Nothing of note.

Present illness: Started with urticaria, pain in stomach and loins. Sent to base, where bilharzial eggs with terminal spines were found in urine. Sent to France after Egypt, then invalided home from there to England, July, 1918. Discharged from Army, October, 1918. Since that has gradually got worse.

Examination: Systems all normal. Urine: terminal-spined eggs present. Fæces negative.

Table VI. gives the records of his drug treatment and urine examinations.

Note.—The examination of the ova in this case was conducted on a different principle as follows: 24 hours' urine was taken, sedimented, and a drop large enough to just fill the space under a 7/8 in. coverglass was used for examination, three such preparations were made and the ova pooled and averaged.

TABLE VI. (CASE 5).

Date.	Drug: A.T.	Blood.	Ova.	Date.	Drug: A.T.	Blood.	Ova.
1919. July.				July.			
5		Yes.	Very numerous	29	gr. 2.	No.	No.
8	gr. ½.	„	30	30		„	„
10		„	11	31		„	1 dead ovum.
11	gr. 1.	„	85	Aug.			
12		„	35	2	gr. 2.	„	No.
14		„	30	5	gr. 2.	„	„
15	gr. 1½	„	13	6		„	„
16		„	14	7		„	„
17		Yes, less.	28	8	gr. 2.	„	„
18	gr. 2.	„ „	44	9		„	„
21		Yes, much less.	3	10		„	„
22	gr. 2.	No.	4	12		„	„
23		„	6	13	gr. 2.	„	„
24		„	4	14		„	„
25	gr. 2.	„	2	15		„	„
26		„	2	16	gr. 2.	„	„
				Total gr. 21.			

Comments on the Cases.

The beneficial effect of the drug on all these 5 cases has been very marked therefore, and bears out the equally good results reported by Christopherson and Newlove in their large series of 70 cases.

Question of dosage.—In our series we have given 16 gr., 30 gr., 20½ gr., 21 gr., and 21 gr.; the largest dose of 30 gr. being required in Case 2, who after 16 gr. showed some blood again and a few ova on one day. An additional course of 14 gr. was therefore administered, which seems to have been sufficient to completely rid him of his infection.

There is no doubt that antimony given over prolonged periods of time, and in large doses, may produce signs of fatty infiltration in the liver and other organs,[3] and, therefore, the administration should be stopped whenever one concludes that the case is cured. The complement-fixation test devised by Fairley, if confirmed and proved to be sound, should allow one to determine when this has occurred, or in its absence the disappearance of blood and ova may be looked upon as conclusive. A total amount of somewhere between 20 and 30 gr. would seem to be sufficient to effect a cure, and this, compared with some of the doses given in other diseases, is not, in our opinion, excessive. Even though a certain amount of fatty change is produced in the liver, this can easily be recovered from, as evidenced in alcoholism, ankylostomiasis, and other diseases. Bilharzial disease, it must be remembered, is a serious ailment, for which no treatment up to the present has proved in any way efficacious, and therefore it is quite justifiable to take the small risk involved in giving such injections. We have given much larger doses of antimonium tartaratum in other diseases, as the following list shows :—

---

[3] Breinl and Priestley: Journ. of Trop. Med. and Hyg., Feb. 15th, 1918. Archibald and Innes: Journ. of Trop. Med. and Hyg., April 1st, 1919. Low: Brit. Med. Jour., June 7th, 1919.

Ulcerating granuloma (cured)	53½ gr.[4]
,, ,, (uncured) ...	114½ gr. in three courses.[5]
American leishmaniasis	47 gr.[6]
Kala-azar (Eastern)...	64¼ gr. (Fatty liver p.m.)[7]

In addition to those, one of Dr. Daniel's cases of Rhodesian trypanosomiasis (the only one we know who has survived his infection) has had over 500 gr. spread over 2½ years. This case at present is in quite good health, and the same may be said of the American leishmaniasis one. The kala-azar case did not die of the antimony, but of influenzal pneumonia.[8] Large doses can therefore be given if due care is taken, and if each case is watched carefully throughout the course.

Points on the administration of the drug.—It is, we think, much the best plan to keep the patient in bed the day of the injection, and only to let him up next day if no untoward symptoms have taken place. All symptoms must be carefully recorded, and any indications of gastric or constitutional disturbance must be considered in detail, and if bad and recurring at each injection may contra-indicate further injections. The urine must be examined to exclude nephritis and faulty elimination from the kidneys. Albumin of itself does not contra-indicate the injections if this is part of the disease (vide Case 2), but the injections should then be given with the greatest caution.

Rigors are not uncommon after some of the injections, and cough immediately after is often troublesome. Sipping cold water may relieve this very quickly. We have not noted tachycardia, but one case complained of a constriction over the cardiac area after some of his injections.

The dose should be small to begin with (gr. ½), and then gradually worked up to see how the patient will stand it; 2½ gr. at a dose may be considered the maximum, any increase on that being dangerous. One of us, however (H. B. N.), has found that African natives stand antimony well, and in trypanosomiasis in East Africa has given up to 3½ gr. twice weekly with no bad effects.

The dilution of the drug is also important; we always give it dissolved in 2 oz. (60 c.cm.) of normal sterile saline, and run it in through a fine needle as near as possible at blood heat. The solution is made up fresh a few hours before the time of administration, an important point; it must not be given old or after standing a long time. Too concentrated solutions, we believe, are dangerous.

At what intervals should the drug be given?—We generally give the drug twice a week, and it should not be administered more frequently than this. Perhaps it would be better to give it only once a week, like salvarsan and its derivatives, but this can only be settled by careful analyses of the urine and fæces to determine how long the drug takes to be excreted. If it is all gone in three or four days, then there would appear to be no harm in giving it again after such a period of time.

Addendum.—Since this paper was written the first three cases described have been followed up and watched. No further signs of bilharzial trouble have manifested themselves, and as some months have now elapsed since the injections it is justifiable, we think, to say they are really cured.

---

[4] Low and Newham: Brit. Med. Jour., Sept. 16th, 1916.

[5] Low and Newham: Trans. Soc. of Trop. Med. and Hyg., April, 1917, vol. x., No. 6.

[6] Low: Brit. Med. Jour., April 19th, 1919.

[7] Ibid., June 7th, 1919.

[8] Loc. cit.

THE Regulations for the training of health visitors, issued by the Board of Education, having now been published for the required period, have been confirmed by the Board without amendment.

BILHARZIASIS:

ITS INCIDENCE AND ERADICATION.

By (MRS.) B. SHELDON ELGOOD, M.B. LOND., L.S.A.,
MEDICAL OFFICER TO THE MINISTRY OF PUBLIC INSTRUCTION, CAIRO;
AND
THOMAS CHERRY, M.D., M.S. MELB.,
MAJOR, A.A.M.C., 2ND L.H.F.A.

PRIOR to the year 1914 it was known that a few cases of this disease had been contracted in Australia under circumstances which connected them with infected men returning from the South African War. This fact established the presence of some species of snail which was used by the parasite as its intermediate host. When affected men began to arrive from Egypt in 1916 one of us (T. C.) was directed to investigate the local conditions, and to report on the steps necessary to prevent the disease obtaining a permanent footing in Australia.[1] Subsequently the further results of our joint work in Egypt were reported to the A.D.M.S. in February, 1918.

The history of *D. hepaticum*, the ordinary liver fluke in sheep, shows that these trematodes easily adapt themselves so as to use different species of mollusca as intermediate hosts in different parts of the world. In addition to the presence of a suitable snail, it appears that the other essential condition is a scanty water-supply at a warm period of the year. Thus two islands in the Eastern Mediterranean—Crete and Cyprus—present divergent conditions, although both have winter rains and dry summers, and both have long been in close communication with Egypt. Crete is free from the disease because the lofty mountains keep the streams flowing all through the summer, whereas Cyprus is infected because it contains marshes with water drying up in early summer, and a river with holes in its bed which even at the end of summer contained enough water to bathe in.[2] In Algeria cases appear amongst the French troops with increasing frequency as their camps approach the Sahara. Arabia, with little water, is infected; Syria, with abundant springs, is free. Scanty water-supply is found even in some heavy rainfall or flood regions during the dry months of the year. Such conditions are found in Venezuela, some of the West India islands, and Mesopotamia, all of which are infected. The spread of bilharzia is thus favoured by concentration of the molluscs, making it easier for the embryo to find them; by concentration of the cercariæ per cubic foot of water; and by concentration of human activities around water.

Location of the Danger Zone in Egypt.

It has always been assumed that unfiltered Nile water is the means of infection of the children in Cairo, and that bathing in the river or in the large canals is dangerous; in fact, European troops have been kept out of all water in Egypt. But if the foregoing considerations are correct it is very unlikely that such immense volumes of water can ever become charged with cercariæ to a dangerous degree. The cercaria does not multiply after it has been discharged into the water from the snail. Moreover, men who have contracted the disease nearly all ascribe their infection to bathing in a small canal or in a small pool filled from the canal, and while nearly a thousand men bathed freely in the river during 1916 no resulting cases of disease have been reported. In addition, the snails are not easily found on the banks of the Nile or of even medium-sized canals, but are common in the small channels which ramify through every irrigated field. Since the fellaheen of all ages are very often in contact with the water in these small channels, it is easy to understand how the vast majority of such folk become subject to the disease. But while it is established that the population of Cairo is very heavily infected the mode of infection has not yet been made clear.

In order to ascertain the age at which infection becomes common, 186 children were examined consecutively at a native dispensary in one of the poorest quarters of the city. Microscopic examination of the urine gave the following results (B.S.E.): Out of 62 infants under 4, 2 were found to be infected; 62 children from 4 to 7 yielded 2 infected cases; whereas among the same number of children from 7 to 15, 12 proved to be infected.

No attempt was made to determine the extent of intestinal infection. The examination of 30 of the mothers of these children revealed no sign of urinary infection. The prevalence of the disease amongst the better classes may be inferred from the fact that at the present time 25 per cent. of youths, aged 16, applying for entry into the professional branch of one of the public ministries are rejected on this account. Former estimates placed the incidence at from 50 to 80 per cent. of boys between the ages of 10 and 18, and 25 to 30 per cent. of girls of similar ages.[3] The number of women affected at the age of 40 is less than 3 per cent.[4] These figures point to some method of infection which hardly operates during infancy, becomes active during childhood, and ceases to affect the adult women to any great extent so long as they reside in the city.

The hypothesis that Nile water, as supplied to the gardens in Cairo, is the chief source of infection[5] does not meet the age periods during which infection is active or quiescent. Having decided that unfiltered Nile water is probably not a serious danger, we examined the mollusca present in the small collections of water in places where the children can reach them. Specimens of *Bullinus* and *Planorbis* were found in small numbers in public ponds and fountains in Cairo. They were also present in a small fountain in a private garden and in the casks sunk in the ground from which the watering cans are filled. The Arab gardeners were quite familiar with the snails, and volunteered the explanation that they came from the Nile, which may or may not be correct. A large number of zirs (the great earthenware jars used to store water for household purposes) were examined and found to be free from snails. The large marble bath in the garden of the old Ismailia Palace is now dry, but there are on the floor abundant recent shells of *Bullinus*, *Planorbis*, *Limnea*, and *Unio*. Many snails are also present in small irrigation channels in the suburbs irrespective of the source of the water.

Suitable intermediate hosts are therefore present in the city and suburbs, and the habits of the people make it certain that these collections of water will often receive the ova of the trematode. Some of the Australians merely washed their hands and arms in these ponds, and yet received a full dose of the cercariæ. The Arabs rinse their mouths and drink the fountain water, while the children of native servants are often allowed to play in the employer's garden. It is, perhaps, more than a coincidence that the only European girl known by one of us (B. S. E.) to have become infected in Egypt used to be taken regularly by her nurse to the lawn surrounding one of these fountains. The importance of these sources of infection, however, is growing less every year, as, owing to the campaign against the mosquito, the fountains are disappearing from private gardens and the canals and ponds are being filled up. The suburban irrigation channels appear to be the only serious local menace.

The Sham-el-Nessim.

As these local sources could not account for all the infections we looked further afield. The Coptic Easter Monday is kept by all Egyptians, Moslem as well as Christian, as the Sham-el-Nessim. On this festival parents make every sacrifice in order that the children may have a good time. The family leaves home early in the morning for the country, and the children are allowed to play as they please around the banks of the ubiquitous channels. At this time of the year infection is likely enough to follow an hour's paddling in the water. Besides including children of both sexes and of every social rank, this annual exposure to infection accounts for the age-incidence which we find in Cairo. At the age of 6 or 7 the children become more independent and remain in the water for a longer time than the infants. This regular exposure to the attacks of the cercariæ is the most important factor in the causation of the disease among the city population. The second but much less important factor is found in the suburban irrigation channels and other small bodies of water already noticed.

Eradication of the Disease.

Up to the present time no attempt has been made to control the spread of this disease amongst the Egyptians—its presence for more than 3000 years investing it with the apparent authority of Fate. Interest in the matter may also die out because the regulation of bathing removes all danger of infection as regards the British troops in the country. Yet it would probably be an easy matter to eradicate the disease from the Delta and the Egyptian portion of the Nile Valley. In this connexion two important points may be emphasised: (1) that the danger spots are the small channels running through the fields, not the river or the large canals; (2) that a flock of ducks will quickly remove the snails from any small body of water and prevent these mollusca from re-establishing themselves.

We have already set out the evidence for the first of these propositions. The second is based on the following observations. All the ponds but one in the Zoological Gardens, Gizeh, Cairo, are frequented by ducks, both tame and wild. In these ponds snails can be found only after a prolonged search, and then only small specimens. The exception is a lily pond, which is kept free from ducks and is well stocked with half a dozen common species of mollusca. The lake in the Botanical Gardens, Melbourne, which has long been a sanctuary for wild ducks, is quite free from snails, and a similar alternation of snails and ducks holds good in Adelaide and Perth. The proclivity of ducks for snails is as marked on dry land as in the water. They not only keep gardens free from these pests, but they search the bushes and herbage for land forms, such as *Helix pisana*.

Thus in order to eradicate bilharziasis in Egypt each village should keep its own channels free from snails by means of a flock of ducks. The local duck, which is not a common domestic bird, may be suitable for this purpose; but in Egypt the Pekin, Muscovy, and Indian Runner ducks would doubtless thrive as well as in hot, dry parts of Australia. The green and dry berseem or clover would form part of the food of the birds, and the children could keep the flock in the required portions of the channels. The keeping of ducks would not be an innovation, but an extension of native custom in widely separated districts. The birds might be made a source of substantial profit to each village, and a bonus might be offered for the production of birds of specified quality for table use.

In the first place, a canal supplying a dozen villages might be selected for experiment and the results observed. A small expenditure is thus all that is necessary to give the scheme a trial, while the eradication of the snails would confer an inestimable benefit upon the whole native population.

References.—1. Reports to D.G.M.S., Melbourne, Government Printer, 1917. 2. Williamson: B.M.J., Nov. 9th, 1907. 3. Kantzky Bey: First Egyptian Congress of Med., 1905; Elgood: B.M.J., Oct. 31st, 1908. 4. Elgood: loc. cit.; Milton: Journ. Trop. Med., June, 1902. 5. Leiper: Journ. R.A.M.C., July and August, 1915.

SOME CAUSES OF FAILURE IN THE
VACCINE TREATMENT OF ARTHRITIS, RHEUMATISM, AND NEURITIS.

BY H. WARREN CROWE, M.D., B.CH. OXON., M.R.C.S., L.R.C.P. LOND.

A CERTAIN measure of success has followed the treatment by vaccines of muscular rheumatism and fibrositis. Good results have also not infrequently been claimed in polyarthritis deformans (rheumatoid arthritis). To these two groups I would add in my own experience, primary neuritis —that is, neuritis not due to pressure or of toxic origin. A fairly high percentage of failures have, however, been reported, a fact damaging to the reputation of this valuable method of treatment.

The causes of failure may be grouped under six heads: (1) False diagnosis; (2) Errors in bacteriology; (3) Incorrect or inefficient vaccine; (4) Faulty administration of vaccine in regard to dosage and interval; (5) Peculiarities in the constitution of the patient and in his response to vaccines; (6) Mistakes in general treatment.

It is hoped that the discussion of these causes of failure in the light of experience gained from the bacteriological study and treatment of a considerable number of cases may tend to improve the results.

(1) *False Diagnosis.*

To this may be added failure to discriminate between curable and incurable conditions. Apart from such gross errors as confusing lumbago and Pott's disease, intercostal rheumatism and pleurisy, one must be on the look-out for gonorrhœal rheumatism and the pains of locomotor ataxia.

In the main, however, fibrositis and muscular rheumatism are easy to recognise, and can be readily and successfully treated by vaccines.

The diagnosis of arthritis is much more difficult. The monarticular varieties are best left alone, especially if of long standing. Failure here is the rule rather than the exception. Where multiple joints are involved the essential thing from the vaccine point of view (apart from the bacteriology) is to decide whether the condition is one of chronic rheumatoid arthritis in its generally accepted sense or of rheumatism. The earliest, almost pathognomonic, sign of the former is creaking of the occipito-atlantoid joint. Stiffness of one or more joints in the morning which wears off during the day is common to both diseases, but whereas in rheumatism the joints affected vary from day to day, in rheumatoid arthritis this is not usual. When periarticular inflammation and glossy skin appear, then, of course, no mistake is possible. Slight skin affections are more frequently associated with a rheumatoid state. X rays should always be employed before attempting the vaccine treatment of any chronic joint trouble, for there can be no complete success where bony changes have occurred. A radiogram of the hip-joint before treating sciatica will prevent many disappointments. It is very important to distinguish between rheumatic fever and acute febrile rheumatoid arthritis. The former will, as a rule, yield readily to vaccines, whereas the latter is not only extremely intractable, but will often flare up most alarmingly after a minimal dose. Full doses of salicylates should decide the point. Again, failure may result if it is not recognised that to find an uncomplicated case of either rheumatism or of rheumatoid arthritis is unusual. Both may occur together or either may be associated with a number of diseases of the alimentary and respiratory tracts. In these cases combined vaccines are necessary. It may be suggested that the bacteriological diagnosis is the main thing and that clinical diagnosis does not much matter provided the causative microbe is found. As will appear below, this attitude is frequently fatal to success.

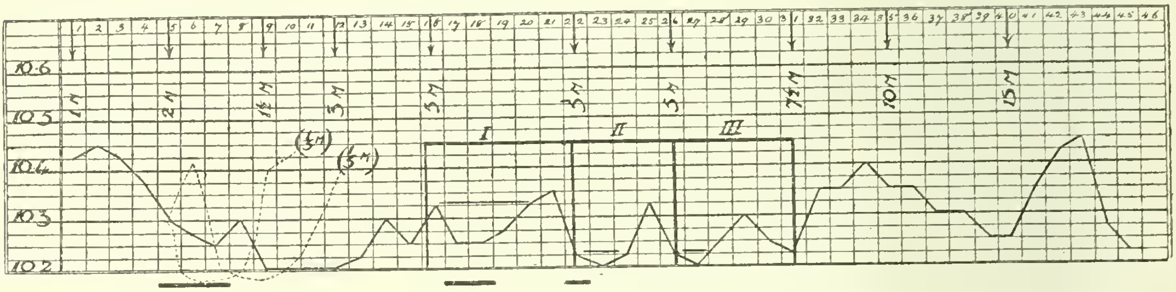


Chart showing the daily variation in weight of a woman suffering from fibrositis and undergoing treatment h mixed streptococcus and deformans vaccines. In the framed portion of the chart, note I., two days fall of weight and two more days to reach the former level; II., one day fall and one day to reach former level; III., one day fall and next day high above former level. The dose of vaccine is given in millions of each organism. The thick lines beneath the chart indicate increased pain in joints and muscles. The dotted lines indicate fluctuations such as may follow excessive doses, and the drastic reduction necessary is shown by the figures in brackets.

(2) *Errors in Bacteriology.*

Mistakes are extremely difficult to avoid in this field, and this although the specimens for examination are irreproachable. It is so fatally easy to find a microbe either in the gums, from the nose, from the fæces, or in the urine. Serum reactions give but little assistance in determining pathogenicity. It is for these reasons that clinical diagnosis is of paramount importance, and that, given correct diagnosis, stock vaccines are usually so much more efficient in this group of diseases than autogenous. In various earlier communications[1,2,3,4,5] I have tried to reduce the bacteriology of the "rheumatisms" to some sort of order. Further experience extending over several years has strengthened the suggestions then put forward. The following is a brief summary of the conclusions as published.

Constantly recurring are four varieties of streptococci and one of staphylococci. The streptococci included in these varieties are all capable of causing fibrositis and rheumatism both of muscles and joints. Probably the *Diplococcus rheumaticus* of Poynton and Payne is synonymous with several of them. Without exception they have their origin in the alimentary tract. Two are fæcal streptococci and two are salivary (Andrew's and Gordon's classification). These organisms can readily be distinguished from each other and from all other streptococci by their behaviour in culture on neutral red egg medium. All of them are to be found in severe cases in the urine. One, the *Streptococcus gracilis* or *zymogenes*, a gelatin liquefier, belonging to the fæcal group, must be regarded with extreme respect, as a vaccine prepared from it is very toxic. This organism has been found associated with the more serious forms of rheumatism, especially those complicated by either functional or organic heart disease. Three times was it isolated from malignant endocarditis.

The single variety of staphylococcus is closely allied to the *S. epidermidis albus*. It is this organism for which I ventured to propose the name *Micrococcus deformans*[5] on account of its frequent presence in, and probable ætiological connexion with, rheumatoid arthritis. This organism is also not uncommonly found in cases of neuritis. It is possible that rheumatoid arthritis and neuritis are manifestations of the same infection. For practical purposes at any rate, where nerve lesions are in evidence, a vaccine of this organism will be found to be effective. In rheumatic cases a stock vaccine of the streptococci should be used. In a number of cases with mixed symptoms the two vaccines can be combined with advantage. *Bacillus coli communis* is a fairly frequent contributory factor, but it must be very rare indeed as a primary cause of muscular or joint pains. Though *B. coli communis* is often the only organism that is seen microscopically, or can be isolated by ordinary methods from the urine, yet if the urine, when heavily infected, is incubated for a few hours, then heated to 60° C. for varying times, cultivation will almost always show a growth of streptococci after the *B. coli* have been killed off.

(3) *Incorrect or Inefficient Vaccine.*

This source of failure is partly due to faults in clinical diagnosis and partly to bacteriological errors. The only preventive is care. It is far wiser to use a well-tried stock vaccine than to prepare one from an organism of doubtful ætiological significance.

(4) *Faulty Administration in Regard to Dosage and Interval.*

The correct dose of a vaccine made from these organisms varies enormously in different cases. In consequence mistakes in dosage and interval are perhaps the commonest cause of failure. It is almost impossible to give any scale which will apply to more than a very few cases. The difficulty can be largely surmounted by charting the daily weight of the patient under comparable conditions of time and clothing. Symptomatic reactions read in relation to the daily weight chart will be found to provide an excellent guide. In a former communication[6] it was shown that the fluctuations of the weight, day by day, following an injection of tuberculin could be regarded as an immunity curve and used as such for determining the proper dose and interval. This has since been confirmed by Cochrane and Sprawson.[7] The same is true of streptococcus and deformans vaccines.

The chart shows the daily weight of a woman suffering from fibrositis and a slight degree of rheumatoid affection of the finger-joints. Stock polyvalent streptococci and

M. deformans were combined in each dose in equal numbers. The first dose (one million of each organism) was followed by a drop in weight, but since there was no definite curve and no subjective signs of a reaction the fall was regarded as accidental and the dose was doubled. Immediately the weight fell further and the pains in the joints and muscles increased (indicated by the thick line beneath the 5th, 6th, and 7th days of the treatment). The dose was clearly too large. It should be remembered that in this case without the weight chart the symptomatic reaction might easily have been put down to a change in the weather or some similar outside agency. The third dose was reduced to 1½ million. The weight remained at its new level. On doubling this amount at the fourth injection a definite rise and fall was recorded. In the absence of a negative phase the dose was then raised to 5 million. This had to be repeated three times, for after the first time fall in weight and reaction lasted two days, after the second one day, whereas following the third there was no more than a short negative phase registered on the chart and no symptomatic reaction. The immunity curve induced by each dose of 5 million is brought out clearly by the enclosing lines. It can be noticed that the interval between the doses was entirely dependent on the weight; 7½ million gave no reaction; 10 million seemed not to affect the weight at all. The drop was very gradual and probably due to the exercise of the increased powers of walking. Fifteen million was followed by a brief rise and fall. Several further doses were given, but it was at or about the last dose on the chart that the infection seemed to have come to an end. It will be noticed that the fluctuations in weight were considerable. On the 9th, 22nd, 26th, 32nd, and 41st days of treatment a difference of one pound was registered, and even greater excursions are often seen. It is then comparatively easy to gradnate the size and arrange the spacing of the doses in accordance with the indications given by the weight chart. Failures due to faulty administration should by this means be practically eliminated.

(5) *Peculiarities in the Constitution of the Patient and in his Response to Vaccines.*

There are a certain few people who are relatively insensitive to injections of a vaccine and in whom enormous doses fail to produce response. Such cases gain no benefit from treatment by this method. On the other hand, there are some so sensitive that the smallest dose may excite an intolerable reaction. Or, during a course of treatment, this state of sensitiveness may develop. Sensitiveness is frequently found on giving vaccines to a patient who has recently been inoculated with excessive doses of some other or the same vaccine. It is also met with to a most annoying degree in people who have been subjected to intravenous inoculations of bacterial extracts in large amounts. One gains the impression that in these cases, over-stimulation has disarranged the immunity mechanism, with the result that it has become irritable. Again, a spurious kind of sensitiveness may appear when an unsuspected organism becomes active in a patient under treatment by the vaccine of another organism. Finally, in another course of treatment and for no apparent reason, sensitiveness may develop and cause considerable trouble.

There are five ways of dealing with this condition, and I do not apologise for going into the matter fully because it presents one of the greatest difficulties with which one has to contend. (*a*) The first thing to be done is always to revise the bacteriology of the case, and if a secondary infection is found to prepare a fresh vaccine and try that. (*b*) The dose may be reduced almost to vanishing point, and then gradnally raised at frequent intervals. This may succeed, but it more often fails. (*c*) The dose of vaccine may be combined with about ½ c.cm. of 4 per cent. eucaine lactate. The original communication on the subject[8] had reference to tuberculosis, but the method is equally efficacious in the diseases now under discussion. (*d*) A sensitised vaccine may be employed. There is no great difficulty in preparing this for the rheumatic streptococci. Unfortunately, a *M. deformans* antiserum which is necessary for sensitisation is far from easy to produce. Doses of a sensitised vaccine can be given daily at first and then every second or third day. Increase should be rapid, up to several thousands of millions. A return can then be made to quite small doses of ordinary vaccine. (*e*) Treatment may be suspended. If a good many doses of vaccine have been given before the sensitive condition appears this method is the best of all. Symptoms gradually disappear. Improvement may be maintained for weeks or months. When relapse occurs treatment may be resumed with confidence since sensitiveness will have disappeared and improvement is usually rapid.

In all cases of sensitiveness the weight chart will be found to be an almost indispensable guide. When the patient becomes sensitive an irregular curve develops, up one day and down the next, then up again, perhaps, and so on. As soon as sensitiveness is overcome the curve becomes rational and intelligible.

(6) *Mistakes in General Treatment.*

It is usual to find patients suffering from rheumatoid arthritis ordered haphazard massage, or rheumatics told to "walk it off." When vaccines are being given such directions are most dangerous on account of the auto-inoculations induced. During a course of vaccines massage and electrical treatment, baths, exercise, in fact, anything which may be the exciting cause of an auto-inoculation must be most carefully watched and controlled from day to day. Otherwise the success of the vaccines will be seriously prejudiced.

Conclusion.

In conclusion, one would draw attention to the importance of guarding against the fallacy that because the vaccine of a given organism has a pronounced effect on the patient that therefore this organism must be the causal germ of the disease. Sir Almroth Wright has recently suggested that vaccines are not nearly so specific as has hitherto been thought.[9] His conclusions greatly strengthen the case for a more extended use of stock vaccines.

References.—1. Streptococci in Urine (Warren Crowe): Proc. Roy. Soc. Med., 1911-12. v., Path. Sec., 159. 2. Differentiation of the Streptococci (Crowe): Proc. Roy. Soc., 1912-13, vi., Med. Path Sec., 117. 3. The Urine and Vaccines (Crowe): Vaccine Journal. 1913, ii., 149-53. 4 A Contribution to the Etiology of Rheumatoid Arthritis (Crowe): THE LANCET, 1913, i., 1377-9. 5. Primary Cause of Rheumatoid Arthritis (Crowe): THE LANCET, 1913. ii., 1460-4. 6. Crowe: Brit. Med. Jour., Dec. 6th, 1913. 7. A Guide to the Use of Tuberculin (Cochrane and Sprawson, Bale). 8. Crowe: THE LANCET, 1911, i., 366-8. 9. Wright: THE LANCET, 1919, i., 489.

Harrogate.

A NOTE ON THE
DIURNAL VARIATION IN BODY-WEIGHT IN TUBERCULOUS PATIENTS.

BY J. MACNAUGHT SCOTT, M.A., M.B., CH.B. GLASG.,
LATE MEDICAL OFFICER (TEMPORARY), STEPNEY GREEN TUBERCULOSIS OFFICER.

THE following observations were made on the body-weight of patients attending Stepney Green Tuberculosis Dispensary during the time that I was acting medical officer.

The Measurements of Body-weight.

The patients were weighed at each attendance between 2 and 4 in the afternoon. I made it a practice to call up 10 or 12 for re-examination next morning at 10 A.M. when they were again weighed. The weighing was done by the porter, who was very keen on his work, and after careful observation I can trust his records.

I noticed that in the majority of cases there was a fall in the morning weight as compared with the previous afternoon. It varied from ¼ lb. to as much as 4 lb.

The patients being of a poor class have no extensive wardrobe, and the difference was unlikely to be due to a change in the clothing. To eliminate this possible factor, however, the patients were instructed to wear exactly the same clothes in the morning as they wore in the afternoon. The fall in weight continued to be recorded.

Careful questioning and observation showed that changes in sleep or diet could not be the cause of this variation. The patients were unable to have any alteration in diet, and in every case reported sleep as usual.

Out of a total of 962 recorded weights I found that 146 showed no variation, 205 showed an increase, and 611 showed a decrease. The average increase was 0·77 lb. The average decrease was 1·03 lb.

The patients attending the dispensary are divided into positive cases, including pulmonary and glandular cases of tuberculosis and suspect cases. The majority of the observations were made on women and children, because men and youths attended only in the evening, and were unable to sacrifice a morning's work to attend the dispensary.

Taking only the positive cases who showed an increase, a total of 55, the average increase is 0·6 lb., while the suspect cases showing an increase, total 150, give an average increase of 0·8 lb.

Taking only the positive cases who showed a decrease, a total of 177, the average decrease is 1·6 lb., as against the decrease of 434 suspect cases averaging 0·8 lb.

Conclusions to be Drawn.

From these figures I conclude that a tuberculous patient will record a greater fall in weight in the morning, as compared with the afternoon weight, than a person who is merely a suspect. Also, that where an increase is recorded in a positive case that increase is likely to be less than an increase in a suspect case. From observation I can say that the more serious and advanced the disease the greater the variation in weight recorded.

The probability of a decrease occurring as against an increase is 3 to 1.

Grouping the cases according to age, the average decrease is instructive.

—	Age.	Number of consecutive decreases.	Average decrease.
1	From 3 to 8 years.	20	0·8 lb.
2	,, 9 ,, 16 ,,	20	0·9 ,,
3	,, 17 ,, 24 ,,	20	1·7 ,,
4	,, 25 years.	20	1·5 ,,

This table includes positive and suspect cases. It is reasonable to infer from it that the decrease will be proportional to the body-weight of the patient.

Taking the individual patients, the variation practically remains constant even after several days, and alters according as the pathological condition improves or grows worse. Thus, one woman who came to the dispensary as a suspect case, on subsequent re-examination, recorded decreases ¾ lb., ½ lb., ¾ lb., 1 lb., 1 lb. before she was diagnosed as a positive case. On the other hand, a boy who was strongly suspect and improved under treatment recorded decreases 1 lb., ¼ lb., and in two later examinations his weight was even. Another woman improving under treatment changed the decrease into an increase, thus: 1½ lb. decrease, ½ lb. decrease, ¼ lb. increase, ¼ lb. increase. In a girl, a positive case of pulmonary tuberculosis, but quiescent, the decrease was invariably the same—namely, ½ lb.

The cause of this variation is obscure. It has been recognised that loss of weight accompanies, and is to a great extent proportional to, the increased temperature found in tuberculous patients. But in the case of children who had apyrexia and were increasing in weight this diurnal variation persisted. Nor can it be accounted for by temporary upset of the alimentary system. The influence of the nervous system can also be set aside, because 40 per cent. at least of the patients were Jews, who are most susceptible as regards "nerves," and their degree of variation is not increased over that of purely English stock.

My observations lead me to conclude:—

1. Tuberculous patients tend to have a diurnal variation in body-weight.
2. Of those showing such variation, 75 per cent. show a decrease.
3. The decrease is greatest from the age of 20 to 24 years, and is proportional to the severity of the infection.

A DEVONSHIRE CENTENARIAN.—Miss Elizabeth Reed died at her residence in Exeter on Sept. 22nd in her 101st year.

DORSET COUNTY HOSPITAL.—A special meeting of the Governors of the Dorset County Hospital, Dorchester, was recently held to consider means of increasing the income of the institution. It was stated that the estimated expenditure over income was nearly £2000. It was decided that in-patients should pay 7*s.* weekly, except in cases of proved necessity. The meeting appealed for increased financial support.

TRENCH FEVER AND WAR NEPHRITIS.

BY J. H. LLOYD, M.D. LOND.,
MAJOR, R.A.M.C.(T.F.).

RECENTLY I was looking through records of war nephritis that I had taken in January–March, 1918, because I had been struck by the comparatively large number of such cases admitted here, bearing a resemblance in certain of their features to trench fever. I had determined to collect consecutive series of such cases, and analyse them with a view to seeing, if possible, how far the resemblance went, and if any relationship existed between the two maladies. Owing to over-ruling circumstances it was only towards the end of the "nephritis season," 1917–1918, in January of the latter year, that I was able to start, and I had not got records of more than 15 cases before I had again to suspend my efforts in favour of more pressing work necessitated by German activities in March. In the meantime, however, I went through my records and arrived at certain tentative views. My list was, I thought, too small to allow of conclusions therefrom; it was, however, so significant that I meant to continue it, but no opportunity ever offered.

Since Major H. B. Day's article on War Nephritis in THE LANCET of Nov. 16th, 1918, I was so struck by the manner in which my records compare with his, and the way in which his new observations strengthen the views to which I was inclined after analysing my cases 12 months ago, that I here refer to them. (See table.)

Cases 1 to 12 inclusive were cases of acute nephritis—the so-called "war" or "trench nephritis." They all had œdema, dyspnœa, cough, bronchitis, bronchiolitis, and albuminuria, which persisted during their stay here, of from 4 to 13 days and during their febrile and afebrile periods. Their blood pressures were raised and their daily quantity of urine reduced. Most of them at one time or another showed naked-eye evidence of blood in their urine. Only some of the urine specimens of the later cases were sent for microscopic examination, as it was considered unnecessary further to confirm the diagnosis of acute nephritis based on the clinical aspect alone. The urines examined were found to contain various granular, granulo-leucocytic, and hyalo-leucocytic casts. Doubtless an examination of the urine from the earlier cases would have shown similar findings. In general, the curve showing quantity of urine excreted in 24 hours rose, whilst those showing blood pressures, temperature, and percentage of albumin fell, and vice versa. Cardio-vascular manifestations of possible old renal lesions were sought for but not found. The nephritis in these cases overshadowed the trench fever (when this was present) and dominated the picture.

Cases 13, 14, and 15 would, on the other hand, have been evacuated as cases of acute (and uncomplicated) trench fever had not an examination of their urine revealed the nephritis by showing the presence of albumin, red cells, and granular casts. In these cases, however, it is the trench fever that is predominant and is seen in its true colours. Taking into consideration the mode of onset, the man's complaints (e.g., shin pains, worse at night), the enlargement and behaviour of the spleen, I consider that 10 of these cases (Nos. 1, 3, 6, 9, 10, 11, 12, 13, 14, and 15) are also suffering from trench fever.

There are certain diagnostic criteria that I would like to consider in more detail:—

(A) *Those on which in January to March, 1918, I relied in making a diagnosis of trench fever.*

History.—The history of events which happened before the patients were admitted here was obtained from their own statements and by questioning, as no clinical notes of value accompanied them. The difficulty, therefore, of eliciting the history and its reliability vary in some measure with the patient's intelligence. The onset in all these cases was definite, generally sudden. Sometimes a coryza or cough was the first complaint, and I must here crave permission to deny the view that respiratory catarrh is absent in cases of trench fever, and that its presence or absence is one of the criteria in the differential diagnosis between influenza and trench fever. The presence or absence of this feature depends—as far as my experience goes—on the weather. Whilst cases of trench fever are admitted during the warm weather without respiratory troubles, similar cases sent in during the wet and cold weather almost invariably have some slight cough, coryza, or bronchial affection, and are then often admitted as "bronchitis," "influenza" or even "N.Y.D. (?) Phthisis—note the slight evening pyrexia."

During the inquiry into the previous illnesses special attention was paid to closely questioning about the occurrence of odd or occasional attacks of "rheumatism" or "myalgia," or symptoms such as "fainting," "hot and cold shivers," all pointing to transient febrile states, as I feel convinced that any or all of these may be manifestations of a trench fever infection in one or other of its forms.

Splenic enlargement.—With regard to splenic enlargement as a physical sign in trench fever, I found (September-October, 1916) that out of a series of 141 cases admitted here as trench fever, P.U.O., myalgia, or influenza I could feel the splenic edge in 40 of them (that is, 30 per cent.). Even a larger percentage number had what I thought, from percussion, an enlarged but non-palpable organ. Some of these cases, although clinically trench fever, might possibly have belonged to the enteric group, and with a view to excluding this possibility I applied the atropine test (described by Major H. F. Marris) to 54 cases—a somewhat generous margin. Out of 31 cases I found after 1/40th gr. atropine 17 of them "positive" to enteric. Out of another series of 23 cases, after 1/33rd of a grain of atropine, I got 7 positive. In this latter series the stools were examined bacteriologically with negative results. Although none of the cases were controlled by the agglutination curve (apparently the only way of diagnosing the prevailing atypical enteric infection), I do not believe that so large a proportion of cases (1 in 2 or 1 in 3) were due to the enteric group; I rather discredit the atropine test in this connexion and include trench fever with the enteric group among the cases that will answer positively.

The men I spoke to about splenic enlargement as a physical sign in trench fever were, at that time (September-October, 1916), unbelieving or sceptical, but when the British Trench Fever Committee (St. Pol) published their report (in the autumn of 1917, I think) remarking on splenic enlargement, general credence was gained for this as a physical sign.

Temperature.—Acute trench fever.—The type is of the well-known relapsing form—i.e., out-and-out pyrexial. Between this and the temperature chart of a case of subacute trench fever it is possible to get almost any variation and irregular pyrexia.

Subacute or chronic trench fever.—Men who suffer from this condition generally exhibit what I have called a low-geared pyrexia. If such men have their temperature charted every four hours or oftener it will be found that, although the maximum may be for days together wholly below 98·4°, yet the diurnal variation most days will be more than two and sometimes as much as three or even four degrees. Sometimes the curve will, unexpectedly, shoot up to 102° or 103° and fall again to 95° or 96°, all in the course of a few hours. These evanescent bursts of fever are characteristic of this type of infection.

Considered as a whole, the temperature is quite unstable, and the curve, although usually below the 98° to 99° mark, has an unsteady appearance, as if something had thoroughly upset the regulating mechanism. It will be found that the man's sufferings correspond with his temperature, and they are worse for the short period that his temperature is at its maximum. (See Chart I.)

The man's complaints.—These are so varied, especially when one includes those of men suffering from the subacute fever, that for practical purposes it is only the pains, particularly the shin pain—generally worse at night—that can be relied on as a help in diagnosing trench fever in the presence of acute nephritis. It is, however, well to remember that trench fever (acute and subacute) may affect all the limbs and both upper and lower segments. The limb pains synchronise with the rise of temperature, which is often (*a*) of not more than three or four hours' duration, and is missed if the temperature be not recorded every four hours or oftener; (*b*) trifling in amount. In the acute cases it may not be more than one degree or so, and in the subacute cases may not even reach 98·4°, but the chart in these latter cases will be what I call of the "low-geared" variety.

Tenderness.—To moderate pressure of the fingers this always occurs at the site of the pain after the latter has lasted two or three days or less.

(B) *Diagnostic criteria adduced (by others) since I formed my tentative conclusions on these cases 12 months ago.* Reconsidering my cases in the light of these newer observations, I find they support the diagnosis of trench fever made at that time in certain of these cases.

(1) *The phasic variation in splenic size.*—In January-March, 1918, whilst paying attention to the behaviour of the spleen in cases of war nephritis, I noticed the manner in which its size varied with what I took to be relapses of the underlying trench fever. It was not until the later cases that I was cognisant of this periodic variation in size and able to chart it on my records. At that time I was ignorant of the significance of the variation and merely satisfied myself that the organ was enlarged.

Since then Major Day has explained to me what I had failed to realise—viz.: (*a*) That the splenic enlargement marks in trench fever the occurrence of a relapse and is a much more constant sign of the relapse than a rise of temperature; indeed, the former may occur without the latter. Major Day regards this variation in splenic size as the best single clinical sign in acute trench fever. (*b*) When this splenic enlargement occurs in a man suffering from both war nephritis and trench fever there is always an interrupted diuresis. On the other hand, a febrile bout due to a cause other than trench fever—e.g., a lung complication—has little effect on the diuresis. (See charts of Cases 6, 11, 13, and 15.)

Discussion.

Considering the cases of acute nephritis in which there was also evidence of trench fever, it is difficult to be sure of the date of onset of the former. To mark a definite epoch I asked for the time of the appearance of the "swelling," and in these cases this was from two to ten days after what I consider the onset of the trench fever. The onset of all these cases, except possibly No. 9, was certainly pyrexial, and, as in cases of nephritis, œdema is nearly always the sign marking the onset, I am inclined to yield to the temptation of saying that in these cases two to ten days after the onset of a pyrexial illness—which subsequently proved to be trench fever—nephritis supervened. The elimination of toxins was an acknowledged factor in the ætiology of a pre-war nephritis, and so to subscribe to this view of these cases would not be so great a heresy as at first sight might appear. Which is the father and which the son, or whether the trench fever and the nephritis should be regarded children of a common parent I cannot tell. I merely know that out of 15 consecutive cases of war nephritis I have found 10 in which the two conditions were associated.

The three cases (Nos. 13, 14, and 15) in which the nephritis was not "full blown" are an illuminating sidelight on this association. The tempting assumption is that in certain adverse conditions these three cases also would have progressed so far as to show œdema and the other characteristics of the matured war nephritis.

What may be the incidence of nephritis in the trivial, almost unheeded, febrile conditions of civil life I do not know, but it has been stated that the summation of their effects on the kidney was almost undoubtedly a causal factor in the appearance of chronic interstitial changes of later life, and I presume that any infection—although maybe trivial in itself—might be enough to set up an acute nephritis in a susceptible kidney or in one already damaged by preceding febriculæ.

The problem then comes to this: (1) Can trench fever give rise to trench nephritis? From analogy with other fevers, from known or believed views regarding the ætiology of nephritis and from observation of actual cases, I am inclined to say "Yes." (2) Which of the fevers capable of giving rise to nephritis has the greatest incidence out here? I reply "trench fever."

The cases of this fever that occur out here are so numerous and the infection appears to be capable in some men of remaining for so long in its subacute (and often unrecognised) phase, that if it can be shown that the cases which give rise to nephritis form even only a small percentage of the total, this small figure, when converted into a percentage of the total cases of trench nephritis, will, I feel certain, amount to something considerable.

The nephritis occurring during the course of scarlet fever is essentially an acute glomerulitis which may develop in cases of this fever which have throughout been tended in the best possible surroundings. The seat of the lesion in trench nephritis is also, I believe, the glomerulus, and if it be imagined that scarlet fever were as prevalent as trench fever and capable of assuming the subacute, smouldering, and cryptic form of the trench fever infection, and that sufferers were exposed to the adverse surroundings and circumstances that our soldiers in France have had to face, should we be surprised if scarlatinal nephritis assumed almost epidemic proportions?

Is it not possible, then—is it not even probable—that this trench fever which some systems appear to have such difficulty in throwing off may enter very largely into the ætiology of nephritis as seen out here. Am I to say that these ten men whom I noted were suffering from acute nephritis and trench fever—a two-fold diagnosis like this would always be looked upon askance—or am I to say that these men were suffering from an acute nephritis which had amongst its symptoms and signs those commonly ascribed to trench fever. Are we to believe we have two new diseases both occurring in very large numbers until we have excluded the possibility of their being one and the same?

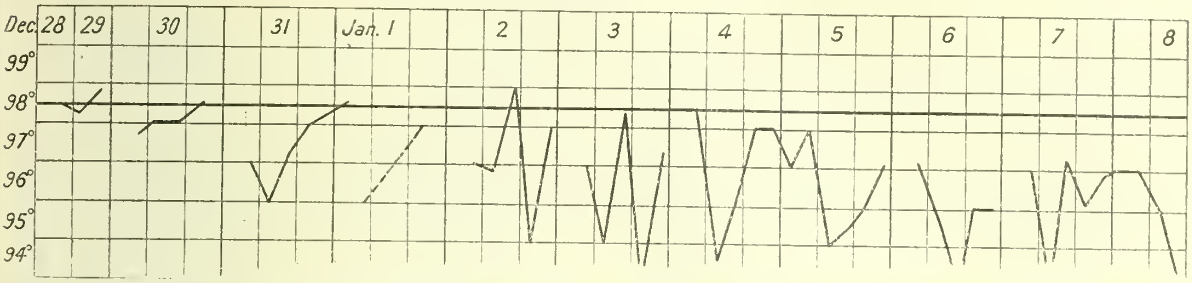
Since I analysed my cases 12 months ago the American Red Cross Commission on Trench Fever have shown the virus

Fifteen Consecutive Cases of Acute Nephritis admitted to 58th Casualty Clearing Station in January–March, 1918.

Case.	Onset.	Before admission.		Previous illnesses.	Army.	B.E.F.	Days under observation.	Temperature.	Age.	Spleen.	Pains (a). Tenderness (b).	Urine.				Blood pressure.		? Trench fever.
												On admission.		On transfer.				
		Days.	Swelling.									Oz. in 24 hrs.	Albumin.	Oz. in 24 hrs.	Albumin.	On admission.	On transfer.	
1	Cough, short of breath. Pains head, back, worse nocte. ? Pyrexia.	14	Feet, testicles. 7	Nil. No P.U.O.	8 ms.	6 wks.	5	Irregular. 99°–96·8°.	41	Felt.	(a) Shins. Worse nocte. (b) Shins.	20	% 1·6	55	% 0·2	172 96	?	Yes
2	Short of breath; "off colour." No pyrexia.	11	Face. 7	,,	7 ms.	13 wks.	9	One day's bout. ? Lung.	40	Normal.	(a) No limb pains. (b) Nil.	22	0·2	55	Tr.	?	?	No
3	Short of breath. Thirst. Thigh pains nocte. ? Pyrexia.	3	Legs. 3	,,	19 ms	2 ms.	11	3 peaks at 3 and 2 day intervals.	29	Enlarged to percussion. Not felt.	(a) Lumbar, "ankles." (b) Lumbar, "ankles."	14	1·5	92	0·8	160 114	146 108	Yes
4	Headache.	2	Face. 1	"Cramps" nocte for 2 months. No P.U.O.	12 ms.	9 ms.	6	Normal.	19	? Normal.	(a), (b) No.	30	Tr.	82	Tr.	146 90	128 95	No
5	Cough. Esp. nocte.	8	Face. 4	P.U.O., Oct., 1917. "Bright's disease" 28 yrs. ago. "Pneumonia" 12 yrs.	18 ms.	5 ms.	4	,,	42	Enlarged to percussion. Not definitely felt.	,,	68	0·1	99	Tr.	174 135	150 95	No
6	General pains. Esp. head, chest, hips, thighs. Short of breath. ? Pyrexia.	10	Face. 6	Nil. No P.U.O.	24 ms.	8 ms.	10	See chart.	36	See chart.	(a) Head, hips, front of thighs. (b) Shins after 2nd peak of fever.	30	1·2	120	0·2	194 100	124 63	Yes
7	General pains. "No use in my legs." ? Pyrexia.	10	Face. 8	,,	7 yrs. 6 ms.	7 ms.	6	Once. 99·5° only.	33	Normal.	(a) Occasional pains whole thigh and leg. (b) Typical the day after pains.	40	1·0	60	0·2	225 118	191 116	? Yes
8	General pains head, back, and calves. Shivers. ? Pyrexia.	7	Face. 7	,,	24 ms.	9 ms.	13	Irregular.	22	,,	(a) Occasional headache only. No limb pains. (b) Nil.	48	1·0	68	0·3	180 124	144 97	? No
9	Coryza. Cough.	6	"Eyes." 3	,,	10 ms.	3 ms.	8	Falling, with one small ? relapse.	18	Enlarged to percussion. Felt decreasing in size after fall of fever.	(a) Stiffness of legs. No œdema. (b) Nil.	30	3·0	86	0·3	165 65	135 50	Yes
10	"Cold on the chest." Aching all over. Shivers. ? Pyrexia.	6	Face and legs. 4	Inflam. of lungs. Age 21. Indefinite history of shin pains nocte.	15 ms.	2 ms.	8	2 peaks with 3-day intervals.	39	Not felt. Enlarged to percussion. Shows periodic variation.	(a), (b) Shins.	22	1·2	63	Tr.	190 103	125 78	Yes
11	Pains "small of back," worse nocte. ? Pyrexia.	23	Face, hands, ankles. 13	Indefinite. History of lumbago. S.F.? as a boy.	15 ms.	2 ms.	11	See Chart.	39	See Chart.	(a) Head, back, shins. (b) Shins	48	0·6	143	0·1	178 95	146 90	Yes
12	Cough. Short of breath. Pains head, back, thigh, and shins. "Hot and cold shivers." ? Pyrexia.	21	Face. 14	Nil. No. P.U.O.	3 yrs. 6 ms.	2 yrs. 3 ms.	9	Two small bouts with 5-day intervals.	28	Felt. Shows periodic variation.	(a) Head. Abdomen. No limb pains. (b) Nil.	102	0·6	74	0·2	175 115	135 85	Yes
13	Coryza. Pains, head and back.	8	No œdema.	"Dropsy," Mar., 1916. "Nephritis," Nov., 1917.	6 ms.	6 wks.	9	See chart.	37	See chart.	(a) Head, back, then shins. (b) Shins.	40	0·3	115	Tr.	110 65	103 75	Yes
14	Cough. Malaise. Shivers. Pains all over. (?) Pyrexia.	2	,,	"Pneumonia," Jan., 1916.	2 yrs. 9 ms.	7 ms	9	Two peaks followed by irregular fever.	30	Felt. Shows periodic variation.	(a), (b) Shins.	52	Tr.	45	,,	115 70	118 65	Yes
15	Malaise. General pains. Shivers. (?) Pyrexia.	7	,,	"Neurasthenia and bronchitis," Feb., 1915.	24 ms.	2 ms.	7	See chart.	30	See chart.	(a) Ankle and knees. (b) Some shin tenderness.	40	0·1	48	0·3	128 78	112 63	Yes

Tr. = trace.

CHART 1.



Illustrative temperature chart of subacute trench fever, showing a "low-geared" pyrexia with a maximum diurnal variation of 4·4° F. This man had suffered ever since he was invalided to England, 19 months previously, on account of "rheumatism."

CHART 2 (CASE 6).

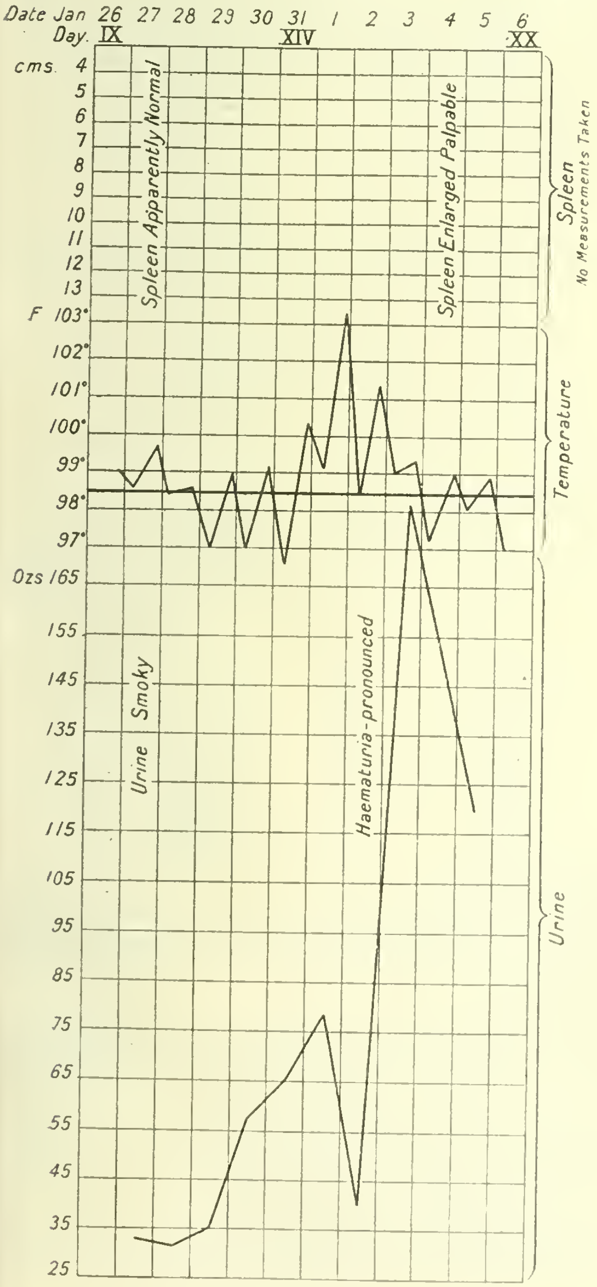
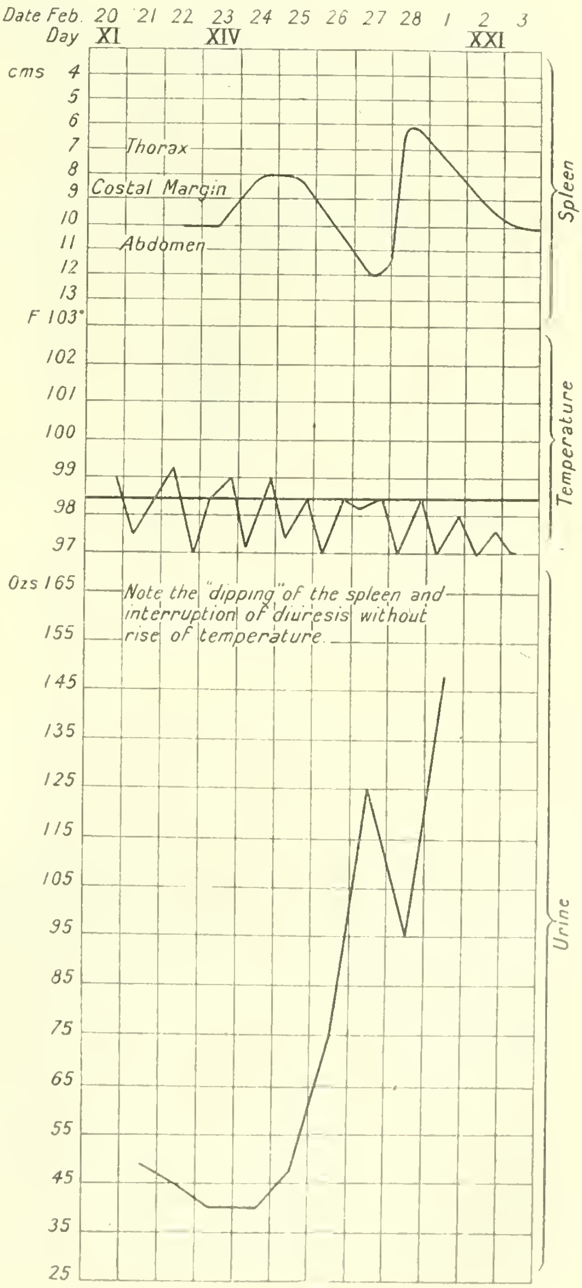


CHART 3 (CASE 11).



Note the "dipping" of the spleen and interruption of diuresis without rise of temperature.

CHART 4 (CASE 13).

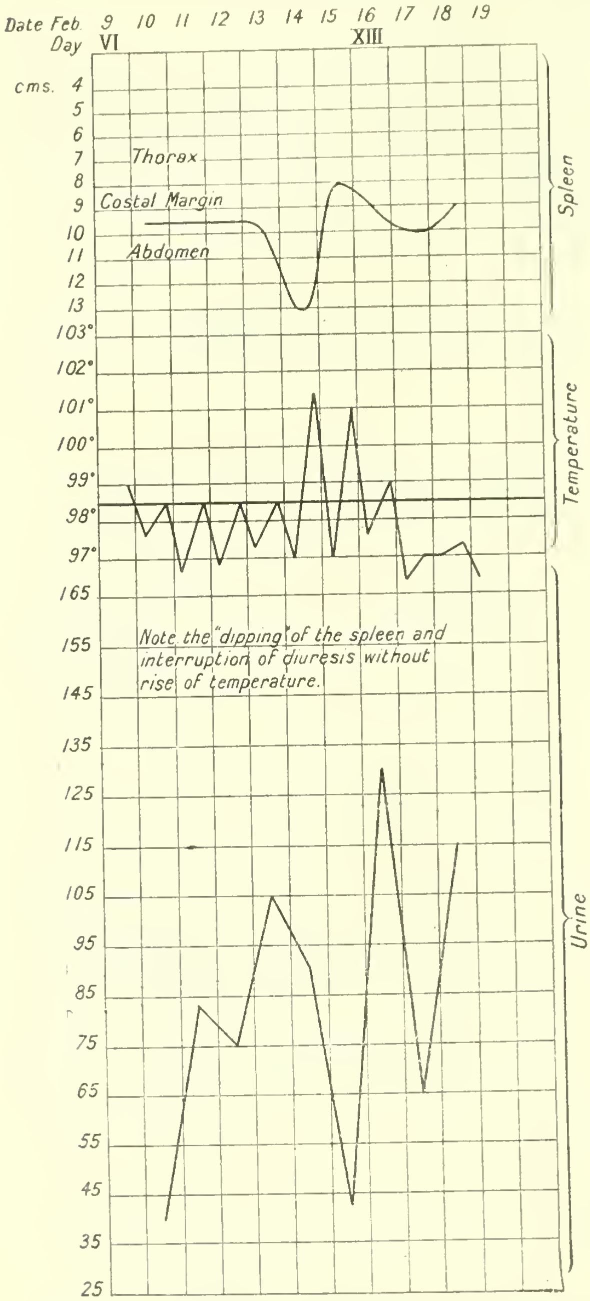
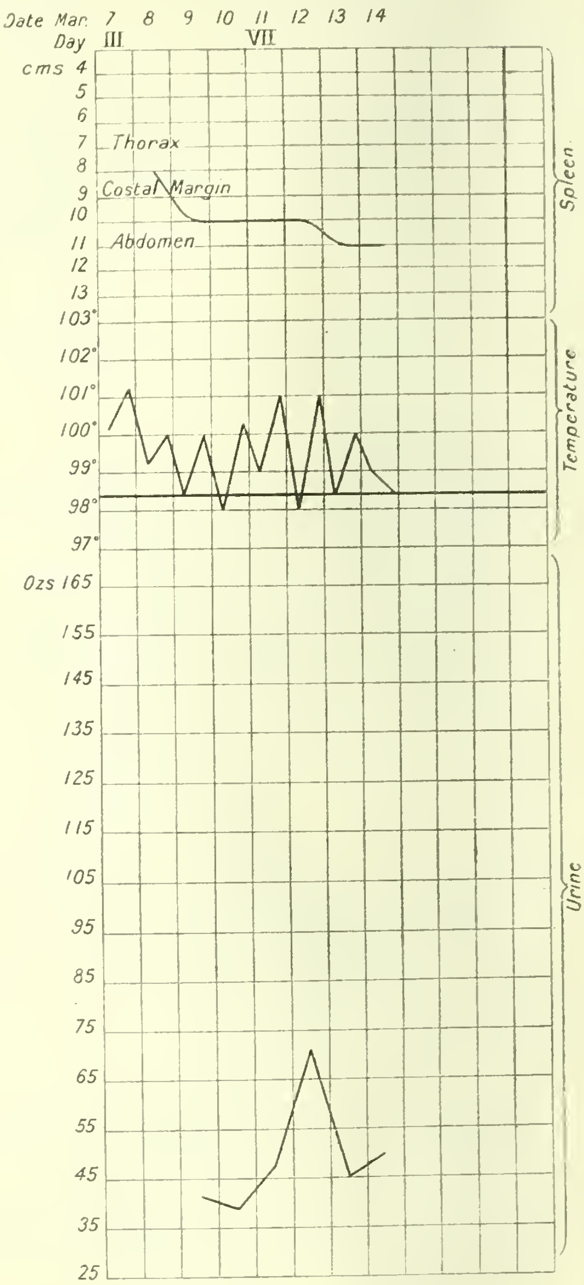


CHART 5 (CASE 15).



may be present in urine. This, to put it in the mildest manner, does not alienate a possible causal relationship between trench fever and war nephritis. Again, Captain H. Maclean, after a thorough investigation, concludes that there is some factor at work which makes a soldier in France more prone to kidney disease than his comrade in a training camp at home. I suggest trench fever, especially in its subacute and more or less neglected form, for place of honour in this connexion. Captain C. P. Symons tells me that whilst investigating urines of trench fever patients he found microscopic blood far oftener than he expected, and suggested that a large number of typical cases should be worked through and controlled to see if the general impression that more cases of trench fever than of other diseases showed urinary microscopic blood. This has not, as far as I know, been done, but would be a valuable investigation.

My own tentative views, put shortly, are :—

(1) That trench nephritis is not a disease sui generis, but is merely a complication to which (probably inter alia) trench fever can give rise.

(2) That the number of cases occurring is greatly increased : (*a*) By the large percentage of men out here who carry in their systems the virus of trench fever in one or other of its phases. (*b*) By the conditions to which these men were exposed.

(3) That the difficulty of recognising the trench fever in the presence of acute nephritis depends : (*a*) On the manner in which even an acute trench fever appears to be overwhelmed, masked, and modified by the onset of nephritis, which thereafter dominates the picture. (*b*) On the presence of trench fever originally in the subacute phase, which even in uncomplicated cases has so often been unrecognised.

I beg permission to anticipate some of the arguments that are likely to be brought against these views.

(1) My cases are "too few on which to found a convincing argument." I grant this and merely publish them

as they were sufficiently numerous to suggest to me the possibility of trench fever as a causal agent in the occurrence of certain of the cases of war nephritis, and in the hope that they might interest others who would bend their energies to solving the problem.

(2) "The incidence of trench fever is so very large that it is only reasonable to expect that some of the victims will also develop nephritis." (*a*) The incidence of war nephritis is (or was until recently, curious to say) also very large, and it is the large number of both diseases that suggests an inter-relationship. (*b*) It may be reasonable, but it is not usual, to find two diseases active at the same time in the same person without having some close relation—closer than is implied by a "lowered resistance" brought about by the first disease to attack; and as close perhaps as the development of endocarditis in a person suffering from rheumatism. The development of orchitis in a man suffering from mumps is not sufficiently explained by saying that so many cases of mumps occur that it is only reasonable to expect some of them to develop orchitis.

(3) It has been suggested that "the special type of trench fever" that develops hæmaturia may really be "an aberrant form of trench fever." Is the special type of syphilis that develops a tabo-paresis an aberrant form of syphilis? These "special type" cases of trench fever that I have seen—very many—were aberrant in no particular. They were the classical common type of trench fever plus a bloody urine. If an inspection of the urine were omitted they would undoubtedly always be sent on as "trench fever."

(4) "No nephritis developed in 50 cases to whom trench fever was experimentally transmitted." Did any of these cases march with a full pack, eat an ordinary meat ration, and sleep in a wet dug-out, and how carefully were urinary changes sought for?

(5) "The presence of trench fever cannot be proved, for there is no authentic test for it." Neither was there any authentic test for the presence of syphilis or enteric fever when their protean manifestations were unerringly brought home to them.

(6) "The incidence of trench fever does not run parallel to that of war nephritis. The fever is increasing, the nephritis receding." There are too many unknown factors and conditions for this argument to hold. The better diagnosis that has resulted from the work done on trench fever and the D G.M.S. circulars is probably one of these factors. The earlier diagnosis of these cases, whilst increasing the apparent incidence of trench fever, reduces the number of formerly unrecognised and uncared-for cases that would probably have gone to increase the incidence of nephritis.

I should not have trespassed so much had it not been for the importance of the views I have endeavoured to set out as a possible working hypothesis, and I write in the hope that others more able than myself may be tempted to investigate them with the object of raising them to something more stable than a mere hypothesis.

My thanks are due to Colonel J. Graham Martin for his permission to publish these cases.

Clinical Notes:
MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A CASE OF SACCULATED ANEURYSM OF THE ABDOMINAL AORTA.

By H. A. Haig, M.B., B.S Lond.,
CAPTAIN, R.A.M.C. (T.C.); FORMERLY BACTERIOLOGIST AND PATHOLOGIST TO —— GENERAL HOSPITAL, E.E.F.

The following case of sacculated aneurysm of the abdominal aorta, with erosion of dorsal vertebræ, and rupture of the aneurysm through the diaphragm leading to hæmothorax and sudden death, occurred at No. —— General Hospital, E.E.F., during 1917, and seems to be worthy of record.

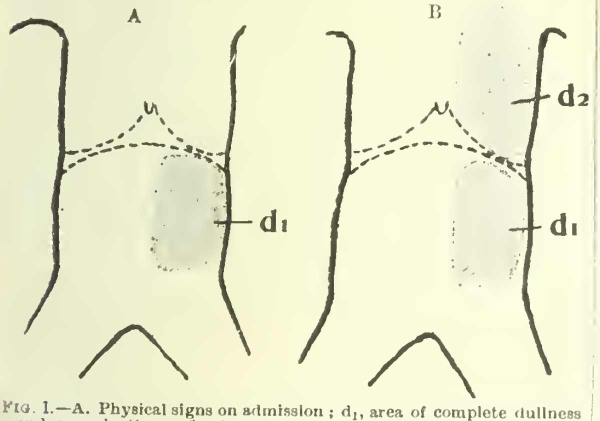


FIG. 1.—A. Physical signs on admission; d_1, area of complete dullness and on palpation a fixed tumour with no pulsation. B. Condition just before death; d_1, original area of dullness unchanged; d_2, area of dullness due to a sudden pleural effusion.

Account of Case.

Pte. —— was admitted to hospital with symptoms suggestive of malaria, the physical signs with regard to the splenic area and left side of abdomen being (1) almost complete dullness over the left hypogastric and iliac regions; (2) absence of pulsation; (3) on palpation a large tumour, which seemed fixed and did not move with the respirations. This tumour was provisionally taken to be the enlarged spleen. (See Diagram I., A.) Two days later the patient developed a *sudden* left-sided pleural effusion (see Diagram I., B.), and died in about ten minutes.

The post-mortem findings were as follows (see Diagram II., C. D.). 1. The left pleural cavity was filled with soft recent red clot, which weighed approximately 1 lb. 14 oz. 2. The abdominal aorta showed two aneurysmal dilatations—i.e., a small one on the right side close to the aortic aperture in the diaphragm, and a relatively enormous left-sided sacculated aneurysm which filled the left side of abdominal cavity. The latter aneurysm was adherent above to the diaphragm, and upon opening the sac it was found that perforation of the diaphragm had occurred, a communication between the upper part of the abdominal aorta and the left pleural cavity being thus established. The cavity of the sac was filled with partially organised, and in the centre more recent, clot. 3. The ninth, tenth, and eleventh dorsal vertebræ had been deeply eroded by the aneurysm. 4. The thoracic aorta and the undilated part of the abdominal aorta showed numerous areas of atheroma in the endothelium and subendothelial layers, and the first part of the arch of the aorta showed an aneurysmal dilatation which would later have developed into the sacculated type.

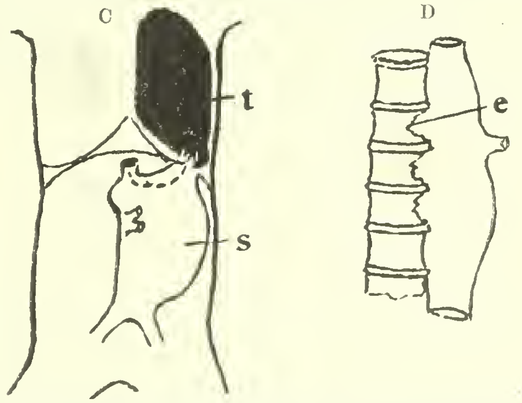


FIG. 2.—C. Main post-mortem findings; s, sac of aneurysm, adherent above to under-surface of diaphragm (the arrow indicates the course of the blood from aorta through perforation in diaphragm into left pleural cavity); t, large hæmothorax (clot). D. Erosion of dorsal vertebræ by aneurysm.

Remarks.

The perforation of the diaphragm and subsequent sudden pouring of blood from the aorta into the left pleural space did not lead to any disappearance of dullness from the abdominal tumour, owing to the fact that, as was established post mortem, the sac was almost entirely filled with organising clot. The case is interesting clinically as showing that, apart from laparotomy or death, the nature of this tumour would have remained in all probability undiagnosed for some time. Nothing, of course, could have been done for such a condition, the aneurysm being probably one of the largest on record.

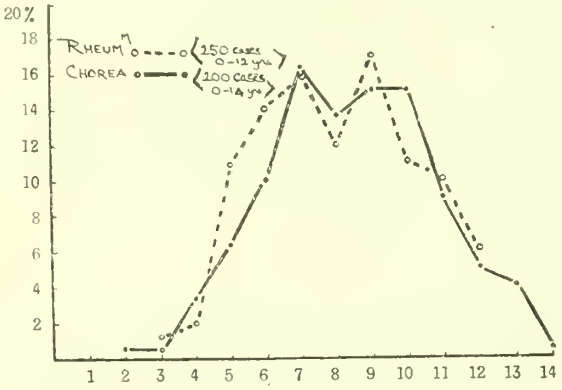
My thanks are due to Colonel H. E. R. James, C.B., R.A.M.C.

A NOTE ON THE

RELATION BETWEEN CHOREA AND RHEUMATISM.

BY H. L. CRONK, L.R.C.P. LOND., M.R.C.S.,
LATE CAPTAIN, ROYAL ARMY MEDICAL CORPS.

THE relationship between chorea and rheumatism in childhood is shown in a striking manner in the accompanying figure.



The curve for rheumatism is derived from Still's "Common Disorders and Diseases of Children," where the graph is upon an analysis of 250 cases with an upper age-limit of 12 years. That for chorea was prepared from the materials contained in the histories of 200 unselected cases of the disease, at ages from 2–14 years, seen in the children's out-patient department at St. Bartholomew's Hospital.

NOTES ON A CASE OF

"IDIOPATHIC TETANUS"; RECOVERY.

BY W. B. COSENS, M.R.C.S., L.R.C.P.,
MAJOR, R.A.M.C.; HONORARY SURGEON, DORSET COUNTY HOSPITAL.

A MALE patient, aged 44, consulted me in view of an operation for hæmorrhoids. Examination showed a ring of hypertrophied skin and veins occupying the whole of the muco-anal margin, but not extending beyond the mid-point of the sphincter area. Urine was normal. The operation was performed at his residence, Vernon's method being adopted, the ligated margin being dabbed over before and after the operation with freshly made tincture of iodine. On the fifth day he complained of some stiffness in the muscles of the neck; this was much increased on the sixth day, there were also pain and increased tension in the lower abdomen; by the eighth day the muscles of face, neck, chest, abdomen, and adductors of thigh were in a state of tonic spasm. Owing to enforced absence, I did not see him on the fifth, sixth, and seventh days, and thus valuable time had been lost. On the twelfth day the general symptoms were slightly in abeyance. Up to the sixteenth day his condition was most serious; violent muscular contractions occurred almost every 15 minutes, involving the whole body; laryngeal spasms were severe, and at times his life was despaired of; there was complete retention of urine, and the passage of a catheter set up general convulsions. The appearance of the wound seemed normal. Chloroform was administered frequently to relieve the convulsions, and antitetanus serum and muscular injections of carbolic acid were administered as stated below. The last general convulsion occurred on the nineteenth day, but seemed more apparent than real, the patient having developed a "terror" that one was coming.

Personal history.—With the exception of complete paresis of one lower extremity, due to infantile paralysis, there is nothing to record. A possible sidelight as to the causation of the disease was that he had recently attended a patient who shortly after developed tetanus.

Treatment.—On the 8th day after operation an injection of 1000 units of antitetanus serum was given intramuscularly. On the 12th and 16th days 500 and 2000 units, respectively, were given intrathecally; on the latter day combined with 500 units intramuscularly. On each of the 17th, 18th, 19th, 20th, and 22nd days, 1500 units were given intramuscularly. Total quantity of serum, 11.500 units. A hypodermic injection of 10 minims of a 5 per cent. solution of carbolic acid was given every two hours throughout this period.

Remarks.—Undoubtedly the bacillus of tetanus was in the intestine. Bacteriological examination of the catgut used at the operation proved it to be sterile. I had not seen, and the nurses in attendance had not had the care of, any infected person. I regret that a culture was not made from the discharges in the region of the anus; the struggle and anxiety to keep my patient alive is my excuse for overlooking this interesting factor. The efficiency of the serum was undoubted, while possibly the injection of carbolic and the administration of chloral by mouth helped. The intrathecal injections, compared with the intramuscular, quickly relieved tension of muscles and demonstrated the more rapid action of the remedy, as shown by the marked reaction, lasting 24 hours. To-day, 18 months since the operation, he is in better health than he had been for several years. My personal responsibility was greatly lessened by valuable assistance received from Dr. G. G. Morrice and Dr. B. W. N. Gowring.

Criticism.—The delay in commencing treatment was a misfortune. Considering the violence of the symptoms, an intrathecal injection should have been given at the commencement of the disease. The very marked reaction prevented its use more often. The value of the carbolic injection, and administration of chloral is problematical, whereas the intrathecal injection of serum left no doubt as to its efficiency when rapidity of action is required.

A LONG-RETAINED FOREIGN BODY IN BRONCHUS.

BY A. W. LEMARCHAND, M.R.C.S., L.R.C.P. LOND.

THE following case is of interest as the foreign body—a rabbit's vertebra—remained in a bronchus four years before being expelled by coughing.

In August, 1915, a middle-aged woman of 50 was eating her dinner, consisting of rabbit and vegetables, when "something went the wrong way." She was seized with dyspnœa and cough. After a few weeks the following symptoms became chronic and did not change. Spasmodic cough and dyspnœa. There was constant expectoration, which tended to settle in three layers, as in bronchiectasis. She was always a little husky. Percussion was always slightly against her left apex in front, over a space about the size of the palm of the hand under the left clavicle. No breath sounds were heard over this area. She had one or two attacks of slight bronchitis during the following four years which accentuated her symptoms. An X ray examination did not reveal any foreign body. In April, 1919, after a violent fit of coughing, she brought up a cervical vertebra of a rabbit. This was white, quite dry, and complete except for one transverse process; a little blood was coughed up—about half a teaspoonful. Within 36 hours all cough, dyspnœa, and expectoration had ceased. Air was heard to be entering freely all over the "dumb" area.

The bone is in St. Bartholomew's Hospital museum. On looking at it dry, stripped of all "meat" covering, one wonders how it got past the vocal cords on its upward journey.

WORTHING HOSPITAL.—The governors of Worthing Hospital, at the annual meeting on Sept. 26th, approved of a scheme for the provision of a maternity ward, wards for paying patients, and a general surgical ward as a war memorial. Other business included the alteration of a rule allowing three women to sit on the committee of management.

A WAR MEMORIAL HOSPITAL.—At a public meeting held at the Town Hall, Chipping Sodbury, under the presidency of the Duchess of Beaufort, it was decided to erect a war memorial hospital for Chipping Sodbury and the district. £1250 has been promised, and a committee has been elected to raise the necessary funds.

Reviews and Notices of Books.

The Style and Literary Method of Luke. Part I. The Diction of Luke and Acts. By HENRY J. CADBURY, Associate Professor of Biblical Literature and of Greek, Haverford College. Cambridge: Harvard University Press; London: Humphrey Milford. 1919. Pp. 72. 5*s.* 6*d.*

THE first part of this treatise, which forms No. VI. of the Harvard Theological Studies, is concerned with a matter with which it is outside our province to deal—namely, a purely textual criticism of the language of the Acts of the Apostles and of the Gospel according to St. Luke. But the latter portion of the work deals with the question of the alleged medical language employed by the writer of the third Gospel. It is in the main an examination of the work by Dr. W. K. Hobart, published in 1882, entitled "The Medical Language of St. Luke," in which the author endeavoured to show, and—according to many scholars such as Ramsay, Chase, Zahn, and Harnack—was successful in showing, that the language of the third Evangelist had a distinctly medical tinge, although in reviewing Dr. Hobart's book at the time of its appearance we felt that the author proved too much. Professor Cadbury, however, argues that "the question that presents itself, therefore, is not whether there are many parallels between the diction of Luke and that of the medical writings, but whether these parallels are more numerous or more striking than those which can be found in non-professional men writing with the same culture as Luke and on similar subjects." And he applies a test which, although he allows that it gives incomplete results, yet shows that there is no striking difference between St. Luke's use of medical terms and those of at least one non-professional contemporary, the contemporary in question being Lucian. A general examination of Lucian's works showed 300 medical words which are also to be found in Hobart's list of 400 medical words in St. Luke, while a more particular examination of three books of Lucian—namely, the Alexander, the second part of the True History, and the Pergrinus, forming in all a work about half the size of The Acts, and the Third Gospel contained 115 of Hobart's 400 words. Professor Cadbury therefore considers that the use of the medical words cited by Hobart is not enough to enable us to argue that St. Luke was necessarily a medical man.

Anæsthesia and the Nurse's Duties. By A. DE PRENDEVILLE, LL.B., M.R.C.S. With an Introduction by Sir JAMES CANTLIE, K.B.E., F.R.C.S. Eng. London: William Heinemann (Medical Books), Ltd. Pp. 100. 3*s.* 6*d.* net.

THIS manual is intended to provide such information in anæsthetics as should be required by the nurse. The treatment of this subject, as the title states, is on somewhat novel though certainly needed lines. The idea of this desirable addition to the training of a hospital nurse originated by the authorities of Charing Cross Hospital deciding in 1915 that lectures on anæsthetics should form part of their curriculum. The interest these lectures created led the author to publish them, although he did not live to see his book issued. He starts out with the object of interesting his audience by some remarks on pain and an historical sketch of the discovery of nitrous oxide gas, chloroform, and ether. The preparation of the patient for the anæsthetic, the points to be noted by the nurse during and after operation, and the various inhalation methods are gone into. Spinal and local anæsthesia are mentioned. The chapter on the preparation of apparatus might with advantage be greatly extended. Emphasis should certainly be laid on the correct coupling up of the bellows to a Junker bottle. Additional attention on the part of the nurse, as well as that of the anæsthetist, might prevent the occasional accident which has happened through the bellows being attached to the delivery tube. The fixing up of nitrous oxide and gas oxygen apparatus, the need for washers in the union joints, the reassembling of a Hewitt gas oxygen chamber, the undesirability here of filling up the oxygen holes with the powder used to clean it, the replacement of worn or curled up valves, the taking to pieces of a Clover inhaler—all these are points which might be referred to with advantage. In general this little work will prove a useful guide.

In a leading article in THE LANCET of Sept. 27th we dealt with the proposition that the administration of anæsthetics should be part of the nurse's duties, and were quite unable to support it, but this does not mean that we do not see the advantages of such training for nurses as Dr. de Prendeville instituted at Charing Cross.

JOURNALS.

The Journal of Physiology. Edited by J. N. LANGLEY, Sc.D., LL.D., F.R.S. Vol. LIII., Nos. 1 and 2. Cambridge University Press. 1919. Pp. 1-146 + pp. liii. 10*s.*—The Influence of the Nervous System on Glycæmia and Glycosuria, by J. Mellanby. The majority of the experiments were done on cats either anæsthetised or decerebrated after preliminary anæsthetisation. The urine was collected by means of a cannula tied directly into the bladder. It was found: (1) That urine obtained experimentally from anæsthetised animals contains dextrose whatever the anæsthetic used. This glycosuria is associated with hyperglycæmia, which may amount to 0·6 per cent. of dextrose in the blood. (2) The factors responsible for the hyperglycæmia and consequent glycosuria are (*a*) the anæsthetic and (*b*) afferent nerve stimulation by operative procedure, afferent nerve stimulation being much the more potent. (3) Urine from decerebrate animals contains dextrose, and this glycosuria is associated with hyperglycæmia. (4) If the entire brain of an animal be destroyed, then, after the initial hyperglycæmia and glycosuria due to the anæsthetic and operative procedure have passed off, the urine subsequently secreted contains no dextrose. (5) After the urine of a spinal animal has been freed from sugar afferent nerve stimulation or anæsthetics no longer cause hyperglycæmia and glycosuria. (6) The continued glycosuria of the decerebrate animal compared with the transient glycosuria of the spinal animal cannot be assigned to differences in the blood pressure between the two animals. The author explains these facts on the hypothesis that the sugar content of the blood is under the control of some portion of the brain situated between the cerebrum and cord. The glycæmic centre is discharged by impulses passing to it by an afferent nerve and inhibited by impulses from the cerebrum. Removal of the cerebrum from the control of the animal either by experimental decerebration or by anæsthetics causes the overaction of the glycæmic centre with consequent hyperglycæmia and glycosuria.—Observations on Cyanide Anoxæmia, by C. Lovatt Evans. The author's object was to ascertain whether such doses of cyanides as temporarily inhibit respiratory exchange owe their physiological effects solely to the production of a sudden anoxæmia. The mode of action of cyanides is discussed and the following conclusions arrived at: 1. While large doses of cyanide are irreversibly toxic, doses of the order needed greatly to depress the oxygen metabolism appear to exert all their physiological effects by reason of the anoxæmia which they produce. Such doses would be about 0·5 mg. of sodium cyanide per kg. intravenous for the cat or a concentration of *m.*/200–*m.*/500 for the excised frog or mammalian tissues. 2. Anoxæmia produced by the administration of cyanides differs from that caused by exposure to or respiration of indifferent gases in the extreme suddenness of the onset and the slowness of resolution; otherwise the effects appear to be identical as regards plain, striated, and cardiac muscle, nerve and nerve centres, and general physiological effects. 3. The response of the vascular system to adrenalin or to splanchnic excitation, and of the heart to vagus excitation, are reduced or abolished in extreme anoxæmia.—The Reaction and Carbon Dioxide Carrying Power of Blood: A Mathematical Treatment, Part I., by T. R. Parsons. The theoretical interpretation of the state of combination of carbon dioxide in the blood is still so obscure that the author's mathematical investigations are welcome. In a system composed of carbonic acid and one other weak acid, with a fixed total amount of sodium distributed between them, it was found that the CO_2 dissociation curve of blood is identical with that possessed by such a system. The proteins of the blood constitute the second weak acid, which shares with the carbonic acid the available sodium of the blood. The relative importance of the various blood proteins in this connexion is undecided, but it is likely that by far the most important part is played by hæmoglobin. The concentration of the "available" sodium was calculated, and it was found that oxygenation does not change this concentration. The whole of the combined CO_2 of the blood is in the form of bicarbonate, but the proteins present in the blood confer on it a property which a pure solution does not possess, namely, that of forming an efficient carrier for CO_2.—The Response to Respiratory Resistance, by H. W. Davies, J. S. Haldane, and J. G. Priestley. It is well known that the breathing adapts itself to increased resistance, such as that produced by various lung affections, use of respirators, mine-rescue apparatus, &c., but, so far, no very definite investigations have been made as to how the adaptation is brought about and at what point it begins to fail. This investigation partly fills the gap. The experiments were made on man, the subject breathing through a modified form of the special apparatus usually employed for determining respiratory exchange. The authors summarise their results as follows: 1. The normal response to respiratory resistance is slowing and deepening of the breathing. 2. With excessive resistance the respiratory centre begins after a time to become fatigued, and the breathing, as an equally natural consequence, becomes shallowed and more frequent. 3. Anoxæmia hastens greatly the onset of fatigue and the ease with which it is produced. This explains the characteristic action of anoxæmia in producing relatively shallow and frequent breathing. 4. As shallow breathing itself is both a result and a cause of anoxæmia, a vicious circle of a very dangerous kind is apt to be produced by anoxæmia or any other cause which tends to impair the vigour of the respiratory centre. The immediate cause of death, therefore, in many cases, is due to failure of the respiratory centre.—Studies in the Regeneration of Denervated Mammalian Muscle. I., Volume Changes and Temperature Changes; II., Effect of Massage. By F. A. Hartman, W. E. Blatz, and L. G. Kilborn. It is known that one of the immediate results following section of a nerve to a muscle is a dilatation of its blood-vessels, with increase in the volume of the limb; the temperature of a muscle is also increased after denervation. The authors studied the volume changes in anæsthetised cats (urethane) by means of a plethysmograph. As to volume changes, the maximum dilatation of the limb occurs from two to six hours after denervation. The extent of this dilatation is probably a little more than 2 per cent. of the total volume. In some individuals constriction of the denervated limb begins soon after the maximum dilatation has been reached. In others constriction may not begin for a few hours after this time. Complete recovery of the original volume occurs in many cases within 24 hours. There may be an "over-recovery" as time goes on. Constriction of the denervated limb may take place without a proportionate lowering of the limb temperature. Concerning temperature changes, the duration of the increased temperature resulting from denervation is exceedingly variable. In many cases there is an "over-recovery" of the temperature. This occurs from a few days to several weeks after denervation. Increased circulation and fibrillation do not seem to account entirely for the maintained supernormal temperature of a denervated limb. The effects of massage were studied on rabbits. Without going into details, it would seem that the authors' observations indicate that massage of denervated muscle is slightly beneficial. Further observations are promised.—Vaso-motor Centres. Part I.: Effect of Strychnine on Blood Pressure in the Spinal Animal, by J. N. Langley. The opinion generally held to-day appears to be that strychnine has little direct action on spinal vaso-motor centres. Experiments made on decerebrated and curarised cats after section of the spinal cord show that if the excitability of the cord is not decreased by feeble circulation a large rise of blood pressure is caused by a small amount of strychnine (0·5–1·0 mg.). The maximum rise obtained is nearly as great as that obtained in the bulbo-spinal animal. Thus the theory that all vascular reflexes are bulbar falls to the ground. Strychnine causes a quick and large rise of blood pressure in the decapitated cat after excision of the suprarenal glands. The difference between the amount of strychnine which causes no rise of blood pressure and that which causes a maximal rise is small. After a large rise of blood pressure has been produced by about 1 mg. of strychnine, subsequent injections cause a small and decreasing rise followed by a fall below the original level until the effect becomes trivial. When the effect has become trivial and the blood pressure is raised by adrenalin or by stimulation of the spinal cord, the injection of 10 or more milligrammes of strychnine may cause a quick primary fall of blood pressure. The fall so produced is of peripheral origin. When repeated small amounts of strychnine are injected, no large rise is produced by any subsequent amount. It is inferred on the theory that strychnine stimulates some central nerve cells, that the degree of stimulation depends upon the rate at which strychnine is taken up, and that when successive small amounts are given it is gradually taken up nearly to saturation point. The centres causing muscular movement and those causing rise of blood pressure are not connected in the spinal cord.

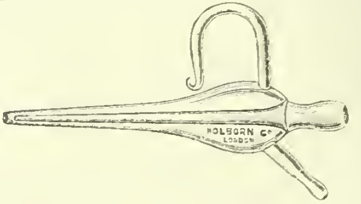
There are also contributions on the following subjects: The Response of Human Sensory Nerves to Currents of Short Duration (E. D. Adrian); A Study of Season Changes in Avian Testes (Alexander Watson); A Simple Photographic Method of Registering Vertical Movements on a Horizontal Plane (D. S. de Waard); Neuroglia and Non-medullated Fibre in Nerves (Winifred Parsons); Acquired Tolerance for Alcohol in the Frog's Heart (Fred Ransom).

In the *Military Surgeon* (Washington, D.C., U.S.A.) for August Captain Shivers describes the administrative measures taken in a large camp in New Jersey in order to deal adequately and speedily with each of the 350 to 400 venereal cases seen daily. Every needed diagnostic aid was available, and when the patient's history and treatment had been succinctly recorded he received prescription and treatment without possibility of evasion. The patients were formed into battalions and divided into platoons according to the severity of their disease. The first platoon (acute cases) remained in bed; the second platoon (improving) were allowed up, and did the arm movements of physical drill; the third platoon did arm and half of the leg exercises; the fourth platoon did all the exercises, and were not sent to duty till they had been well for a fortnight. Complications are reported as rare.—Major Herbert Fox gives a very interesting account of measles epidemics in another large camp, this time in Kentucky, between October, 1917, and November, 1918, aggregating in five waves some 3000 cases. The first outbreak—October to December, 1917—consisted of 970 cases, including serious pneumonia (8 per cent.) and empyema, mainly due to the pneumococcus. The second outbreak—in March, April, and May, 1918—comprised 414 cases, of which 13 per cent. developed pneumonia, due mainly to the hæmolytic streptococcus which occasionally even gave rise to septicæmia. The cases in the summer and early autumn were numerous but slight. In September, October, and November, 1918, there were 865 cases; 13 per cent. of these developed pneumonia, and more than a third of these died. The pneumonia on this occasion was due mainly to the hæmolytic streptococcus, but also to the pneumococcus (generally Type IV.). In November two different epidemics, measles and influenza, were prevalent independently. The sharp rise in measles preceded that in influenza by a fortnight, but the influenza epidemic reached its maximum immediately, and was over before the measles epidemic (which took five weeks to develop) attained its peak. The mortality curves were also independent. The measles mortality was highest in the first four weeks (particularly in the first fortnight, before the influenza had appeared at all), while the influenza mortality was still rising when that from measles had begun to fall, and did not reach its climax till ten days after the epidemic itself had begun to fade. As to prevention, sheets were hung across dining tables to prevent men coughing into one another's faces, entertainments were held as much as possible in the open air, and the men's work was lightened. The most beneficial change was to lay the responsibility for a man "going sick" not on him, but on the medical officer, who had to inspect all the men of his group every day. Men were thus isolated when they first began to be ill, and, indeed, before they themselves realised they were ill. Pneumonia decreased when all cases had their throats swabbed weekly and all carriers of *Streptococcus hæmolyticus* (46 per cent. of all cases) were isolated in special "infected" wards.

New Inventions.

A NEW URETHRAL ALL GLASS TWO-WAY IRRIGATING NOZZLE FOR GONORRHŒA.

THE instrument shown in the illustration has been designed by me to allow a free stream of the irrigating fluid to wash out the whole of the anterior urethra. The glass handle prevents the staining of the patient's hands when permanganate of potash is being used. The urethral end of the instrument should be greased with lubafax (Burroughs, Wellcome and Co.) and inserted for one inch. The nozzle is attached to the irrigation jar by flexible tubing and a stopcock. The jar may be raised up to six feet in height and pressure may also be increased by telling the patient to block up the exit pipe with his first finger. It has proved by long experience to be one of the most effective nozzles for irrigation in acute gonorrhœa. The nozzle is made by the Holborn Surgical Instrument Company, 26, Thavies-inn, London, E.C.



A. C. MAGIAN, M.D.,
Hon. Surgeon, Manchester French Hospital;
Manchester. Hon. Surg., Wood Clinic for Genito-Urinary Diseases

THE LANCET.

LONDON: SATURDAY, OCTOBER 11, 1919.

An Experiment in Public Medical Service.

THE Ministry of Health is now in being with three out of four advisory committees appointed. But the Medical Services Bill, which will define its executive powers, has yet to be framed, and now is the time for consideration of the many schemes brought forward. No pronouncement has yet been made on the question of what is generally known as the State Medical Service. Of course, the Ministry of Health is at the head already of an important State service of steadily increasing scope, including medical officers of health, Poor-law doctors, the School Medical Service, the medical staffs of infant welfare and venereal clinics, to which will doubtless be added within a short time the asylums medical staff. In another sense, insurance practice is a State service. And the conception of a State Medical Service has suffered much from loose thinking and from looser expression, many people disregarding these various activities on the part of the State, speaking as if some new form of State organistion would, or should, replace them. It may, therefore, not be amiss to study with care a scheme for a Public Medical Service, issued by the Glasgow Fabian Society,[1] and worked out accurately and painstakingly in relation to local conditions by Dr. DAVID MCKAIL, lecturer on forensic medicine and public health at St. Mungo's College, Glasgow, and Mr. WILLIAM JONES, clerk and treasurer to the Glasgow Burgh Insurance Committee. Of the fitness of the two authors for their task nothing further need be said. They begin by criticism of the present insurance practice which, from their point of view, carries its own condemnation in the failure to provide any form of institutional treatment, and in its limitation to insured persons, who form only about one-third of the total population. They propose to build up a complete medical service ensuring unrestricted treatment for every citizen who may require it, involving the enrolment of the medical profession and the public control of general hospitals and infirmaries.

Along this path many have gone before them, but a concrete basis was afforded for Dr. MCKAIL'S and Mr. JONES'S scheme by the war shortage of medical help, when for a time dispensaries were established in Glasgow for centralising the patients of absent doctors. A report, drawn up in 1915 by the local branch of the British Medical Association, divided the city into a number of districts of convenient limits. The first table in the author's pamphlet shows the population of these districts and the number of doctors having consultation rooms within them. In the Whitevale district, with a population of some 50,000, a consultation centre was established in a large and commodious hall which worked with complete satisfaction to all concerned during the time of its operation. Bridgetown, of approximately 100,000 inhabitants, is taken as the actual object of the study, the authors regarding a hundred thousand as a convenient unit for a comprehensive scheme. The volume of sickness is then studied for this sample population. The bulk of medical attention to insured persons is, quite naturally, required by persons of the later age-groups, and the analogy of comparative mortality figures at various ages has enabled the authors to estimate the volume of sickness to be expected. The annual number of dispensary visits to be anticipated per unit of population works out at 3·11, varying from a maximum of 7·50 at ages 0 to 1 down to 1·32 at ages 15 to 25, the rate per unit at ages 45 to 65 being 4·96. Domiciliary visits are reckoned for the area concerned at one-quarter the number of dispensary visits. The staff required to deal with this known volume of work is then calculated. It is assumed that on the average each medical officer will overtake a minimum of ten consultations or four visits per hour, and, allowing for a 33-hour working week plus a turn of orderly duty as required, the medical staff numbers 27; 25 per cent. is then added for the known seasonal increase of sickness occurring in the early spring months, a personnel of 33 all the year round providing for release at an annual holiday in the summer or autumn months without the need of appointing temporary substitutes. The next calculation shows the average number of births in the sample population to be between 9 and 10 per day with little seasonal variation. Two visits at least to all parturient women implies a further addition of four to the medical staff. Minor ailments are to be dealt with in the general section of the dispensary, and as far as possible in the mornings, the whole of the accommodation being available in the afternoons for nine special subdivisions—namely (1) minor surgery and orthopædics, (2) diseases of the eye, (3) diseases of the ear, throat, and nose, (4) skin diseases, (5) tuberculosis, (6) venereal diseases, (7) electrical and X ray treatment, (8) special diseases of women, and (9) maternity and infant welfare. It is assumed that of the medical staff to be appointed nine would possess such special knowledge or skill in one of the departments specified as would qualify them for appointment as senior medical officers. On the same basis of a 33-hour week this implies a further addition of five to the medical staff, making a total of 43 in all, excluding institutional and consultant service. In proportion to experience and responsibility the medical staff is graded as junior medical officers (of at least five years approved service), medical officers, and senior officers—the latter 10 in number, nine of whom are attached to their appropriate sections, the remaining one being in charge of the general section of the dispensary and acting as deputy superintendent. A superintendent completes the staff. The short working week would afford ample time to the junior officers for post-graduate and special study with a view to advancement in the service. The remaining sections of the pamphlet deal with nursing, dental treatment, drugs and appliances, and institutional treatment in the same practical and well-informed manner. The cost of the medical and nursing staff, allowing for salaries of £500–£700 for the medical officers and £800–£900 for the seniors, works out at 6*s.* 5½*d.* per head per annum, allotting 3*s.* 0½*d.* for general treatment (including tuberculosis), 1*s.* 9½*d.* for infant welfare and married women, 1*s.* 1¾*d.* for maternity attendance, and 5¾*d.* for special treatment. The authors point with emphasis to the fact that this figure, while including very much more than the general practitioner service of insurance practice, is still below the 7*s.* capitation basis. Later it is shown that dental treatment, drugs, and administration will bring the figure up to 8*s.* 1¼*d.*, while 4*s.* 9½*d.* is still to be added for institutions, making a grand total of 12*s.* 10½*d.* per head per annum. This in the city of Glasgow would amount to a charge of 1*s.* 10*d.* in the £, imposed in the same manner as the public health assessment, divisible equally between owner and occupier. To set against this is the cost of medical benefit which would be saved, as well as that of special dispensaries for infant welfare, the treatment of venereal disease, the outdoor treatment of the pauper, and so forth. The long-suffering ratepayer would not be the loser thereby.

---

[1] To be obtained from the Fabian Society, 25, Tothill-street, London, S.W. 1, or from Geo. Allen and Unwin, Ltd., London Price 1*s.*

The pamphlet is remarkable alike for its almost bewildering abundance and accuracy of data and for its quaint phrasing and scriptural instance. Its signal merit consists in the possibility it suggests of putting theory to the severe test of working conditions. Concerning the "free choice of doctor," the authors point out that this cannot operate with the establishment of dispensaries, and it appears that since the inauguration of the panel system in 1913 the Glasgow populus has done little enough to exert any free choice. Doctors whose rooms were on the main streets acquired on that ground much larger panels than colleagues living around the corner. Practically no use has been made of the fresh choice of doctor allowed at the end of the year, and in the few instances of transfer this has been made for reasons other than personal dissatisfaction. Thus the public medical service suggested has no avoidable drawback for the patient. For the doctor the limitation of hours and guaranteed adequate income are achieved by avoiding the waste of time and energy in connexion with existing practice. In the summer of 1915 it was the fact that half-a-dozen doctors' motors could often be seen in the same neighbourhood that suggested the establishment of consultation centres, and in Scotland, as elsewhere, two practitioners may each travel a considerable distance over the same road to attend two or three patients in an outlying village. Comprehensive treatment for the patient, reasonable conditions of work for the doctor, and economy for the ratepayer, are apparently all involved in the Glasgow scheme. It is difficult to avoid expressing the desire that the authors should have the opportunity of testing their own plan in the district in which they have worked it out. Success or failure alike would afford much-needed experience.

◆

The Working Capacity of the Disabled Man.

THE general public, every whit as much as the medical profession, must be interested in the organised effort to repair the ravages of war, of which the full official title is, "A National Scheme for the Employment, on a Percentage Basis, of Disabled Service Men." The operation of the Workmen's Compensation Acts has directed the attention of medical men, as it has that of employers, to the possibility of finding, for a man disabled from following his normal calling, employment in the same business in some other capacity, for the manner and extent to which incapacity may be diminished with training and practice is now becoming known. Faced with the situation arising out of an estimated 5 per cent. of the total of the country's workers disabled through war service, the Ministry of Labour, with the coöperation of other Government Departments qualified to assist, has devised the scheme referred to above, and the King's Proclamation, read in places of worship on Sept. 21st, has impressed it in outline upon all. Employers of 10 or more workers are urged under it to include among their staff not less than 5 per cent. of disabled men, and are advised that the 100,000 still unemployed are largely unskilled men waiting to be trained and not an unemployable residue. We must all recognise the difficulty created by the fact that the men are unskilled, and that not all men so situated are capable of being trained successfully. Before the end of the war the Army and Navy together had gathered into their ranks men of all kinds, able-bodied indeed, but of all temperaments, grades of intelligence and of education, characters, and antecedents. It will be seen, therefore, that the success of the Government scheme must depend not only upon the goodwill and effort of the employers, and upon the coöperation of their able-bodied workmen, but very largely upon the energy and willingness of the disabled to make good under the trying and difficult conditions in which the war has placed them.

What, then, are the species of employment for which the disabled are best adapted? In our great trades and manufactures the conditions under which the men are employed depend so largely upon the regulations of the trade-unions that the responsibility will lie with these if any rigid adherence to customs imposed before the war prevents the disabled from training and working as welcome comrades side by side with their more fortunate fellows. It will only be in a proportion of the operations conducted by these trades, no doubt, that there will be room for men suffering from any kind of disability. Reference, however, to Lord WEIR's speech at the opening of the International Shipping, Engineering, and Machinery Exhibition, printed at length in the newspapers of Sept. 26th, will show that there are in the industry of which he was speaking, that of the iron-moulders, then on strike, operations not necessarily confined to highly skilled and elaborately trained workers. Trade-unions may have restricted these operations to a limited class, but if Lord WEIR is to be relied upon they can be performed "by a girl or a limbless soldier after a few days' training." We may be treading upon ground which should be reserved for those familiar with trade-union regulations and technical experts, but we can hardly believe that the craft of a french-polisher is not one in which a one-armed man could hold his own, and it is evident that the one-armed, or the men who have lost fingers, will be those who in manufacturing industries will find even fewer openings than the legless, while in the present demand for furniture there must be a considerable opening for french-polishers. In many industries, which might be quoted but which will occur to the mind, the employment of the disabled should be possible without loss to the employer and without displacing other men. In retail trade, where more than 10 persons are employed in a single businsss, there are, no doubt, many tasks in which partial disablement will not incapacitate from usefulness, if we assume the desire of employers and fellow-workmen to make the most of a man who is willing on his side to do his best. In large hotels and restaurants there is much for which an active man with all his limbs is a necessity, but there are many appointments of varying value in the clerical staff and general staff of such establishments—as, for example, in the kitchen—which could be filled by men unfitted by injuries from pursuing other callings. In hotels and restaurants, moreover, there are prominent and well-paid posts to which men can rise who have made themselves useful in humbler capacities. We are referring primarily to the clerical and checking work necessary for organisation when we mention the kitchens of hotels and restaurants, but we do not forget the demand for good cooks in a country where generally there is an idea that intelligent study of the culinary art is not a man's job.

Apart from the employers of labour who are specially invited at the present time to bring into their large staffs a percentage of disabled men, there is a considerable class of private employers of labour, and of small traders and manufacturers, who may, perhaps, be even better able to find room for the disabled with no great sacrifice on their own part. A letter from the Clerk to the Ministry of Health, enclosing the circular of the Ministry of Labour to the county councils, sanitary authorities, and Poor-law authorities, calls attention to a point which in the circular itself is emphasised with capital letters. "Disability pension should not be taken into account when computing a disabled man's rate of wage." This is perfectly just and right if it only means that the pension should not enable an employer to get a disabled man's services more cheaply than equal services rendered by a whole man, because the former draws a pension. That would be the equivalent of a Government payment to the employer. It can hardly, however, be intended to deter an employer, and a private employer in particular, from taking into account in some cases the fact that a man cannot do a whole day's work because of his incapacity. Bargains in such a case might properly be subject to official supervision, nor do we see any reason for supposing that all employers would be out for exploitation. The parties to such bargains might be excluded from any credit attaching to the carrying out of the official scheme, but it would hardly be unfair to pay liberally in proportion to the work done in the case of a man whose strength and skill were not equal to that of his normal fellows, with the knowledge that he was not suffering thereby. There are probably many medical men, particularly in the country, who would be glad to obtain the services of a disabled man for part of the day, and who would be well able to judge his capacity for work and perhaps to help to increase it, but who could not afford to remunerate him on the scale expected by a strong and healthy workman. It might be an act of charity to pay full wages as for a full day's work, but not everyone can afford to be charitable on such a scale. In any case, where a man is not employed single-handed, but is in company with others, the fact that he does conspicuously less than his fellows and is paid the same will be liable either to cause jealousy or to make the others slow down to suit the pace of the disabled. But, without refining further, it is clear that the first thing is to employ the disabled—to take the risk, if any, in the good cause. The employment of the disabled, particularly at first and until they have acquired the efficiency which training and practice will give them, will be an experiment the success of which will depend upon the goodwill of all engaged upon it. When, however, we remember the debt we owe to our fighting men, to those who have not survived to seek civil employment as well as to those who have lost limbs or health or eyesight in their country's cause, we feel confident that hearty goodwill will prevail over any difficulties that the experiment may present.

◆

Conjugal Tuberculosis.

Dr. E. WARD'S contribution to this subject, which appeared in our issue of Oct. 4th, is not less interesting for being a redargution of the generally accepted view that the risk of infection with tuberculosis, as between husband and wife, is negligible. Since Dr. C. THEODORE WILLIAMS published, in 1882, his findings as to the infrequency of infection with tuberculosis among adults in daily contact with the tuberculous, a long series of similar investigations has been published bearing out his contention. SAUGMAN, who has collected data from many sanatoriums, came in 1905 to the conclusion that even among laryngologists, who are exposed to infection more than any other class, the morbidity and mortality from tuberculosis are comparatively low, and that owing to the immunity conferred by previous accidental inoculation with tuberculosis, "it is not dangerous for healthy adults to be coughed at by patients suffering from pulmonary or laryngeal tuberculosis." It is a significant fact that life insurance societies in Germany, basing their action on statistical evidence, do not reject persons because of a history of exposure to infection, or because they live with tuberculous consorts. MAURICE FISHBERG, in a recently published text-book on pulmonary tuberculosis, has collected a mass of evidence to disprove the thesis that one consort infects the other. As physician for many years to a charitable society, he has seen 800 to 1000 consumptives annually, and though they were living in poverty and overcrowded tenements, he seldom saw tuberculosis in both husband and wife. He argues that tuberculous infection can occur once only, and that as the non-phthisical consort has already been infected with tubercle bacilli during childhood, reinfection by cohabitation does not lead to phthisis. In other words, the risk on marriage is the same as when two persons, both of whom have already contracted syphilis, marry. Most if not all the investigations hitherto published on this subject refer to urban conditions. Dr. WARD'S figures refer, apparently, to a population that is mainly rural. Can it be that in a large proportion of his cases the consort of the tuberculous patient was "virgin soil," had, in fact, never harboured the tubercle bacillus till exposed to massive infection? Dr. WARD does not discuss the influence of poverty as a factor in conjugal tuberculosis. But it is sadly obvious that among the working classes tuberculosis in one consort implies overwork and underfeeding for the other. And as Professor KAYSERLING has remarked with reference to the enormous increase of tuberculosis in Germany during the war, the disease has come to be regarded by German physicians primarily as a consequence of malnutrition, to be controlled far better by feeding than by preventing infection. We agree with Dr. WARD in regarding the problem of adult infection as most important. Indeed, the whole plan of campaign against tuberculosis hinges on this problem. For if every adult is in jeopardy of his life whenever he consorts with a consumptive, the prospect of stamping out the disease by separating the tuberculous from the non-tuberculous would seem hopeless. But if it can be proved that the only infection that matters is infection, especially massive infection in early life, then the problem of prevention is reduced to far less terrifying proportions, and the prospect of stamping out the disease is comparatively good.

Annotations.

"Ne quid nimis."

THE END OF THE STRIKE

THE cessation of the strike at the beginning of the week, if one may judge by reports in the lay press representing different sections of the community and different schools of political thought, was a triumph for everybody concerned. We must point out at the same time that this triumph was obtained only just before tragedy to the community might have occurred. How narrow the escape was is probably better known to medical practitioners than to any particular body of men, for in those days of stress all sorts and conditions of persons said exactly what they thought to their medical advisers. That throughout the nine days of unrest an almost unbroken spell of good weather prevailed, and that the incidence of epidemic notifiable disease happened at the moment of this sudden strike to be light on the population, are circumstances that all may be thankful for; and while neither the Government nor the National Union of Railway Workers can claim credit for the weather, the sanitary services of the country are entitled to point out that had their routine of duty not been in order the precipitate quarrel would seriously have endangered public health. How deeply the menace of the strike affected the population in general, despite the stoical and almost good-natured resignation with which the hardships were borne at the time, is shown by the languor of recovery manifested. The tension had been so great, that, even when the strike was over, relief was not experienced, and there were more gloomy visages on Monday last than at any time since the industrial disturbance. It is too early yet to attempt any estimate as to the actual damage done by the partial dislocation of medical service, but undoubtedly the excellent arrangements made by the Government for the distribution of food maintained the health of the country.

"IN NON-ESSENTIALS, LIBERTY."

Dr. Norman Walker is standing again as a Direct Representative of Scottish practitioners upon the General Council of Medical Education and Registration, of which he has been a member since Jan. 1st, 1907. As acting chairman of the Examination Committee he has been in close touch with the vexed problems of medical education, and the address which he has just issued to his electors recognises the necessity of reorganising the present methods of teaching, especially in the direction of giving greater importance to preventive medicine. His wise suggestion is to concentrate on unity in essentials, with much latitude for experiment in less important matters. He would add a fourth term of ten weeks in the later years of a medical student's career, even though it should involve additions to the teaching staff. He would extend the Council's inspection of the final qualifying examination so as to afford a substantial guarantee that all candidates reach a proper standard of practical efficiency. But in regard to the earlier parts of the curriculum he writes:—

> "If one school thought it best for its students to pass an entrance examination in chemistry and physics, and to complete their knowledge of these subjects for medical purposes in connexion with the physiology class; if another chose to associate toxicology with pharmacology instead of with medical jurisprudence; if another thought psychology (or logic) so important as to require one or more terms of study, I would leave them all free. And I would expect from the Council's inspectors most valuable reports as to which of the various methods—for they would all be reported upon to the Council—succeeded best in producing efficient practitioners of medicine."

Dr. Walker comments, as we also do in a leading article, upon the lack of any precise definition of what a State Medical Service consists in. Of the two ways, "along one of which events must inevitably advance," he rejects the whole-time staff of experts organised as a branch of the civil or the municipal service in favour of the acceptance by the medical profession generally of part-time service in coöperation with the State. Dr. Walker's views are those of the reformer mellowed, but not discouraged, by long contact with the actual things to be reformed.

THE TYPHUS EPIDEMIC IN EASTERN EUROPE.

EXANTHEMATIC typhus during the present year has been severely epidemic in Eastern Europe, particularly in Russia, Poland, and Galicia. The disease is endemic in each of these countries, but the Great War has supplied many favourable opportunities for spreading the infection as well as for enhancing its virulence, the result being a devastating and widespread epidemic. The disease has been prevalent of late in other States, including Austria, Hungary, Ukraine, Roumania, Bulgaria, Turkey, Greece, and Serbia. In Roumania, for example, during July and August no fewer than 17,720 cases were reported. Austrian prisoners of war conveyed the infection to Italy, and several serious local outbreaks have resulted; during May and June alone 5343 persons were attacked by typhus in Italy. In Germany the returning troops brought back the infection from Russia, but local outbreaks in Russian prisoners' camps in Germany had already been occurring, and these had involved both German soldiers and the civil population. Up to the end of July—that is, during a period of only seven months—more than 2500 cases of typhus had been recorded in Germany. Local outbreaks have also occurred in Holland, Norway, Sweden, and Finland, the infection having been imported from North Russia. There have been also prevalences of typhus fever in the large towns of Spain and Portugal.

But it is in Poland that the ravages of typhus have been the worst. The country had already, as also Galicia, been devastated by the belligerents during the previous years of the war; thousands of houses had been wrecked during the military operations, and the mines and factories and other industrial works had been destroyed which formerly had afforded employment to the inhabitants. These unfortunate people, driven from their homes and their employment, with no effects but the clothes they wore, flocked into the large towns and intensified there the already existing overcrowding. Food supplies were scanty, doctors and nurses were in inadequate numbers to meet the calls made upon them, medical stores and disinfectants were practically unobtainable, hospital accommodation for the sick was not available, disinfecting or delousing apparatus could not be provided, and the shortage of fats caused a famine in soap. In these circumstances, and considering that many persons were living and sleeping in the same clothes for months, having no change of raiment, it is little wonder that infestation by body vermin became almost general. Even those people who had private means, and kept their bodies and clothing clean, also ran risks as lice were found daily in the railway carriages and tramcars. It was not surprising, therefore, that a widespread epidemic of typhus developed, especially in the larger towns, such as Warsaw and Lodz. It may be added that the war had left the sanitary administration of Poland in a chaotic state, and in consequence quite unable to cope with so formidable an outbreak of disease. While in 1916 and 1917 the reported typhus cases in Poland had been respectively 34,516 and 43,840, the number rose in 1918 to 122,000, and in the first half of 1919 to 99,251.

Although typhus is generally a disease of the colder months of the year the outbreak of 1919 maintained epidemic proportions during the summer months, and in all probability, unless effective action be taken, the incidence will be still more serious and the consequences still more disastrous in the coming winter. The sad plight of the Polish people came, during the summer, to the knowledge of the League of Red Cross Societies, which in August sent a commission, consisting of international representatives from the four Great Powers—namely, Great Britain, France, Italy, and the United States—to investigate the typhus epidemic and to draw up measures to suppress it; also to prepare plans for relieving the present sufferings of the Poles and to devise measures for preventing the spread of typhus to Western Europe. The cost of carrying out these objects will be heavy, for it will be necessary to provide doctors and nurses in sufficient numbers to meet the situation; hospitals will have to be erected, disinfecting apparatus purchased, as well as soap, medical supplies and equipment, as also food and clothing for the destitute. We understand that the League of Red Cross Societies is prepared to do all this, and in this connexion it may be observed that the chief objects of the League are "to coöperate with others in all measures for improving public health, to prevent disease, and to mitigate suffering throughout the world." No better opportunity could present itself for carrying out these objects than is now afforded by the unhappy condition of fever-stricken Poland. The inter-allied medical commission has now returned to Paris and has reported that the typhus epidemic has been very widespread and that the number of deaths has been very great. The campaign against the disease has not made much progress, however, owing to insufficient personnel and inadequate supplies; special want was experienced of sheets, blankets, drugs, and other essential equipment. It appears also that among the various maladies present just now in Poland another louse-borne epidemic disease, relapsing fever, is also prevalent. There has been some talk recently about the adoption of international measures at ports and on land frontiers in Europe to prevent the introduction of typhus into other countries, but the best means of preventing the spread of typhus is strict cleanliness of person and clothing, so as to avert any chance of infestation of the body by the louse, the incriminated transmitting agent of the typhus virus. The cessation of hostilities in Europe has set the Red Cross organisations free to carry out their humanitarian work and to become, for the present as regards Poland, the Good Samaritan of Europe.

TRANSMISSION OF TYPHOID FEVER BY THE MOTHER'S MILK.

IN the *Journal of the American Medical Association* of Sept. 20th Dr. H. Heiman has reported a case, which he read at the thirty-first annual meeting of the American Pediatric Society, of transmission of typhoid fever by the mother's milk :—

A married woman, aged 29 years, who was nursing an infant, was admitted into Mount Sinai Hospital, New York. Two weeks before she began to suffer from pain in the head and back, fever, and chills. Diarrhœa had been present for several days. The spleen was felt three inches below the costal margin and rose spots were present. The temperature ran the usual course, and in the fifth week of the disease gradually fell from 105° F. to normal. There was leucopenia; the leucocytes numbered 4200, with 68 per cent. of polynuclears and 32 per cent. of lymphocytes. The Widal reaction was positive and the blood contained typhoid bacilli. A culture of the breast milk revealed actively motile typhoid bacilli. Two days after the mother's admission the infant, aged 8 months, was taken to hospital. It had been breast-fed until two weeks before, when it was weaned because of the mother's illness. Four weeks before admission the temperature rose to 101°, but the infant seemed as well as usual. In 10 days it apparently recovered completely. But a sudden rise of temperature to 105° follows. Both ear-drums were incised, but the fever continued. There was no vomiting or diarrhœa. On admission the infant appeared acutely ill with rapid respiration and flushed cheeks. There were no rose spots. The spleen was enlarged, the lower pole being felt one inch below the costal margin. Blood examination showed 8000 leucocytes per c.mm., with 74 per cent. polymorphonuclears and 26 per cent. of lymphocytes. Blood culture revealed typhoid bacilli, and the Widal reaction was positive.

Dr. Heiman has been unable to find recorded any case of transmission of typhoid fever by the mother's milk. He has discovered, however, a case reported by C. H. Lawrence in the *Boston Medical and Surgical Journal* of July 29th, 1909, in which typhoid bacilli were present in the milk of a nursing mother, aged 23 years, who was suffering from the disease. But in this case the infant escaped infection.

THE TUBERCULOSIS CONFERENCE.

THE National Association for the Prevention of Tuberculosis is holding its seventh annual conference at the Central Hall, Westminster, on Thursday to Saturday of next week, Oct. 16th–18th. The first such conference was held in Whitechapel in 1909, and thereafter alternately in London and some large provincial centre, until the highly successful conference at Leeds in July, 1914, just before the war broke out. Since then no meeting has been held, and the reassembling after an interval of five years gains in importance from two considerations: (1) the extreme urgency assumed by the whole problem of tuberculosis during the war; and (2) the proposal of the British Red Cross to coöperate with the National Association in its peace-time activities in regard to tuberculosis. The conference will open at 10.30 A.M on Thursday, Oct. 16th, with an address by Dr. Addison, Minister of Health. The sessions on that and the following day will be devoted to a discussion on the completion of tuberculosis schemes in relation to: (1) the Ministry of Health; (2) local authorities and Insurance Committees; (3) pensions boards; (4) general practitioners; (5) Red Cross and other voluntary activities; and (6) training of doctors and nurses. Distinguished visitors from France, Italy, and the United States are expected to take part. Lord Glenconner, Sir Arthur Stanley, and Sir Robert Philip are to occupy the chair in succession. The remaining session on Saturday morning, with Sir G. Sims Woodhead presiding, will be occupied by addresses on tuberculosis work for the Red Cross, the Order of St. John, and other voluntary workers. Social functions are being arranged for Thursday and Friday evenings, and all who are interested in the subjects under discussion will be gladly welcome.

AGGLUTINATION IN DYSENTERY.

THE observations contained in a paper published by Dr. A. Distaso, Dr. E. Goodall, and Dr. H. A. Scholberg, on the "Agglutination Results with Certain Dysentery Organisms Placed against Homologous and Heterologous Sera,"[1] form an important piece of work which deserves the close attention of others similarly engaged in the study of bacillary dysentery. The authors of the paper applied tests to 20 organisms in killed cultures, including 7 Flexner strains, 6 Shiga, 3 Y bacillus, 3 strains of Strong's bacillus, and an unknown organism not closely related to the dysenteric group. 1 c.cm. of a dilute suspension of the killed culture used in each test was injected into the ear-vein of a rabbit on two occasions at an interval of seven days. Seven days after the second injection blood was withdrawn from the rabbit and the serum tested against a suspension of the organism injected, in dilutions of the serum of from 1 in 50 to 1 in 500. The agglutinations were carried out macroscopically, the results being noted after the test-tubes had been kept in the incubator at 37·5° C. for 16 to 20 hours. It was found that 4 of the 20 organisms (20 per eent.) —a Flexner (original), a Shiga, a Y bacillus, and the unknown organism—were agglutinated by their corresponding sera in a dilution of 1 in 2000; 5 (25 per cent.), including 2 Shiga, a Flexner (typical), a Y, and a Strong's bacillus, were agglutinated in dilutions of 1 in 500; 9 of the tested organisms (45 per cent.) in dilutions below 1 in 500, but in 4 of these there was agglutination only in dilution of 1 in 25. Further, the 4 sera which agglutinated their homologous organisms in high dilution (1 in 2000) were tested against the 19 heterologous organisms. with the result that no agglutinations took place in 1 in 2000 dilution; in two instances only a positive result was obtained in 1 in 500 dilution, a Shiga serum agglutinating 6 of the 19 organisms (3 Flexner strains, 2 Y, and 1 Strong), and a Flexner serum (original) agglutinating two Flexner strains. A trace of agglutination, but very rarely a positive result, was obtained in some instances with low dilutions. Absorption tests which were applied to the two sera concerned showed that the agglutinin produced by the heterologous organism was the same as that produced by the homologous organism. The authors' results and those to which they allude: of Florand, Bezançon, and Paraf (1918), who found that 26 bacteria of the dysenteric group were not agglutinated by any serum or only in 1 in 200 or lower dilutions; of Lancelin and Rideau (1918), who reported that agglutination with Flexner and Shiga-Kruse organisms when obtained, was only in low dilutions (1 in 150 and 1 in 50)—raise the important question as to how far agglutination tests are reliable as a means of identifying and classifying dysenteric organisms.

It is evident that we are still far from the true explanation of these puzzling anomalies, and even maybe from the correct interpretation of agglutination results and laboratory classification of the whole group of dysentery bacilli. The observations recorded bear out, but do not explain, the difficulties encountered and problems raised by the discovery of inagglutinable strains familiar to most laboratory workers. The results of further investigations promised by the authors, and those of others with similar experience in agglutination phenomena, will be awaited with interest, and in the meantime we hope that their observations may stimulate fruitful research and criticism. A clarification of the response to agglutination tests yielded by the various strains of the Flexner group has been attempted by means of diagrammatic representation. The total agglutinin content elicited by the whole group may be shown as a square divided into sections of varying size according to the amounts of specific agglutinins corresponding with the individual members of the group; the prevailing strain occupying the larger portion of the square, and the other strains, in proportion to their prevalence, the remaining sections of the square. A similar type of mosaic diagram representing a number of component agglutinins might be made use of to signify the more puzzling phenomena presented by the inagglutinable strains and those which either excite but little response or yield agglutination results not true to type—e.g., those instances quoted in which a Shiga serum agglutinated both Flexner and Y bacillus, indicating the coexistence of more than one specific agglutinin belonging to a different group. Such conditions may be described as analogous to the complex properties of chemical bodies. The composite agglutinin "molecule," called forth by the whole dysenteric group, may be capable of being split up into a number of "atoms" corresponding to the individual dysentery strains of the whole group, and the readiness of response to agglutination of the members of the group might be taken to vary according to the strength of the bond existing between the component parts or "atoms" of the agglutinin "molecule" contained in the particular serum. Some such help in visualising the complicated processes which underlie agglutination is much needed by the average thinker.

GROUP STUDY IN OPHTHALMIC RESEARCH.

UNDER the above heading Dr. F. Park Lewis read a paper before the Ophthalmological Section of the American Medical Association last June[1] on a subject which for long has been felt, both in America and in this country, to be one of primary importance, not only to ophthalmologists, but to the whole medical profession, and indeed to the public at large, though as yet hardly any steps have been taken to remedy the evil complained of. The practice of specialism is justified by the particular skill acquired by specialists in dealing with disorders affecting special organs, and in a great number of cases the specialist is well able to complete both diagnosis and treatment by himself. On the other hand, nearly all cases in which the diagnosis is difficult require knowledge and skill outside any one particular specialty. Almost all diseases of the fundus oculi are examples of this. Dr. Lewis writes:—

---

[1] Journal of Pathology and Bacteriology, 1919, xxii., 257–261.

[1] Journal of the American Medical Association, June 28th, 1919.

> "The failure on the part of scientific medicine to locate the essential origin of many serious diseases is tending to lessen public confidence in medicine as a whole, and the time has come when we as physicians must reorganise our methods of practice, or means will be taken by the public, if not on the part of the State, to direct them for us, with results that may be equally disastrous for the public and for us."

Instances will occur to all general practitioners of patients able to pay generous medical fees in whom diagnosis was missed owing to lack of coöperation between various consultants, the real importance of the bearings of the findings of each being overlooked. Even for the poor who are able to obtain admission into hospitals coöperation between different institutions is by no means so good as it ought to be, while, as Dr. Lewis forcefully says, for the mass of the people whose resources are moderate there exist no methods, except through professional courtesy, by which complete investigations can be made of cases that are obscure. This is a strong indictment of our present methods. It was originally addressed to ophthalmologists, whose specialty is perhaps more closely bound up with all other branches of medicine and surgery than any other, but obviously it concerns all branches of the profession. Not only for diagnosis and treatment is coöperation urgently necessary. Without it very little scientific advance is to be expected. The causes of cataract and glaucoma, the nature of the changes which produce detachment of the retina, are problems of pathology which will never be solved by investigations that go no further than the orbit. The necessity for coöperation is admitted. How best to attain it is a practical problem that cries out for solution.

A NEW SCHOOL OF BOTANY.

BOTANY considered as a comprehensive branch of science has not received the attention which it deserves both as a department of biology and as a means of augmenting the supply of food and drugs. During the war, however, recognition of its importance was forced upon us, and the work which has been done by the War Committee of the Royal Society, by the Natural History Department at South Kensington, and by separate investigators, played no inconsiderable part in the scientific organisation which the great world-war necessitated. We welcome, therefore, the report of the committee which was appointed in April last by Lord Ernle, President of the Board of Agriculture, to consider what steps should be taken to improve the usefulness of the Royal Botanic Society of London. This committee consisted of Sir David Prain, F.R.S., director of the Royal Botanic Gardens, Kew (chairman); Sir W. H. Dunn; Sir A. Keogh, Imperial College of Science and Technology; Sir Malcolm Morris; Major R. C. Carr; Mr. Morton Evans, joint secretary of the Office of Woods; Mr. H. J. Greenwood, L.C.C.; and Professor F. W. Keeble, F.R.S., Board of Agriculture and Fisheries and Royal Horticultural Society; with Mr. G. C. Gough, B.Sc., secretary. Its conclusions in brief are the advisability of establishing (1) a school of economic botany, (2) a centre of research in physiological botany, (3) a centre for horticultural teaching, (4) courses in school gardening suitable for school teachers, and the provision of material for botanical teaching and research in other institutions. The total cost of staff and attendants is estimated at from £3000 to £3500 per annum; the cost of the buildings £4000; and of equipment £500. We hope that some such scheme may be made effective with as little delay as possible, for there is every reason to believe that in the vegetable kingdom there is much to be discovered which will add considerably to the health and happiness of the human race.

ANIMAL DISEASES IN 1918.

THE annual report of the Chief Veterinary Officer for the year 1918 is in many respects highly satisfactory. There has only been one small outbreak of foot and mouth disease, which occurred in East Sussex, and was promptly and efficiently dealt with. The fact that only one outbreak has occurred during the demobilisation of men and animals from areas where the disease is nearly always indigenous must be attributed to the watchfulness of the Board's officials, to the military authorities, and perhaps also to a spread of the knowledge of hygiene and proper disinfection among the laity engaged in transport. In the case under notice infection was carried from the first recognised centre of disease to an "off farm" by a cow and calf or by their driver. The importance of the strict isolation of affected or suspected animals cannot be too strongly urged. The original source of the disease was not ascertained. This is often very difficult to determine because of the numerous and varied carriers of infection, which include birds, horses, dogs, rabbits, and rats, &c.

Good progress has been made against the outbreak of rabies. In the month ending Jan. 11th there were only 2 outbreaks in the Plymouth district and 3 in Cornwall, whereas as many as 45 cases occurred in the Plymouth district in the month ending Oct. 19th and 6 in Cornwall in the month ending Nov. 16th. The rabid dogs were for the most part attacked by the paralytic form of the disease (dumb rabies), a fortunate circumstance which checked their ability to bite and to run. Moreover, the few dogs that did run (and some of them travelled from 12 to 30 miles) pursued a westerly direction and soon came up to the sea barrier. A great scientific advance has taken place in respect to diagnosis of the disease, and it is possible now to give a definite statement in five hours instead of from 14–30 days. Of the 21 people bitten and sent for treatment not one died—a fact which adds further lustre to the brilliance of the results already recorded from the Pasteur method of treatment. The incubation period (from bite to symptoms) in the dog varied from 24 to 85 days, and in cattle from 22 to 84 days. A notable decrease in the number of cases occurred in the Plymouth district as soon as muzzling and restriction on movement were effective.

The report also deals with swine fever, glanders, anthrax, sheep scab, and parasitic mange. 10,203 suspected cases of swine fever were reported, of which 1407—only 13·8 per cent.—were confirmed. There is evidently need for the education of pig owners to recognise the real symptoms of swine fever and to differentiate them from the many other ailments to which pigs are liable. The results of the serum treatment were quite good, although its application was by no means universal. There were 34 outbreaks of glanders, and, as usual, the great proportion occurred in the London area. No outbreak was reported among colliery horses. The big decrease, most marked in Scotland, in the cases of anthrax is due to restricted importation of feeding stuffs and artificial manures. The danger from imported feeding stuffs may be inferred from the fact that 91 out of 182 outbreaks occurring during the year on previously clean premises were attributed by the Board to this cause, and 21 to artificial manures of animal origin. Notification and double dipping of Scotch sheep greatly reduced the outbreaks of sheep scab in England. The veterinary inspectors at the ports detected 202 cases of disease in Irish sheep coming to this country. The outbreaks of parasitic mange numbered 4483, the vast majority being of the psoroptic type. Curative measures and the application of hygienic principles prevented more than a small number of animals to become affected in each outbreak. The position as regards mange may improve as the quality of labour and supply of food stuffs become more normal, but we fear the 48 hours' week for carters and horse attendants will not conduce to the better hygiene of the horse's skin, the greater cleanliness of the stables, or the more suitable and regular feeding of the animal.

TREATMENT OF CHRONIC AND QUININE-RESISTING MALARIA BY X RAYS.

The well-known propensity of the malarial parasite, especially the *Plasmodium falciparum*, to lie dormant in the spleen until the vitality of the patient is lowered by cold or fatigue, as well as the resistance of the crescents of the latter variety to the action of quinine, have stimulated research for new therapeutic methods. Dr. Antonino Pais[1] has lately treated 3000 cases with X ray irradiation to the spleen with results which appear destined to encourage further trial. His technique is to employ hard rays, filtered by 4 mm. of aluminium, which offer the following advantages—i.e., of being biologically more efficacious, of penetrating more deeply the splenic tissue, and of being absorbed to a more uniform depth, thus reducing the variability of absorption which different layers of tissue present towards soft rays. The dose varies from 1 X to 10 or 12 X. The time of the application is not so important in chronic as in acute form; in the latter the dose must be less the nearer the time of administration is to the commencement of a febrile attack, and the higher the temperature. The association of quinine does not call for any special modification in technique, and may proceed, follow, or be given simultaneously with the irradiation. The influence of the X rays is shown in the temperature, the blood dyscrasia, the splenic enlargement, and in parasitic modification. Defervescence of the fever by lysis is constant in chronic forms where irregular, variable, moderate but persistent febrile manifestations are the rule. Irradiation has a definite progressive inhibitory influence over such forms. The effect on the red blood corpuscles is striking; after the first irradiation the number diminishes for from two to five days, but after the first week their number increases and reaches a figure higher than before. The effect on the spleen is that for a few hours acute pains often occur which soon subside and rapid diminution in the size of the organ ensues. The parasites disappear from the blood very gradually. The method of treatment recommended by Dr. Pais seems of practical utility, and an examination of the results obtained, and the gravity of the clinical and social problems that radiotherapy appears able to tackle with success, leave no room for any ulterior considerations.

VOLTAIRE ON AN ANTI-VENEREAL CRUSADE

In an American medical journal some years ago attention was drawn to the fact that Voltaire mooted the idea of an anti-venereal crusade as early as the year 1767. In his "L'Homme aux Quarante Écus," which is a medley of philosophico-satirical discussions on the subjects of his day in France, the man of the Forty Crowns asks a surgeon the following question: "Could not some means be found of extirpating this contagion [the lues], which renders Europe a desert? An attempt has already been made to weaken the poison of one pox, could not something be tried upon the other?" "There would only be one means of effecting this extirpation," the surgeon replies. "That is if all the princes of Europe were to league themselves together, as in the times of Godfrey of Bouillon. Certainly a crusade against the lues would be much more reasonable than were those undertaken formerly with such unfortunate results against Saladin (King Sala) and the Albigenses. It were far better to come to an understanding as to how to repulse the common enemy of mankind than to be continually occupied in watching for a favourable opportunity of devastating the earth and covering its fields with dead bodies in order to snatch two or three towns and some villages from one's neighbour. I speak against my own interests; for war and syphilis make my fortune, but one should be a man before being a surgeon-major." "It is thus," adds Voltaire, "that the Man of Forty Crowns kept forming his heart and understanding, as the saying goes."

The great wit and humanitarian took a vivid interest in the subject of venereal disease, and in "Candide" has written a pedigree of the lues, tracing it through officers and noble and saintly persons, among other "carriers," back to the times of Columbus. The passage, which is well known, has been very daringly amplified in Captain Marryat's story, "Time Hath Been," in the "Pacha of Many Tales." How the league of the princes of Christendom was to carry out its anti-venereal crusade is not, however, suggested by Voltaire, whose readers are left interested but unenlightened.

UNILATERAL SENSORY CHANGES IN SCIATICA.

In an investigation of the sensory changes in sciatica Reichart[1] was surprised to find that in about two-thirds of the cases (64 out of 95) the disturbances of sensibility involved the whole or greater part of the side of the body on which the sciatica was present. With one exception, in which tactile sensibility alone was affected while sensibility to pain and temperature remained intact, all modes of sensibility were implicated, sensibility to pain being involved to a greater extent than thermal sensibility. 54 of the 64 cases showed hypæsthesia and 10 hyperæsthesia. As regards the distribution, the sensory changes in nearly half the cases involved the whole of one side of the body, frequently including one-half of the tongue. The difference between the affected and sound side was much more distinct in the lower limbs than on the trunk, on the legs than on the thighs, on the hands than on the shoulders or face, and on the feet than on the hands. The abdominal and cremasteric reflexes were almost always present, and as easily obtained on the hypæsthetic as on the sound side. Further examination showed that, in the great majority of cases of sciatica, not merely the sciatic trunk and its branches but also the lumbar plexus and the nerve trunks derived therefrom, and less frequently the large nerves in the arm, as well as in many cases branches of the trigeminal and occipital nerves, were more sensitive on the affected than on the sound side. Several patients stated that they had noticed the unilateral sensory disturbances before the examination was made, while others were surprised by the discovery. Six patients with unilateral sensory disturbances complained of loss of power in their arm on the affected side.

---

[1] Annali d' Igiene, June 30th, 1919, Via Palermo 58, Rome.

[1] Münchener Medizinische Wochenschrift, 1919, lxvi., 903–6.

The following explanation of the unilateral disturbance of sensibility is offered. The painful affection of the sciatic plexus and of the lumbar plexus, which is usually involved at the same time, causes a considerable irritation of the cortex (leg centre) and the spread of the irritation to the neighbouring centres accounts for the spontaneous tenderness of one side of the body. The continual irritation leads to an exhaustion of the central nerve cells, which is manifested by a diminution of sensibility to cutaneous stimuli, and owing to the identity of the sensory and motor cortical centres accounts for the frequent loss of power in the arm. In the less frequent cases of hyperæsthesia the ganglion cells, instead of being exhausted, show an increasing irritability. Why one patient presents the sensory changes described and another does not it is difficult to say, and the difference must be explained by individual predisposition.

THE GENESIS OF MIRTH.

BODILY needs are stated nowadays in calories, and if, in addition to being warmed and made capable of locomotion, we desire our bodies to escape such deficiency conditions as rickets, scurvy, and beri-beri, three accessory substances must be included in our diet. Physiologists have long pointed out with a certain hauteur that mental processes as such require no food, or at all events that hard thinking produces no waste products which can be measured. But there is certainly one habit of mind which disappears when the body is not fed. Mirth has deserted Central Europe. Last June Dr. Hilda Clark wrote: "I was four days in Vienna before I saw a child play"; more recent reports from relief workers in Germany, German Austria, and Hungary agree that even where appearances are kept up by neat exterior and uncomplaining mien nothing is left over for spontaneous expression of happiness. In a study[1] of school children made by Professor A. Thiele, the school doctor, and Herr Lorentz, a teacher in the schools of Chemnitz, it is stated that as early as the severe winter of 1916 the children were apt to sit indolent, gazing in front of them, only to be roused by some strong stimulus, and soon relapsing into inattention. The whole nervous system, Dr. Thiele says, possesses a relatively high resistance to deprivation of food, but the lack of important mineral salts was thus early in the war producing among school children a tendency to rapid mental fatigue associated with excitability. Later, loss of energy and initiative became manifest, with a limitation of the fields of vision, in itself sufficient to prevent accuracy of work. Finally, all desire for play and sport died away and, as a secondary result of the loss of the normal relaxations of healthy childhood, primitive and coarse instincts began more and more to assert themselves. Presumably rickets (the "English disease!"), which is now practically universal in the cities of Central Europe, has had much to do with childish disabilities, for of a population of 300,000 in Dortmund Professor Engel notes that 5000 children between 2 and 7 years are unable to walk. Rickets in itself is an absorbing occupation, Dr. J. Lawson Dick, in his recent book,[2] remarking that the infant suffering from active rickets is too much engaged with the struggle for life to have time to fret about lesser things. His energy cannot be dissipated in crying, for it is wholly occupied in getting sufficient oxygen into the lungs. What the outcome of this mental inanition may be is not yet clear. It seems certain, if the figures of late rickets in Vienna go undisputed, that the majority of Viennese children will grow up with stunted bodies, which will never require more than a limited supply of food. So the human race adapts itself to its environment, for better or for worse. Whether the mental life of these children will overflow again into mirth and the spontaneous exuberance of animal spirits must depend chiefly on the actual degree of mental stunting already present. The anxiety felt by those who have witnessed the results of inanition is not so much that the return of plenty may result in keen trade competition as that it will be too late to save healthy mental life. The return of mirth cannot be foreseen.

Sir George Newman will give the opening address at the West London Post-graduate College (West London Hospital), on Thursday, Oct. 16th, at 4 P.M.

AT the Royal College of Physicians of London the Harveian Oration will be delivered by Dr. Raymond Crawfurd at 4 o'clock on Saturday, Oct. 18th.

THE postponed opening of the winter session at the Middlesex Hospital Medical School will take place on Wednesday, Oct. 15th, at 3 P.M., when Sir John Bland-Sutton will give the opening address. The annual dinner will be held at the Holborn Restaurant the same evening at 6.30 for 7.

THE statistics in the reports submitted to the Local Government Board on public health and medical subjects are issued in a clear and readable form (New Series, No. 124, price 1s. 6*d*.). The greater part consists of lists of notifications and attack-rate of infectious diseases throughout the country, in which for each district the approximate population, actual number of cases notified, and rate are arranged in parallel columns, convenient for purposes of reference.

---

[1] "Hunger! Wirkungen moderner Kriegsmethoden." Max Rubmann. Berlin, 1919.

[2] Defective Housing and the Growth of Children. George Allen and Unwin.

THE FRENCH MEDICAL CURRICULUM: A CONTRAST.

By D. T. Barry, M.D., D.Sc., F.R.C.S.,
PROFESSOR OF PHYSIOLOGY, UNIVERSITY COLLEGE, CORK.

The last five academic years of medical studies were begun under the adverse circumstances of war, that is to say, under conditions which demanded a maximum of effort from teacher and student; the approaching academic year is about to open in more auspicious circumstances; the wants of the various schools are to receive attention, and a prospect of material assistance is held forth which cannot come a moment too soon to the more needy institutions. With improved equipment and extended scope there will come enhanced facilities for individual practice in the laboratories and more exacting tests at examinations. The course of clinical study, too, is bound to undergo some important modifications based on war experiences, all, probably, in the direction of a demand for a more profound and more varied knowledge. This trend towards greater efficiency is not one to discourage or to deprecate, and this is not the purport of the present article, which is meant to contrast our own system with that of France without advocating any serious adaptation of the former to the latter. The course of preparation to be undergone by the student in France, where this article is being written, is a more facile one in some important respects; in others, for instance, duration, the French course is a more formidable one. The relative values of the two, to the individual and to the State, can be appraised by the reader without going much into details; it will suffice to mention some of the salient features of the foreign programme with a few words of comment in order to demonstrate marked differences.

Preliminary Standard in Arts.

To begin with, a high standard of general knowledge is required from the French student at entrance; he is obliged to pass the examination for the baccalaureate in arts, which corresponds more closely to the B.A. than to our matriculation in standard, though it is a test of secondary studies in the *lycées* and private colleges. These studies are decidedly more intensive and exhaustive than those pursued in the British secondary schools, and the attainments of the French youth at that age are of a higher order; thus success in this examination at the age of 17 is no uncommon occurrence. In literature, classics, mathematics, and science, the *lycée* student acquires a considerable ground-work. The process employed is conducive to an early unfolding of critical powers and a more ready adaptiveness of the faculties; but a question of practical interest in psychology arises in this connexion: whether later on a disinclination to concentrated effort evolves from this system of youthful culture or not? There is at present a tendency to modify the system, and if not actually to model it on the lines of the English public school, at least to introduce a little more variety; physical exercise is to receive more attention, it is said, but as yet the old order chiefly prevails. Our contrast, however, is not that of secondary studies, and we must be content with the remark that the average French student at the outset of his medical career is better educated than his British prototype.

Length and Arrangement of Curriculum.

In 1914 some important changes were introduced into the medical curriculum in France; the outstanding one is the prolongation of study from four to five years, not including the year devoted to the preliminary sciences. The minimum period from the baccalaureate in arts to the doctorate in medicine is six years, and it is quite exceptional to bridge the interval in that time. The average duration of the course is between seven and eight years, and what with the break for military service the average age for attaining the doctorate is 30 years. Repetition of courses or parts of courses is quite common, though the tests imposed to ascertain competency in them are not severe. Professor Bergonié in a recent article[1] puts forth claims for reorganisation of the whole programme of studies. He complains that much hardship is inflicted on the diligent student by the present system; he is given no incentive to special effort, as no prospect exists of finishing any sooner by hard work than by marking time with the lazy ones. It is difficult to follow the arguments of the professor that the slacker is given the same advantages as the trier; the latter, judging by the written regulations and by one's own observation, has always the advantage over the former, though, of course, the term of five years cannot be reduced. Apart from this latter fact, it seems that the detailed working of the system is vexatious and that it handicaps the good man. Much of the repetition is voluntary or obligatory only in the sense that the conscientious student frequently feels that he has not derived the requisite knowledge from the set period of study; so he decides to repeat. This is particularly so in the later phases—in obstetrics, special subjects, &c. The defects in the courses are in some measure due to want of system, but also to overcrowding and lack of a sufficient number of teachers. In the first three years repetition is rarely voluntary, but as it is determined by somewhat flukey circumstances it occasionally victimises a useful man

Lack of space is the great defect in the French schools. The number of students in each year's course is about 600 in Paris; it is not surprising, considering also the dearth of material and demonstrators, that lack of opportunity to reach the focus of instruction is the lot of many who are thus shut out from the technical aspects of the work. On the other hand, hospital wards are large and numerous; decentralisation is here possible and the distribution makes instruction more satisfactory. The extension of recognition for teaching purposes from a few hospitals to quite a large number, which is part of the new order, is a reform that has been all too long in coming. L'Hôtel Dieu, Salpêtrière, Charité, Pitié, &c., can now accommodate pretty well the numbers attending. I am not in a position to speak from close personal observation of the provincial schools, but by all accounts the obstacles to good teaching, in some of them at any rate, are quite as formidable as in the capital.

Types and Distribution of Medical Schools.

There are three orders of medical school: (1) *Preparatory schools* (medicine and pharmacy), of which there are many examples in towns not quite of first importance. In these the first three years of the course, with the corresponding examinations, may be completed; after that period the student must proceed to an institution in category (2) or (3). (2) *Ecoles de plein exercise de médecine et de pharmacie.* These are institutions in which all five years of study may be passed and all examinations, except the final and the thesis, carried out. For these latter the candidate must present himself at one of those in the next group. The number of these schools is, I think, three: Rennes, Nantes, Marseilles. (3) *Facultés.* The faculty as part of a university is an autonomous institution upon which are conferred full powers of teaching, examining, and granting degrees. There are faculties at Paris, Lyon, Nancy, Montpellier, Bordeaux, Toulouse, and Lille; Strasburg must now be added, and, in so far as it enjoys the same privileges under the same administration, Algiers.

It will be noticed that pharmaceutical study for dispensing chemists is pursued directly under the ægis of the medical faculty in groups (1) and (2) where students for both professions are mixed, or take some courses together. There are three independent schools of pharmacy—namely, at Paris, Nancy, and Montpellier. The course of training in pharmacy lasts four years, and is of quite a high order; in chemistry the course is very extensive, also in pharmacology, &c., and the examinations are quite stiff. The French dispensing chemist, as a rule, has little trouble in deciphering a prescription written in the English style, with its minims, grains, drachms, &c. The congestion referred to as a characteristic of medicine is not apparent in other faculties; at the Sorbonne in the science faculty there is no hampering factor of this kind; there all examinations are conducted with due attention to practical work.

Extent of Clinical as Opposed to Laboratory Work.

Clinical study in the wards of the hospitals, *le stage* as it is called, is obligatory during the whole five years of the curriculum. It certainly is easier to impose this condition in the first years of the course in France, where attendance at lectures is not compulsory and where laboratory work is confined to attendance for short periods at demonstrations, than it would be in schools where a great deal of the beginner's time is rigidly devoted to lectures, dissections, and practical laboratory work. It is more than doubtful if the advantages accruing from early and continued acquaintance with clinical work can ever make up for the very serious defects of an almost purely theoretical course in anatomy and physiology, not to mention pathology and bacteriology. We note in the faculty's regulations that attendance at practical work, the *enseignement technique*, is compulsory, and that the student's work in this phase is *constaté par des interrogations ou des manipulations.* Investigating the situation at close quarters we find that the word *manipulations* is a mere bit of window-dressing; nine out of ten students never touch a piece of physiological apparatus, a microscope section other than a fully prepared mount, in their whole undergraduate career. Only towards the final stages do they touch a test-tube and then put it to limited use. Somewhat more use is made of the scalpel and forceps in dissection, but in that, too, the performance is not elaborate and exhibits a great difference from the systematic methods of British schools.

---

[1] Journal de Médecine de Bordeaux, June 10th, 1919.

Classes of Students.

There are three classes of student in attendance at the hospitals: *internes*, *externes*, and *stagiaires*. The first-named are resident; the second leave the hospital at night, but are liable to be called on at any hour in case of emergency; they are in the institution all day. The rest or main bulk of the students, who have no responsibilities beyond putting in an appearance for three hours every morning, are the *stagiaires.*

Optional Lectures.

The fact that attendance at lectures is not compulsory provides a striking illustration of their usefulness. A systematic course is given by the professor in each subject, but the attendance of students, being voluntary, his audience generally consists of a few ambitious enthusiasts and a few "casuals," who go with no other object than that dictated by the love of occasionally exercising a privilege even when it bores him. Through what medium, then, is the student brought into touch with the subject, and by what means are his thoughts brought to bear on general principles? The reading of books is his chief resource; supplemented by a mere glance at the performance of an experiment, more often only at the result of an experiment, or a peep down a microscope, such reading gives him little facility for the elucidation of problems as compared with the careful exposition to which he would be treated in the lecture-room. The absence of lectures is, with the lack of use of the hands, a cause of the delay exhibited by the majority in getting a grasp of what is before them. The repetition of courses referred to is all too frequently a result of want of coördination and completeness in the teaching process; not only the ability to learn is affected, but interest in the work suffers and desire to advance is not given adequate stimulus. In addition to what a man actually learns from a lecture or series of lectures, there is the advantage of obligatory renewal of acquaintance with the subject at regular intervals, otherwise it tends to drop out of the student's consciousness of things that matter.

Livret Scolaire.

The *livret scolaire*, or record book of the student's behaviour and achievements in the classes, is an institution which has much to recommend it. We have got no real equivalent. The progress of the person concerned is entered up regularly in this book through the session; if there were only some more convincing tests of his proficiency than the few simple questions which determine his *note* or marks it would be an excellent practice. The *livret scolaire* is an important factor in the examinations proper; it is kept by the assistants, who are responsible for it to the administrative body, and it is presented to the examiners when the candidate presents himself.

Viva Voce Examination.

The system of examinations seems very strange to the British visitor. He receives a shock on being informed that right through the whole series there are no questions to be answered in writing by the candidate. The only approach to the British paper system is when the candidate for the final examination has to write his diagnosis, prognosis, and treatment for a clinical case. The thesis for the degree is also an exception. In the course of the *viva voce* examination, the candidate may express a desire to write a formula or to draw in illustration of his answer. Beyond these instances there is no writing required. There are no practical tests at examinations, other than the final, except as already indicated by the courses—i.e., a question concerning some experiment, the recognition of a slide, &c. In anatomy a short dissection is given. In what, then, does the examination consist? It is almost solely of the *viva voce* order. In that case, it will be surmised, this must be an elaborate performance, a real raking test of knowledge. The method is somewhat as follows. A jury of three to five examiners is appointed by the dean or by a director. Those qualified to take part in it are numerous and include *agrégés*, assistants, lecturers, as well as the professors. The practical portion, in so far as it can be called practical, is conducted by the *chefs de travaux*, or assistants, who do not always form part of the jury, but who report to the latter on the answering of the candidates. The jury, say three, are seated at a long table facing a row of some 15 or more *examinés*. Behind the candidates, and quite close, is a barrier separating off the audience, which consists of a number of interested people looking on at the performance and listening to the dialogue of the actors in the scene; these are the general public, who are admitted to all such séances. A number of slips of paper on which questions are written are placed on the table, blank side up. From the pile in front of each examiner the candidate draws one question *au hasard*, and he is generally given a few moments to consider his answer. The question, as a rule, is treated exhaustively; the replies are appraised as "very good," "good," "middling," or "bad." The president of the jury deviates very widely from the set question, the others but little; he also gives his attention to more than one candidate at a time. If a man is "stumped" by the question the examiner takes him on to any point that he likes, choosing something easier for the most part.

The standard of answering of the successful candidates is comparatively low, lower at the present time than usual; the exceptional conditions determine exceptional leniency; but even in normal times the examination test is a much simpler thing than that to which we are accustomed. In the old regime there were no examinations at the end of either of the first two years; questions in anatomy and physiology were given in the final, as they are liable to be given now, though the provision is rarely acted on.

General Survey and Comparison.

Taking a general survey of the French curriculum we are struck chiefly by the absence from it of practical work, or any equivalent of this as we know it; it is especially wanting in the earlier years of study. Certainly to those steeped in the British tradition that practice makes perfect, to those who believe that knowledge established through impressions received in the higher centres from the senses of vision and hearing alone falls short in many important attributes of that which is supplemented by the tactile and muscular senses, to such the purely theoretical nature of the early teaching in this curriculum leaves much to be desired. At first sight we are impressed by the importance attached to clinical study, a compulsory item on the programme for every year. Then we ascertain that this is made possible only by the suppression of the laboratory work which we all deem so important and the neglect of systematic lectures which most of us deem almost equally important; this gives check to our initial favourable thoughts on the position. Further investigation reveals a lack of interest on the part of the embryo clinicians, and we conclude that the advantages of the scheme are hopelessly outweighed by the obvious disadvantages. The benefits accruing from a three hours' daily hospital routine to the average *stagiaire* of the unsophisticated variety are no more than could be derived by him in a few hours each week at the bedside. These few hours may be recommended to all schools by those who have witnessed the keenness of the competitions for resident posts in French hospitals. The interne and externe student clerks in the hospitals, already referred to, are appointed on the results of competitive examination; as many as 50 competitors may enter for a couple of vacancies, and it will be readily understood that the rivalry is keen; this is especially so for the *internat*, in which the appointments number two or three for each hospital. The *externat* consists of six to eight. The examination for these partakes largely of things learned in the hospital; it would be a pity to deprive it of this character by abolishing all hospital attendance during the earlier stages; some idea of clinical work must be gained from the start if the student is to display any proficiency by the time the examination comes round in his third year; but much less than at present imposed would meet the case, and this, even at the cost of cutting some laboratory work, it would be well to maintain.

Viewed from the standpoint of expediency only, the French administration is adopting a wise policy; having no accommodation for the ordinary laboratory courses and lectures it does the next best thing. Even in the hospitals there is not sufficient scope to give courses of the kind if an idea of their feasibility should enter the responsible heads. Paris has need not of one but of four or five large medical schools with properly equipped laboratories.

The desirability of introducing a written examination into the present series is apparent to most of the teachers; it is pressed for by Professor Bergonié[2] in his appeal for a new order. The indifferent and the active opponents of the project are influenced not so much by the question of its value or utility as by that of expediency. "*Comment voulez-vous qu'on le fasse, voyons?*" they ask. "By spreading out the candidates a bit," you may reply. "Put some of them in the hospitals, others in class-rooms, &c. You would find room enough somehow." Suggestions of this sort have, of course, already occurred to those concerned, but they are not adopted. The surgeons and physicians are the greatest sinners in perpetuating the undesirable state of things; they have to deal with the limited writing already mentioned for the final examination and thesis, and they do not realise the need for more.

The standard of the thesis for the Doctorate in Medicine is fairly good, though one is struck by the lack of the critical attitude in successful essays. There is generally an exhaustive exposition of the views prevailing on the subject dealt with, and the bibliography is extensive. But with little call for original thought and discursive display the thesis must be pronounced an easy final obstacle to the attainment of the student's goal, the M.D. degree.

NOTES ON HOUSING.

The International Red Cross and Housing.

THE League of Red Cross Societies have recently issued their report on the conference held at Cannes last April. In a paragraph which deals with housing and town-planning the report asserts that improvement in the social welfare of the people plays an important part in the campaign for the prevention of tuberculosis, venereal diseases, malaria, and in child welfare. It was felt that the importance of the provision of sanitary, comfortable, and convenient dwellings is so generally recognised as to require little discussion, but that too often when the work is actually in hand experienced advice and the best designs are not available. Thus, houses and apartments for workmen are erected from unsatisfactory designs made by inexperienced architects or from the plans drawn by speculative builders; and the resulting structures are not only far less comfortable, convenient, and sanitary than they should be, but the cost is in excess of the amount for which similar houses, better in every respect, could have been produced. The national Red Cross societies are advised to attach to their personnel one or more architects or engineers specially informed on the problems of town-planning and in the erection of homes for workmen. The national Red Cross section should be prepared to proffer advice and to furnish designs for the best types of houses in those localities where such work is being undertaken. The Central Bureau on its part should collect plans and designs for houses, apartments, buildings, schemes for town-planning, designs for hospitals, charitable and penal institutions of various countries, analyse and digest them, and distribute the results of the studies to the various Red Cross societies for their use and guidance. The question of materials to be employed in different localities and countries would be a most important one, and would depend upon those which were most easily available and most inexpensive in the respective countries. Some further suggestions under this heading are attached.

A list is also presented of those architectural features for which good housing and town-planning must make adequate provision. These include planning with a view to securing personal and family privacy and to making the home as comfortable and attractive as possible; the provision of rest rooms for women and girls in factories, shops, and schools; the prevention of room, block, and transportation overcrowding; convenient sanitary places for the preparation, handling, and sale of foods; streets, blocks, and open spaces planned so as to provide for sunlight in as many rooms as possible and for the circulation of fresh air, free from dust and smoke; the segregation of buildings whose use is harmful to their surroundings from the standpoint of safety, health, and comfort, and so that prevailing winds will not blow smoke and noxious gases and odours over the residential portion of the town; and the provision of attractive places for physical and social recreation. The most progressive countries now recognise these principles; many of them are applying them in practice; many have passed laws, more or less effective, to compel their application. Much, however, remains to be done, especially in the matters of scientific research and popular education.

New Publications.

Dr. J. Lawson Dick's book, entitled "Defective Housing and the Growth of Children," to which we allude elsewhere, would more accurately have been described as an essay on rickets, for the bulk of the book is concerned with the changes which result from this disease in the skeletal, dental, and endocrinous systems, together with a consideration of its relation to mental deficiency. It is, however, not the least interesting feature of the book that for all these things bad housing conditions are held to be chiefly responsible. The author discusses the occurrence of rickets amongst the Jewish population, wherein the children, although overcrowded, are well nourished, and seeks to prove that whereas rickets may or does occur when the fat-soluble A factor is abundant in the diet, it never occurs where sufficient fresh air and exercise have been provided. It is difficult, he says, to avoid the conclusion, the converse of that arrived at by Professor F. G. Hopkins, that defective housing and slum dwellings are the essential causes of rickets, and that any scheme of feeding, however perfect, will inevitably be a failure so long as slums and housing conditions are left as they are.

The Housing Department of the Ministry of Health now issues a fortnightly periodical.[1] Being an official publication it is robbed very largely of the function of criticism, but it provides an interesting survey of the progress that is being made in building in different parts of the country. From this source we learn that the number of local authorities which have begun work on building schemes is less than a hundred, and yet the building season is rapidly drawing to a close. Dr. Addison was called upon to defend his new journal in the House of Commons on August 14th. He then stated that its function was not to compete with existing periodicals, but merely to provide a regular means of direct communication between the Department, the local authorities, and the Ministry's staff up and down the country. The idea is wholly admirable, and medical men will be most interested to learn at regular and short intervals how and when the building schemes are developing.

Manuals and Memoranda.

The Ministry does not, however, confine itself to this method of keeping in touch with its officials and those of the local authorities. It is evidently anxious that no unnecessary extravagance shall be committed through ignorance of the most efficient, and therefore of the most economical, methods of construction. Thus it has issued a standard specification for the construction of roads and sewers, and is not prepared to approve schemes which depart unnecessarily from the rulings which are laid down therein. The result of this anxiety to protect the taxpayer from unnecessary expense has been to restrict the output in bricks and mortar to such an extent that the housing needs of the country are to-day much the same as at the signing of the armistice. Moreover, there is no immediate prospect of their diminution. This delay was foreseen, and an attempt made to counteract it in the provisions of the Housing (1919) Act. Section 12 gives the local authority power to acquire existing houses, and to alter, enlarge, repair, or improve them so as to make them habitable as houses for the working classes. These powers include the right to acquire large houses for conversion into flats. During September the Ministry issued a Manual[2] whose object is to place in the hands of local authorities detailed suggestions as to how this conversion may be carried out. Advice is given as to the legal powers conferred by the Act, the class of property which is suitable for conversion, and the procedures which must be followed to obtain Government aid. A series of typical plans is appended which will be of assistance to any local architects, if such there be, who are lacking in initiative. The number of houses in London scheduled as generally suitable for conversion has already reached 1000.

---

[2] Loc. cit.

[1] Housing. H.M. Stationery Office. Price 3d.

The Ministry has since issued model forms of tender and agreement, with conditions of contract and schedule of prices. The model forms, intended to be generally adopted in connexion with State-aided housing schemes, are published at the modest price of 3*d.* at the Stationery Office.

Temporary Accommodation.

A clause has been inserted in the Act which enables the local authority, during a period of three years from the passing of the Act, to assent to the erection of temporary buildings for human habitation, notwithstanding the provisions of any building by-laws in force in the district. For this purpose the Ministry is prepared to arrange for the sale of army huts of selected types at a discount of $33\frac{1}{3}$ per cent. below the valuation of the property. Wherever there exist such huts which are urgently needed for housing purposes the War Office have undertaken, upon receiving representations from the Ministry of Health, to make every effort to expedite their evacuation.

Concrete Houses.

An experiment in concrete house-building is at present being carried out at Braintree. This method of construction is particularly rapid, three houses being completed every week. The cost of construction, however, varies considerably with the locality. At Braintree a suitable gravel is found on the building site, so that a great deal of cartage is avoided. Powerful machinery has been installed, and as many as 4000 concrete blocks—the equivalent of 24,000 bricks—can be manufactured in a day. For reconstruction purposes in France this method was carefully inquired into and finally rejected in favour of *maisons démontables* built of wood, but it may well be that in certain parts of this country concrete is more economical. The houses are dry and fireproof, and need not be excessively ugly if they are well designed.

Housing in Nova Scotia.

In Nova Scotia, so we are told, the housing problem has long ago been solved. One may telegraph for a house and it will be forwarded by the next train. These houses are, of course, built of wood, and the doors are liable to be uncloseable in damp weather. Galvanised iron is largely used to protect the exteriors and as roofing. There are two objections to its use: that appearance which in England we associate with the temples of the lesser Christian sects, and the noise which is made by the beating of rain upon its surface. The first objection can be largely overcome by an æsthetic architect; the second is met by inserting spruce bark between the iron and the wooden ceiling. This not only deadens the sound, but provides a pleasant aroma which is exceedingly inimical to flies. The speed with which the city of Halifax was reconstructed after the devastating explosion which occurred there is evidence of what may be done in wooden buildings when a large supply of the raw material is at hand.

---

[2] Manual on the Conversion of Houses into Flats for the Working Classes. H.M. Stationery Office. 1919. Price 1*s.*

THE CHILD-STUDY SOCIETY.—This society is holding meetings at the Royal Sanitary Institute, 90, Buckingham Palace-road, S.W. On Oct. 23rd a discussion will be opened by Mr. C. H. Barker on the Literary Needs of the Child. How to Make English Live in the Child Mind is the subject of the following lecture by Mr. O. A. Minns on Nov. 6th, and the Pre-School Child will be the topic of a lecture by Dr. David Forsyth on Nov. 20th, when Mrs. Scharlieb, M.D., will preside. The last lecture of the session will be on Religion and Education, by the Rev. W. F. Cobb, on Dec. 4th. The hour of meeting is 6 P.M. in all cases.

THE LONDON MEDICAL EXHIBITION.

AFTER a lapse of six years the ninth London Medical Exhibition was opened at the Central Hall, Westminster, on Oct. 6th, remaining open until to-day (Friday, Oct. 10th). Former exhibitions organised and conducted under the same auspices were held in the Horticultural Hall, Vincent-square. While that building is more commodious, the situation of the Central Hall is convenient and has fulfilled the purposes for which it was employed excellently. The drug, instrument, and book trades were well represented at the exhibition, especially when there are taken into consideration the difficulties of transport and the general dislocation of business due to the recent strike.

Progress of British Manufacturers.

The exhibition proved of particular interest in showing the numerous and important advances made in this country, chiefly in the manufacture of chemical and pharmaceutical products and antiseptics during the period of the war. Preparations were to be found in good number, demonstrating agreeably how British manufacturers have risen to the occasion who have now established their laboratories and factories as reliable and adequate sources of supplies of many products hitherto exclusively obtained from abroad. The arsenical synthetics, aceto-salicylic acid, peptone for bacteriological work, and drugs in colloidal state, may well be described as vindications of British powers of research and application. The demonstration served to show also how professional in character were the products, for the organisers have always made a point of keeping the exhibition exclusive to the medical visitor. Medical men found themselves able to spend a good deal of time in making a serious review of the exhibits, for the exhibition proved a real demonstrative centre of new things in medicine and in surgery.

The Exhibits.

It was not the object of the exhibitors, or at any rate of the biggest firms, to afford a complete display of their various products, but rather the general aim was twofold: first, to show those productions and preparations for which the firms have made a name; and secondly, to exhibit such products and preparations as hitherto have been made abroad. With this end in view, Messrs. Burroughs, Wellcome and Co. displayed kharsivan and neokharsivan made by them in place of the German salvarsan and neosalvarsan. Messrs. Allen and Hanburys, among other special products, showed "eupepton" made to displace Pepton Witte. An exhibit of much interest was that of British Colloids Ltd., who showed the various collosols, a purely British discovery, both as regards origin and the means to render metallic colloids stable. Messrs. Howards and Sons, Ltd., among the very large number of chemicals manufactured by them, showed aspirin tablets reaching a high standard of purity and of great solubility, thus proving that aspirin preparations of the finest quality can be made in this country. Messrs. Parke, Davis and Co. had a picked selection of their special preparations, among them being apothesine, granulogen, and hemoplastin. Messrs. Boots Pure Drug Company, Ltd., had a good display of synthetic medicinal chemicals and modern antiseptics. Messrs. May and Baker, Ltd., showed specimens to illustrate the chemical synthesis of arsenobillon, ampoules of arsenobillon, novarsenobillon, and disodo-luargol, and synthetic and medicinal chemicals. Messrs. C. J. Hewlett and Son, Ltd., showed a selection of their beautiful preparations, triumphs of the chemist's art. Messrs. Savory and Moore, Ltd., had a display of their many well-known food and chemical products. An exhibit which attracted a good deal of attention was Dr. George Oliver's hæmoglobinometer and hæmocytometer.

Surgical appliances of every description were well represented in the displays of Messrs. Allen and Hanburys, the Surgical Manufacturing Co., Ltd., and Messrs. Hawkesley and Sons. The Gloucester Surgical Appliances Co., of Cheltenham, exhibited a number of surgical appliances of novel design adaptable for orthopædic disabilities, amongst which were Chandler's patent paralysis splint, a new type of excised elbow apparatus, and several ingenious forms of appliances for drop-wrists and feet.

Messrs. Baillière, Tindall, and Cox exhibited a large number of their well-known publications, as did also Messrs. H. K. Lewis and Co., Ltd., Messrs. Henry Frowde, Hodder, and Stoughton, and Messrs. Stanley Phillips, who among other publications had on view some of the publications of Messrs. D. Appleton and Co.

Further Efforts Necessary.

The main intention of the London Medical Exhibition of this year was to set out, as far as is possible in an exhibition of this nature, the progress which has been made by British chemists and, to a lesser extent, instrument makers in efficiently substituting drugs and appliances of British manufacture for those of foreign make. For this reason reference here has been made almost solely to the exhibits made to displace similar products which were formerly the monopoly of enemy enterprise. The verdict of the visitors will be that confidence may be placed in the ability, or even genius, of British men of science to overcome difficulties, however great. Moreover, to the rank-and-file of the small army of scientific workers of this country is due all honour for the manner in which they have carried out the results of the investigations of their leaders. The exhibition was entirely satisfactory regarded from this point of view ; it is essential now that this good work should be kept up. It is to be hoped that the Medical Exhibition of next year will show continued and rapid advances.

SCOTLAND.

(FROM OUR OWN CORRESPONDENT.)

University of Edinburgh : Induction of Professors.

NO fewer than six new professors were inducted on Oct. 2nd—namely, three in the Faculty of Arts : Mr. O. L. Richmond, M.A. (Humanity), Mr. Norman K. Smith, M.A., D.Phil. (Logic and Metaphysics), and Mr. Robert K. Hannay, M.A. (Ancient History and Palæography) ; and three in the Faculty of Medicine : Sir Harold J. Stiles, M.B., C.M., F.R.C.S. Edin. (Regius Professor of Clinical Surgery), Dr. F. D. Boyd, C.B., C.M.G., F.R.C.P. Edin. (Moncrieff Arnott Professor of Clinical Medicine), and Dr. J. C. Meakins (Christison Professor of Therapeutics). The medical professors are all distinguished in their lines. Sir Harold Stiles is well known for his original researches on cancer, which gained him the Walker Prize of the Royal College of Surgeons of England in 1896. Dr. Francis D. Boyd, physician to the Edinburgh Royal Infirmary, has been lecturer on Materia Medica in the School of Medicine of the Royal Colleges, Edinburgh, and during the war acted as consulting physician to the Egyptian Expeditionary Force, serving in Palestine and Egypt. Dr. J. C. Meakins, graduate of McGill University, where he recently held the position of lecturer in medicine and director of the medical research laboratory, was formerly assistant in medicine at the Johns Hopkins Medical School. He served with the Canadian Army Medical Corps during the war, holding the rank of Lieutenant-Colonel, and had medical charge of the large Canadian Hospital at Taplow. He is the first occupant of the new chair of therapeutics. At the present time the number of students seeking entrance to the University is greatly in excess of the vacancies available, and many of the more junior are having to be refused, or their admission postponed ; preference is in all cases given to those who have been on military service. The teaching arrangements of the medical school are now returning to the normal, and it is certain that by the additions to the professorial staff the high standard of instruction will be enhanced.

Scottish Vital Statistics, 1917.

In his report for 1917 the Registrar-General for Scotland estimates the population of Scotland at the middle of 1917 as 4,854,738, of which 2,354,345 are males and 2,500,393 females. The total shows an increase of 30,430 over the previous year, and of 93,834 over the population in 1911, the date of the last Census. The birth-rate was the lowest on record, being 20·07 per 1000 ; this figure is 5·83 less than the mean of the preceding ten years, and 15·83 below that of 1876, the year in which the Scottish birth-rate was at its highest. Marriages numbered 30,482, being at the rate of 6·28 per 1000—the lowest since 1887. The death-rate was 14·31 per 1000, the lowest on record, being 1·43 less than the mean of the previous ten years. The infantile mortality was 107·5 per 1000 births, and is less by 3 4 than the average of the preceding ten years. An examination of the causes of death showed that those due to enteric fever, diphtheria, and tuberculosis were fewer in 1917 than in all previous years, but that the death-rate from malignant disease was higher. Deaths from phthisis, though more than in 1914, were fewer than in all other years. The report shows that there is a continued increase in the number of children exempted from vaccination under the conscientious objection certificate. Of children born in 1916 and surviving at the time of compulsory vaccination, 35·2 per cent. were so exempted ; 57·9 per cent. only were successfully vaccinated.

Election of a Direct Representative for Scotland to the General Medical Council.

Dr. Norman Walker, who has been the Direct Representative for Scotland on the General Medical Council for the last 13 years, offers himself as a candidate for re-election, and in the address which he has issued to the profession outlines his views on current medical problems. A number of suggestions are made with regard to the reorganisation of the medical curriculum, the message being that throughout a student's course the importance of preventive medicine should receive greater prominence. While it is not practicable to extend the medical curriculum to longer than five years, Dr. Walker suggests that for senior students four terms per annum of 10 weeks each should be held instead of three as at present, the teaching staff being augmented if necessary. Attention is drawn in the address to the higher standard of preliminary examination recently adopted in Scotland, and it is suggested that since the instruction on chemistry and physics in some of the secondary schools is of a high standard, the student might be advantageously admitted to a preliminary examination in these subjects immediately after entering the university, and so save six months' time which might be utilised for later subjects. In order that the standard of medical education may be maintained Dr. Walker proposes that the present number of inspectors under the General Medical Council should be increased, and that they should take a part in every final or qualifying examination.

Oct. 6th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Health of Belfast in 1918.

Two important reports—that of the medical officer of health of Belfast for 1918 and that of the chief tuberculosis officer of the Belfast corporation for the year ended March 31st, 1919—have just been issued. The difficulty is encountered as to what is the population of Belfast, which the Registrar-General estimated as 393,000 to the middle of 1918, the same as that for 1917. In his report for 1917 the medical officer of health of Belfast pointed out that if the population had been calculated on the average number of persons per house, as shown by the Census returns of 1911, and the number of occupied dwelling-houses, it would have been over 404,000 for that year alone ; notwithstanding this, the population for 1918 is fixed at the same figure as that for 1917, no allowance whatever being made for the great influx of people to the city of Belfast during the last few years, many of whom, together with their families, have had to content themselves with a couple of rooms, no proper housing accommodation being available. It became quite clear, at the time of the Belfast Health Commission, that any attempt to form an idea of the population of the city between the periods at which the Census is taken is mere guesswork. Accepting, however, the population of Belfast in 1918 to be 393,000 (as a mere working hypothesis), the birth-rate was 23·6, an increase of 1·4 per 1000 of the population as compared with 1917 ; the death-rate was 22·7, a great increase over that of 1917, which was 16·7 ; while the annual death-rate for the 10 years 1908–1917 was 18·1. This great increase is attributed to the serious epidemics of influenza, followed by septic pneumonia, which occurred in the summer and autumn of the year, and against which the rigorous precautions put in practice seemed to have had little effect. The infantile mortality rate—144 per

1000 births—is an increase of 14 per 1000 as compared with the preceding year. The phthisis mortality was 2·7 per 1000, the highest since 1906, and a steady rise since 1915. The increase is attributed to deaths as the result of tuberculosis of soldiers and sailors, and to the influenza epidemics. In connexion with the public health of Belfast the total death-rate, the infantile mortality, and the phthisis death-rate for 1918 are all increased, while at the same time one of the most costly departments in the city expenditure for 1918 is that of public health—£90,000 during the year. Ten years ago the expenditure was just over £60,000, so that in a decade it has gone up 50 per cent. The tuberculosis new scheme, which costs £37,000, is charged upon the poor-rate, and not upon the municipal rate. The Government is supposed to pay half the cost of that scheme, but the returns show that the amount of their contributions last year was only £14,666.

Doctors' Fees.

The doctors in Lisburn have decided to increase their fees by 25 per cent. In addition, all Sunday-night calls are to be charged a fee and a half.

The Late Dr. Samuel Wright.

The death occurred on Sept. 20th at Portrush of Dr. Samuel Wright, of Belfast. Born in 1890, Dr. Wright received his medical education in Queen's College, Belfast, where his personal popularity was very marked. He took the L.R.C.P. & S. Edin. in 1913 and the D.P.H. Belfast last year. One of the original Expeditionary Force, he went to France in August, 1914, as a Lieutenant of R.A.M.C. (S.R.). He was attached for a time to No. 9 Stationary Hospital, and afterwards became M O. i/c. 2nd Battalion the Leinster Regiment. At the battle of Neuve Chapelle he was gassed and strained his heart, but was able to carry on for three more years before resigning his commission. From then until his death his health was undermined, and he was never fit for the arduous duties of a medical man. He leaves a widow and a large circle of friends to mourn him.

Oct. 7th.

URBAN VITAL STATISTICS.

(Week ended Sept. 27th, 1919.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at 16,500,000 persons, the annual rate of mortality, which had been 10·7, 10·4, and 10·9 in the three preceding weeks, rose to 11·8 per 1000. In London, with a population slightly exceeding 4,000,000 persons, the annual death-rate was 12·0, or 0·6 per 1000 above that recorded in the previous week, while among the remaining towns the rates ranged from 6·3 in Hornsey, 6·8 in Wimbledon, and 7·1 in Acton, to 17·8 in Burnley, 21·0 in Dewsbury, and 21·5 in Hastings. The principal epidemic diseases caused 489 deaths, which corresponded to an annual rate of 1·5 per 1000, and included 371 from infantile diarrhœa, 58 from diphtheria, 24 from measles, 19 from whooping-cough, 13 from scarlet fever, and 4 from enteric fever. Measles caused a death-rate of 1·1 in Sunderland, 1·3 in Gateshead, and 2·0 in South Shields. The 371 deaths from infantile diarrhœa were 49 in excess of the number in the previous week, and included 138 in London, 23 in Liverpool, 13 in Sunderland, and 12 each in West Ham, Birmingham, and Newcastle-upon-Tyne. There were 1652 cases of scarlet fever and 1175 of diphtheria under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, against 1524 and 1118 respectively at the end of the previous week. The causes of 29 deaths in the 96 towns were uncertified. and included 4 each in Birmingham and Darlington, and 3 each in Stoke-on-Trent and Sunderland.

Scotch Towns.—In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2,500,000 persons, the annual rate of mortality, which had been 10·8, 10·2, and 10·5 in the three preceding weeks, rose to 11·9 per 1000. The 249 deaths in Glasgow corresponded to an annual rate of 11·6 per 1000, and included 17 from infantile diarrhœa, 2 from diphtheria, and 1 each from enteric fever, scarlet fever, and whooping-cough. The 64 deaths in Edinburgh were equal to a rate of 9·9 per 1000, and included 2 each from measles, scarlet fever, and infantile diarrhœa, and 1 from whooping-cough.

Irish Towns.—The 117 deaths in Dublin corresponded to an annual rate of 15·1, or 2·6 per 1000 above that recorded in the previous week, and included 9 from infantile diarrhœa, and 1 each from enteric fever and scarlet fever. The 112 deaths in Belfast were equal to a rate of 14·6 per 1000, and included 13 from infantile diarrhœa, 5 from scarlet fever, and 1 each from enteric fever and diphtheria.

(Week ended Oct. 4th, 1919.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at 16,500,000 persons, the annual rate of mortality, which had been 10·4, 10·9, and 11·8 in the three preceding weeks, further rose to 12·0 per 1000. In London, with a population slightly exceeding 4,000,000 persons, the annual death-rate was 12·2, or 0·2 per 1000 above that recorded in the previous week, while among the remaining towns the rates ranged from 5·3 in Acton, 6·4 in Blackpool, and 6·7 in Smethwick, to 19·7 in Gateshead, 21·3 in Warrington, and 27·2 in Tynemouth. The principal epidemic diseases caused 411 deaths, which corresponded to an annual rate of 1·3 per 1000, and comprised 292 from infantile diarrhœa, 52 from diphtheria, 19 from whooping-cough, 16 each from scarlet fever and measles, and 12 from enteric fever. Measles caused a death-rate of 1·1 in Sunderland. The deaths from infantile diarrhœa, which had been 241, 322, and 371 in the three preceding weeks, fell to 292, and included 114 in London, 25 in Liverpool, and 9 each in Sunderland and Newcastle-upon-Tyne. There were 1796 cases of scarlet fever and 1206 of diphtheria under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, against 1652 and 1175 respectively at the end of the previous week. The causes of 26 deaths in the 96 towns were uncertified, of which 7 were registered in Birmingham, 3 each in Liverpool and Hull, and 2 in Eastbourne.

Scotch Towns.—In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2,500,000 persons, the annual rate of mortality, which had been 10·2, 10·5, and 11·9 in the three preceding weeks, fell to 10·8 per 1000. The 216 deaths in Glasgow corresponded to an annual rate of 10·1 per 1000, and included 7 from infantile diarrhœa, 4 from diphtheria. and 3 from whooping-cough. The 65 deaths in Edinburgh were equal to a rate of 10·1 per 1000, and included 3 from infantile diarrhœa and 1 from measles.

Irish Towns.—The 122 deaths in Dublin corresponded to an annual rate of 15·7, or 0·6 per 1000 above that recorded in the previous week, and included 8 from infantile diarrhœa, 2 from scarlet fever, and 1 from diphtheria. The 107 deaths in Belfast were equal to a rate of 13·9 per 1000, and included 13 from infantile diarrhœa and 4 from scarlet fever.

Obituary.

WILLIAM KAY WALLS, M.B. LOND., M.R.C.S.,

HONORARY SURGEON TO ST. MARY'S HOSPITAL, MANCHESTER; CLINICAL LECTURER ON MIDWIFERY AND DISEASES OF WOMEN IN THE UNIVERSITY OF MANCHESTER.

Dr. William Kay Walls, who died on Sept. 30th, was well known in the North of England as an obstetrician and gynæcologist.

Born in 1865, the son of a doctor in a busy practice in Manchester, he entered the medical school of Owens College, Manchester, obtaining his Conjoint qualification in 1888 and taking the M.B. Lond. a few years later. He was then Mr. Whitehead's house surgeon at the Royal Infirmary and held the post of house surgeon to St. Mary's Hospital, Manchester, his association with which was only broken by his death. As resident obstetric assistant surgeon and surgical officer for seven years he gave promise of his later surgical skill and showed talent as an organiser. This long apprenticeship served him well, for when he left the hospital he started his private work with a fund of experience and a practical dexterity which few men of his years could possess. He remained on the staff of St. Mary's Hospital as assistant surgeon, and after the amalgamation of this hospital with the Southern Hospital in 1905 he had charge of a larger number of beds.

Dr. Walls made rapid progress as a consultant, being a bold and skilful operator, with sound judgment. Deliberate in his decision, once decided he was rapid and most expert. It may be regretted that he wrote so little, for few men in his special work had clearer views, and no one who had the opportunity of following his work failed to learn something from his methods. He was a regular attendant at the meetings of the North of England Obstetrical and Gynæcological Society, becoming President in 1910. He was an excellent clinical teacher and held the post of clinical lecturer in Manchester University.

Outside his professional life Dr. Walls had many interests: golf, motoring, photography, music, and billiards all attracted him. He was the main organiser of the successful annual competition for medical golfers living in Manchester and the neighbourhood. Quiet in his manner and almost reticent, he was essentially kindly, and would spare no trouble to do a good turn to a friend.

The last two years of his life were clouded by ill-health, but until last spring he allowed it to make no difference in his professional life. Ultimately he was compelled to give up active work. He will be greatly missed by a large circle of friends, his colleagues, and by many who have been under his care—not least by the poorer patients who crowded his out-patient room. He leaves a widow and three daughters.

THE LATE DR. ROBERT MACNAB.—Robert Macnab, M.D. Glasg., F.R.C.S. Edin., J.P., who died recently at his residence in Bath, in his seventy-ninth year, was formerly in practice at Bury St. Edmunds, and was honorary consulting surgeon to the West Suffolk Hospital. For many years he conducted a very large general practice in West Suffolk, at first alone and later in partnership with Mr. R. H. Lucas. He was an admirable all-round practitioner and commanded esteem and respect over a large district of the county.

Correspondence.

"Audi alteram partem."

THE ROUTINE WASSERMANN.

To the Editor of THE LANCET.

SIR,—At the present time, with the venereal lessons of the last five years lying before us, there should be little need to insist upon the importance of the incidence of syphilis in the community. Sir William Osler has estimated that 60,000 people die annually in these islands from this disease and its sequelæ. The estimate is a moderate one. But the importance of syphilis as a killing disease is unfortunately not yet realised.

The Stimulation of Public Opinion.

Sensations—in the journalistic sense—may be vulgar. They may be incompatible with the dignity and scientific detachment of the British medical mind; but, had THE LANCET of 1917 been a lay journal and had the article on "The Campaign against Syphilis," by Sir William Osler, been heavily headlined and written in a different style, it would undoubtedly have caused a "sensation." The fact that in 1917 over 90,000 men of the British Army in France suffered from venereal disease is a sensational one. The value of a journalistic sensation is that it directs attention towards some particular object, usually a scandal. A strong public opinion is aroused which demands that immediate steps be taken to remedy the matter. The recent influenza epidemic stimulated both the general public and the medical profession into valuable activity. Yet that epidemic, as a source of national danger and weakness, was insignificant when compared with the endemic syphilitic menace. While the former was tackled with energy, the latter is regarded with something approaching apathy. The 60,000 annual deaths arouse neither resentment on the part of the lay public nor shame on that of the medical profession.

Needless Mortality from Syphilis.

Were the matter properly appreciated it would be realised that such mortality is needless. We know that syphilis is curable; that there is no necessity for the disease to advance beyond its primary stage; that under suitable conditions even the primary stage should be a curiosity; and yet these 60,000 people are allowed to die. The public have the right to demand an explanation; and they have, furthermore, the right to know what steps are being taken to prevent the continued annual recurrence of mortality from this cause. At the present time the profession as a whole is not working to reduce the incidence of the disease and the death-rate resulting from it. A few enthusiasts and pioneers are, but for the majority the main characteristic is inertia. The reason is that syphilis creates no sensation; it has made little impression upon the public or professional mind.

The mortality from syphilis is, we know, due to want of early diagnosis and inadequate treatment. We are the teachers of the public on matters of health. Although the man in the street is, in a great degree to blame, his fault and misfortune spring from ignorance. We must bear the ultimate responsibility for that. As an educative force we have greatly neglected our opportunities. In this special matter we have failed in our duty to the community for our function is just as much to prevent as to cure disease. Tuberculosis and cancer may be important. They are certainly cleaner to mention than venereal disease; but their influence upon the national health is infinitesimal when compared with that of syphilis and gonorrhœa.

Inadequate Treatment.

That there should still be discussion amongst us as to prophylaxis, compulsory notification, and compulsory treatment is evidence that we are drifting without a compass on the wide venereal ocean. We have a venereal community living in venereal ignorance. We are a profession of venereal treaters, not preventers. We administer treatment when and where we can, not when and where we ought. The results prove that too often our treatment is inadequate. To complain that we are handicapped by want of public and legislative support is futile, for the fault is ours.

We already possess some machinery which can be adapted for dealing to some extent with the matter. But it is rusty from disuse. Our national health organisation sits like an octopus waving its tentacles over tuberculosis, housing, and insanity. No tentacle has yet had sufficient nerve to take a firm grip of the luetic enemy—the most dangerous, but at the same time the most vulnerable of all. So long as the offensive spirit, energy, and determination are lacking, for as long will syphilis continue to work destruction among our people.

A Venereal Offensive: The Wassermann Test.

The time for academic discussion and the weaving of nebulous theories has gone past. We must attack. If by means of our attack we can at the same time acquire information that will pave the way for a greater offensive, so much the better. To estimate the strength of the enemy is a necessary preliminary to any assault. The more accurate the estimate, the brighter are the prospects of success. One valuable measure would be the performance of a Wassermann on every patient admitted to hospital.

At the present day, on account of the prevalence of syphilis, this is an essential routine. It should be as invariable a rule that a Wassermann test should be done as that the urine should be examined. Not the least valuable effect of this would be that the results would furnish us with a more accurate index as to the prevalence of the disease. Were it continued for a period of years it would indicate whether or not any progress was being made towards eradicating it from the community. The first effect produced where this routine has been adopted has been to cause a feeling of astonishment at the large percentage of positive results. An examination of figures from American hospitals shows that on an average 19 per cent. of patients admitted, not apparently suffering from syphilis, give a positive result. We cannot hope that our experience in England would be in any way different. We would at once discover an immense hospital population suffering from undiagnosed, untreated, and unsuspected syphilis. It is they who recruit the ranks of locomotor ataxia, aneurysm, and general paralysis of the insane. They form the 60,000 annual victims.

It is more important to do a Wassermann on a patient admitted with a fractured femur than on one suffering from lightning pains and whose knee-jerks are gone. As a diagnostic aid or as an indication for treatment it is, in the latter case, practically a waste of time. If in the former case the result is positive, antisyphilitic treatment would have a two-fold effect. It would hasten the repair of the fracture, and would in addition greatly limit the liability of the patient to be readmitted some years later suffering from the quaternary stage of the disease. A great use of the Wassermann is to be found in its application to cases where syphilis is unthought of.

The laboratories for the performance of the test are in practically every hospital. New ones are springing up all over the country. Competent workers are being trained. Here, then, we have ready everything essential to making a practical attack upon communal syphilis. When the routine Wassermann is done upon every hospital patient a real and great step will have been taken towards dealing with what is undoubtedly the largest and most vital problem in public health work to-day.—I am Sir, yours faithfully,

Oct. 4th, 1919. E. T. BURKE, M.B., Ch.B.

THE BRITISH FEDERATION OF MEDICAL AND ALLIED SOCIETIES.

To the Editor of THE LANCET.

SIR,—In a letter which appeared in your columns on Sept. 20th we are reminded that this federation is the successor of the "Medical Parliamentary Committee." There is, however, an earlier stage in its ancestry, and the story, I am afraid, does not make for confidence in the present organisation. The beginning was a meeting of the profession held some 12 months ago in the Steinway Hall. This meeting was invited to appoint a committee to draw up a scheme with a view to secure an increased medical representation in Parliament, and the invitation was accepted on the assurance that no executive action would be taken until the scheme had been approved by a further meeting of the profession. Whether any such scheme has been framed I do not know, but certainly the pledge given to the meeting has not been fulfilled. We have heard that the committee took to itself the title of "Medical Parliamentary

Committee"; that it entertained medical Members of Parliament to dinner; that it contemplated the employment of an expert lobbyist at the House of Commons; and that it intended a deputation to the Prime Minister. All these gratuitous exercises may have been excellent, but they were quite without sanction from the meeting which called the committee into existence, and they cannot be accepted as a substitute for the particular engagement which the committee definitely undertook.

Again, in the course of the original meeting the chairman, in response to a question from a member of the audience, assured the meeting that the committee would not concern itself with the electoral affairs either of Scotland or of Ireland, and in reliance on this promise an intention to press for representation of Scottish graduates on the committee was abandoned. Yet at the General Election the committee supported the claims of one of the candidates for the Scottish Universities constituency, and it coöpted a representative from a body which called itself the Scottish Universities Parliamentary Association, and which came into existence shortly before the General Election, not, as its name might suggest, in one or other of the Scottish academic centres, but at 37, Russell-square, W.C., that is, at the official address of the gentleman whose candidature the association was formed to promote but failed to carry to success. In other words, the pledge not to interfere with the question of Scottish representation in the House of Commons, though explicitly given by its chairman, was broken by the Steinway Hall Committee. Here then are two instances in which this committee has not kept its word, and the record, I repeat, does not invite to confidence.

So far as I know, the gentlemen signing the letter in your issue of Sept. 20th, and of whose desire to serve the profession there can be no question, took no active part in the Steinway Hall meeting, but I understand that some of those personally committed by the promises made at this meeting are among the officials or directors of the British Federation. What constituency they represent in the federation I do not know, but most certainly it is not the general meeting of the profession which first called them into being. They were there given a definite and specific reference. This reference they have not discharged, and any other activities they have cultivated have been wholly without warrant. The federation appears as one of these activities, and its appeal for confidence therefore cannot be separated from the story of its origin. The style and title may be new, but the broken pledges remain, and have acquired by this time, it is to be feared, "a very ancient and fish-like smell." I am, Sir, yours faithfully,

Sept. 28th, 1919. C. O. HAWTHORNE.

To the Editor of THE LANCET.

SIR,—We thank you for the opportunity you have given to reply in your columns to a communication from Dr. C. O. Hawthorne dealing with what he terms the ancestry of the "Medical Parliamentary Committee." Dr. Hawthorne rightly assumes, in his letter, that we personally were neither present at the Steinway Hall meeting on Oct. 1st, 1918, nor were we then connected with the "Medical Parliamentary Committee." The pledge referred to as having been given at that meeting was that the temporary committee should report to a further meeting of *the whole profession*, as distinct from a meeting of representatives of the existing medical organisations. It is hardly likely that the same individuals would have attended a second meeting convened on the lines of the first, and it is more than probable that a meeting of representatives of existing medical bodies would be a far more representative gathering of the profession. What actually took place was that as a result of the resolution put by the Right Hon. Christopher Addison, M.P., at the Steinway Hall meeting, and carried, a temporary body was formed, which body reported to a further conference convened and held at the Central Hall, Westminster, under the chairmanship of Sir W. Watson Cheyne, M.P. At this second conference of representative bodies it was decided to proceed in the formation of a permanent body, the duty of giving effect to the seven resolutions adopted and of preparing a financial scheme being left to the provisionally constituted "Medical Parliamentary Committee." This meeting was reported in your columns on May 10th, 1919, and also in THE LANCET of the same date. The provisional committee further reported to a meeting of the representatives of the various associations and societies on July 11th last at the College of Ambulance, when the present Federation came into being.

We know of no body established on a "mandate" from all the members of a profession or trade. Surely every new movement owes its origin and its triumph over the difficulties inseparable from its initial stages to the forward policy of a few individuals. It matters little, however, how and by whom the movement was started; we now have in the Federation a definite body which, if adequately supported, should enable the profession to unite and exercise the function of guiding public opinion in all matters affecting the national health. Thus can we hope to secure for the nation sound legislation based on expert opinion. A central organisation unconcerned with either the internal affairs or the policies of the bodies forming it can achieve this aim and provide a common channel of utterance.

We are, Sir, yours faithfully,

MALCOLM MORRIS,
Chairman.
CHARLES BUTTAR,
Honorary Secretary.
N. HOWARD MUMMERY,
Organising Secretary.

The British Federation of Medical and Allied Societies, 20, Hanover-square, W.1,
Oct. 6th, 1919.

NURSE ANÆSTHETISTS.

To the Editor of THE LANCET.

SIR,—As a trained nurse not without ambition, and certainly anxious to be well-equipped, the administration of anæsthetics does not seem to be within my province. I am ready to admit, however, that the training a nurse receives may make some kind of foundation for the acquirement of such knowledge, but if, as your leading article of Sept. 27th implies, the anæsthetist is to be "a pilot whose duty it is to steer the ship of life over a reef-abounding sea," no reliable nurse would wish to act as such unless fully equipped for the voyage. If the point at issue is whether a trained nurse *can become* an expert anæsthetist, I see no reason why she should not; but she must be so trained as to be ready for the uncharted seas.

The well-trained nurse is the last to wish to be classed as one of "the less expert." The medical course of study laid down for an expert anæsthetist either is or is not necessary in its entirety; if it is necessary, it applies as much to the trained nurse as to the medical student; if it is not necessary, it is for the medical authorities to lay down a course which may be taken by medical students and nurses alike. It is possible in such a course a nurse might be credited with the training that she has received; but that is a point for the medical profession to decide. It can only be a drawback to the surgeon to feel that the anæsthetist is only to be relied upon up to a certain point, and that at any moment, possibly the most critical one for him, his attention may be divided and he may be called upon to do two things at once—a situation likely to be detrimental to the patient.

My experience as a surgical nurse leads me to believe that the severity of an operation is no indication as to the behaviour of the patient under the anæsthetic, trivial operations having been associated with serious results from the effects of the anæsthetic. Had I wished to be an anæsthetist I should not have taken up nursing, but I should have entered the medical profession. The economic side of the question also presents difficulties, as a nurse administering an anæsthetc would feel entitled to the same fee as a medical man, and if she did not obtain it might feel in offering "cheap labour" to be acting unfairly to both professions. I am, Sir, yours faithfully,

A TRAINED NURSE.

7, Henrietta-street, W., Sept. 24th, 1919.

To the Editor of THE LANCET.

SIR,—Your leading article of Sept. 27th presupposes that the nurse is necessarily less expert at anæsthetics than the medical officer. At the present moment this may be the case, but I can see no reason why the nurse anæsthetist should not become equally expert both in theory and in practice. Nurses who gave anæsthetics in France were carefully grounded in the elementary theory of anæsthesia, and they have now given more anæsthetics than many pre-war medical anæsthetists. It was the general opinion of the surgeons that the nurse was reliable—in fact, often more reliable than the available men anæsthetists; that she was always careful, and if she had a fault it was in inducing anæsthesia too slowly.

The real question at issue seems to me to be whether the five years' study as a doctor previous to the anæsthetic course is more advantageous to a successful anæsthetist than the training a nurse has received in her close acquaintance with the conditions of a patient. Nurses in America and Canada have been credited with their training in lieu of the medical training, and their success as anæsthetists has placed their merits beyond controversy. It may be maintained that anæsthetising is not nursing, but neither is massage nor X ray work, for which a woman trained as a nurse is more suited than one who has no knowledge of illness.

Anæsthetics may be a branch of work for which nurses are peculiarly fitted. At all events, the experiment during the war having proved a success, it would seem fair to give nurses who have had this experience the opportunity of qualifying as expert anæsthetists.

I am, Sir, yours faithfully,
D. P. Foster,
Sept. 29th, 1919. Assistant Secretary, The College of Nursing.

To the Editor of The Lancet.

Sir,—May I endorse the chief opinions expressed in your leading article on Nurse Anæsthetists? In my opinion to make nurse anæsthetists is a retrograde step in the direction of those early days when porters played a prime part in securing a quiet patient under anæsthetics. To-day the surgeon ought to be free from having to give a thought or a moment's attention to the condition of the patient. The anæsthetist must not only be able to give to the surgeon all the relaxation, &c., necessary, but he must also be able to give the surgeon the knowledge that anything happening or beginning to happen contrary to the patient's welfare will be seen and understood and remedied by the anæsthetist, and that he (the surgeon) will have due warning if there is need to hurry or to stop. A non-medical anæsthetist can never be in the position to do these things. Further such a class will never be able to help forward knowledge of either theory or practice in anæsthetics. They will perforce remain rule-of-thumb administrators, often no doubt perfect administrators in the one particular method that they have acquired, but always mere administrators under the control of, and leaning on the responsibility of, the surgeon. They helped the war machine; they will be a brake on the progress of the car of peace.

I am, Sir, yours faithfully,
Regent's Park, N.W., Sept. 26th, 1919. J. Blomfield.

THE DIFFERENTIATION OF MANKIND INTO RACIAL TYPES.

To the Editor of The Lancet.

Sir,—Professor Arthur Keith, in his presidential address which you published on Sept. 27th, appears to account for the differences in racial types by the action of glands as growth-controlling structures. While these glands may control normally certain functions of the body, and when diseased exaggerate, diminish, or modify certain aspects or parts of the body, I cannot see that these account for racial types.

I have associated racial types with environment—i.e.: (1) the Negro and dark races with the hot and level countries; (2) the Mongolian with rugged hills and wind-swept countries; (3) the European with nature in a more modified type both regarding formation and climate. But one must not stop at this side of the Atlantic. The whole of the American continent may furnish some clue to this interesting subject. A humorist has suggested that the third generation of locally bred Americans approach the North American Indian with his peaked skull, straight hair, and, in fact, his whole appearance—the comic implication here was that the American citizen was reverting to type from Mohican ancestry. But in serious fact there is no reason why the European settlers in America should not submit to the environment which influenced the physique of the aborigines. It is said that if the emigration from Europe ceased the different races produced by this constant flow would approach in time the local aboriginal types. The fact is, the types of mankind are stamped with the locality they come from if not modified by migration. Even migration is always yielding to the power of natural surroundings.

According to our present knowledge, I think this is the only satisfactory solution of the different races of mankind and the infinite variety within the races themselves.

I am, Sir, yours faithfully,
T. J. Gallwey.
Junior United Service Club, Sept. 30th, 1919.

SURGICAL USES OF A HAIRPIN.

To the Editor of The Lancet.

Sir,—Mr. Arnold K. Henry, in The Lancet of Oct. 4th, gives some instances in which the hairpin came to his rescue. May I add to his list?

A lady suddenly experienced pain and a constant desire to micturate. On examination I found a calculus the size and shape of a date stone blocking the urethra. An attempt to dislodge it by means of the finger in the vagina was a failure, and caused pain. After sterilising a stout hairpin and slightly bending the loop on the flat I was able to pass the latter over the calculus, and with the aid of the finger in the vagina to fish it out with comparative ease. The hairpin saved me a car run to my house and back and the patient a wait of over half an hour in pain and discomfort.

I am, Sir, yours faithfully,
F. Ashton Warner, L.R.C.P. Lond., F.R.C.S. Edin.
Brechin-place, S.W., Oct. 6th, 1919.

WHAT ARE COMMERCIAL USERS?

To the Editor of The Lancet.

Sir,—At the present time the question of the increasing expense of motoring is an urgent one to the medical profession. The cost of a car and its upkeep is of importance, not only to the doctor, but to the public as well, as it is one of the factors that have necessitated the raising of medical charges and may cause a further increase to be necessary. This increment in the doctor's expenses is due to the greater cost of (1) cars, (2) wages and upkeep, (3) petrol and grease, and (4) tyres. Except the last item these are not easy of reduction, as the present cost is due to world-wide influences, but the question of a possible reduction in the price of tyres to the medical profession is worth discussion. It is common knowledge that the profits on tyres are such that varying discount are allowed by the makers to different grades of agents and users, so that tyres for a commercial vehicle can be obtained for considerably less than the same tyres used on a private pleasure car.

The Dunlop Company invite business firms to apply for the special pink form for commercial users. It would thus appear that from a business point of view there is nothing to prevent cars used for professional purposes being supplied with tyres at a lesser rate than at present if it were agreed by the manufacturers that doctors should be recognised as commercial users. As far as I know, no maker has given our profession this recognition, although I am told that a start was made in the early part of this year by the International Company offering one set only to doctors at 15 per cent. off list prices. As far as the tyre manufacturer is concerned, there can be no sharp line of demarcation between the representative of a big firm that goes round on that firm's business in a nominally commercial car and the surgeon whose car takes his instruments to a nursing home, or the country doctor whose car may be sent back 10 miles in a hurry to fetch a midwifery bag. It will be agreed that both users are far removed from the pleasures of joy-rides.

I wish to suggest that public-spirited tyre manufacturers should offer doctors and veterinary surgeons commercial users' rates, and that The Lancet should state which makers are willing to make this concession. The makers could issue green forms for doctors' tyre orders, and could protect themselves against misuse by insisting on the doctor signing a declaration (as was done in the case of petrol permits) that he is a registered medical practitioner, and that the tyres are only to be used on his professional car. We have concessions from the Government in the matter of our petrol tax and licences; why should not tyre manufacturers give us the same concessions that they regard as a business proposition when given to commercial firms?

I am, Sir, yours faithfully,
Oct. 7th, 1919. Inner Tube.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Temp. Surg.-Lieut. R. K. Shaw has been transferred to the permanent list of Surgeon-Lieutenants.

Surg.-Lieut. A. R. Price is placed on the retired list.

ARMY MEDICAL SERVICE.

Col. T. B. Beach, C.M.G., C.B.E., is placed on the Half pay List, having completed four years' service in his rank.

Col. P. C. H. Gordon, C.M.G., retires on retired pay.

ROYAL ARMY MEDICAL COLLEGE.

Col. S. L. Cummins, C.B., C.M.G., to be a Professor.

Major and Bt. Lieut.-Col. J. A. Anderson, R.A.M.C., and Major H. M. J. Perry, O.B.E., R.A.M.C., to be Assistant Professors.

To be attached to Headquarters of Administrative Services and Departments :—Asst. Direct.-Gen., Medical Services: Temp. Lieut.-Col. G. J. Boyce, Can. A.M.C.; Deputy Asst. Direct.-Gen., Medical Services: Temp. Major S. Ellis, Can. A.M.C.

ROYAL ARMY MEDICAL CORPS.

Major A. W. Gater to be acting Lieutenant-Colonel whilst commanding a Medical Unit.

Major F. C. Cowtan is seconded whilst employed under the Air Ministry.

T. M. Kendall, late temporary Major, to be temporary Major.

Capt. G. R. Grant, from Spec. Res., to be Captain.

A. Leitch, late temporary Captain, to be temporary Captain.

To be temporary Captains: Temp. Lieuts. T. G. Dickson, R. C. De Lacey, and J. Lascelles.

Officers relinquishing their commissions: Temp. Lieut.-Col. J. Collis (Lieut.-Col. T F. Res.) Temporary Lieutenant-Colonels retaining the rank of Lieutenant-Colonel: J. J. G. Blandford, W. Scatterty. Temp. Major and Bt. Lieut.-Col. T. R. St. Johnston (retains the Brevet rank of Lieutenant-Colonel). Temp. Majors W. T. Mead, E. F. Elliot (granted the rank of Lieutenant-Colonel). Temp. Majors retaining the rank of Major: A. O. Neill, J. G. Rowell, R. H. Rigby. Temporary Captains granted the rank of Major: H. T. L. Roberts, H. Goodman, W. H. D. Smith. Temporary Captains retaining the rank of Captain: B. Barnett, N. B. Benjafield, J. V. Buchanan, E. S. Marshall, W. H. Croly, R. N. Hunter. L. Adamson, S. Wilton, G. Johnston, J. McNamara, W. Crerar, F. H. Ellis, C. H. Comerford, J. E. Lucas, A. E. Knapp, H. H. Fisk, A. Benjamin, P. Daly, G. J. Hanley, J. P. S. Dunn, J. R. Bryce, S. Barron, L. E. Napier, F. B. Martin, W. M. Shepherd, D. F. Borrie, T. C. D. Watt, W. J. Woodman, J. E. J. R. Kelly, M. W. Cantor, C. J. A. Woodside, R. G. Sterling, E. G. B. Calvert, S. H. Wilkinson, L. H. D. Thornton, S. Honeyman, H. D. Robb, A. A. W. Petrie, E. S. Chapman, E. J. Dyke, W. R. Watt, A. L. Weakley, C. G. Adams, D. Cogan, M. Graves, M. P. Thomas. Temp. Capt M. M. Cruickshank (on appointment to the Indian Medical Service). Temporary Honorary Captains retaining the honorary rank of Captain: W. H. Irish, D. R. W. Crile Temporary Lieutenants retaining the rank of Lieutenant: C. M. Bradley, W. H. Brooks, J. C. Carr, R. C. Redman. Temp. Hon. Lieut. P. A. E. Sheppard (retains the honorary rank of Lieutenant).

Canadian Army Medical Corps.

Temp. Lieut.-Col. F. C. Bell, C.M.G., to be temporary Colonel.

Temp. Maj. F. V. Woodbury to be temporary Lieutenant-Colonel.

Temp. Capt. (acting Major) A. J. Lomas to be temporary Major.

The undermentioned officers retire in the British Isles: Temp. Maj. H. J. Williamson, Temp. Capt. C. R. Worthington.

SPECIAL RESERVE OF OFFICERS.

Capt. F. H. Goss relinquishes the acting rank of Major on re-posting.

Capt. G. E. Kidman to be acting Major whilst specially employed.

TERRITORIAL FORCE.

1st Northern General Hospital: Major (Brevet Lieut.-Col.) (acting Lieut.-Col.) R. A. Bolam relinquishes the acting rank of Lieutenant-Colonel on ceasing to be specially employed.

2nd London Sanitary Company: Capt. (acting Major) A. G. G. Thompson relinquishes the acting rank of Major on ceasing to be specially employed. Lieut. A. R. Ward to be Captain.

2nd Northern General Hospital: Major (acting Lieut.-Col.) J. K. Jamieson relinquishes the acting rank of Lieutenant-Colonel on ceasing to be specially employed and is restored to the establishment.

2nd Scottish General Hospital: Capt. J. G. Cattanach is restored to the establishment.

1st Southern General Hospital: Lieut.-Col. (Brevet Col.) F. Marsh is restored to the establishment.

1st Eastern General Hospital: Maj. (acting Lieut.-Col.) H. B. Roderick relinquishes the acting rank of Lieutenant-Colonel on ceasing to be specially employed and is restored to the establishment.

ROYAL AIR FORCE.

Medical Branch: Lieut-Col. N. H. Harris (Surg.-Cmdr., R.N.) relinquishes his commission on ceasing to be employed.

Flying Officer A. E. Collie to be Flight Lieutenant.

Flight Lieut F. H. Wallace is transferred to unemployed list.

Dental Branch.—Flying Officers to be Flight Lieutenants: A. S. C. Cottam, H. O. Salt.

THE HONOURS LIST.

The *Military Cross* has been awarded to Lieut. John Morrison, R.A.M C., Spec. Res. The official record says: "He has done exceptional work since joining the battalion. He superintended the successful evacuation of wounded on Oct. 12th, 1918, at Seitso under shell fire, at short notice. He accompanied the attacking forces when Topsa was attacked, and gallantly carried on his work under close enemy fire. By his energy and devotion to duty throughout these operations he was the means of saving many lives."

Medical News.

EXAMINING BOARD IN ENGLAND BY THE ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND.—At the Second Professional Examination in Anatomy and Physiology, held on Sept. 25th, 26th, and 29th, 59 candidates presented themselves, of whom 31 were approved and 28 were rejected. The following are the names of the successful candidates :—

Madeleine Harvey Clarke, London Sch. of Med. for Women; T. H. R. Davies, Univ. Coll.; H. S. Drabble, Sheffield Univ.; M. A. El Biblawi, Cairo and Guy's Hosp.; E. P. Evans, Univ. Coll., Cardiff; L. R. Fifield, London Hosp.; H. B. Flooks, Univ. Coll., Cardiff; G. H. Froggatt, Sheffield Univ.; R. M. Fry, St. Mary's Hosp.; L. J. Gabe, Middesex Hosp.; T. J. E. Gittins, Birmingham Univ.; Janet Vera Good, London Sch. of Med. for Women; Hilda Mary Kennedy, Univ. Coll.; W. Laing, St. Bart.'s Hosp.; Mary Catherine Lynch, Edinburgh and King's Coll.; J. I. Lyons, King's Coll.; Margaret Stewart Maclachlan, Univ. Coll.; W. McLaren, Durham Univ.; W. E. Mitchell, Manchester Univ.; H. W. Needham, St. Bart.'s Hosp.; A. E. Parkes, Birmingham Univ. and St. Bart.'s Hosp.; J. H. Piddock, Birmingham Univ.; P. D. Richards, Cardiff and St. Bart.'s Hosp.; A. R Rutnam, Ceylon Med. Coll.; K. E. Shellshear, St. Bart.'s Hosp.; O. L. C. Sibley, Middlesex Hosp.; Y. S. Soliman, St. Thomas's Hosp.; A. D. Stammers, Cambridge Univ.; H. R. J. Thomas, London Hosp.; Marian Elspeth Williams, London Sch. of Med. for Women; G. B. Withers, London Hosp.

UNIVERSITY OF MANCHESTER.—At examinations held in September the following candidates were successful :—

DIPLOMA IN DENTISTRY (SECOND EXAMINATION).

Dental Mechanics.—Robert Ackers, Elizabeth Benson, P. A. Gardner, J. L. Halliwell, John Hopkins, R. A. Lewty, H. V. Longson, Mary H. Sherry, J H. Spedding, and Gracie Walker-Anderson.

Dental Metallurgy.—Robert Ackers, Sidoey Booth, C. C. Breakell, P. A. Gardner, J. L. Halliwell, H. V. Longson, Mary H. Sherry, and J. H. Spedding.

UNIVERSITY OF GLASGOW.—The following degrees were conferred on Oct. 6th :—

Bachelor of Medicine and Bachelor of Surgery (M.B., Ch.B.).—John Smith Aitken, Thomas Anderson, Duncan MacCallum Blair (with honours), Samuel Burnside Borthwick. James Caddies (with commendation), Elizabeth Pace Cameron (with commendation), Archibald Joseph Cronin (with commendation), Edith Dennistoun Dobbie, John Hill, Francis McDonald, Ellen Thomson Mackenzie, Margaret Elizabeth MacLaren, Caroline Jane Maclennan, Douglas John Nicol, Kathleen Nicol, Andrew Glen Petrie, Henry Alexander Ross, Catriona Sinclair, Herbert Harold Spencer, Donald McDougall Sproull, Noel Eustace Stone, John Whitelaw, and William Alexander Wilson.

Mr. John William Peden, who graduated on April 4th, 1919, gains the Brunton Memorial Prize of £10 awarded to the most distinguished graduate in medicine of the year.

THE Prince of Wales has consented to preside at a festival dinner in aid of the Great Northern Central Hospital early in December.

GUY'S HOSPITAL MEDICAL SCHOOL.—The following entrance Scholarships have been awarded :—Senior Science Scholarship for University Students (£75), Arthur Henry Douthwaite, University College, London. Junior Science Scholarships (£120), Thomas Stephenson Blacklidge; (£50), William Gordon Sears, both Preliminary Science Class, Guy's Hospital Medical School. Scholarships in Arts (£60), Donald Fraser Durward, St. Olave's Grammar School; (£40), Oswald Fred Farndon, Rhyl County School.

TUBERCULOSIS SOCIETY.—A special dinner of this society, at which many of the distinguished foreigners attending the Conference of the National Association for the Prevention of Tuberculosis will be present, is to be held in Claridge's Hotel on Wednesday, Oct. 15th, at 7.30 P.M. Applications for tickets (inclusive of wine), together with remittance, 30*s*., should be sent to Dr. F. J. C. Blackmore, Woolwich Tuberculosis Dispensary, Maxey-road, Plumstead, S.E. 18, not later than by last post on Monday, Oct. 13th. A certain number of tickets are available for guests.

THE MEDICAL SOCIETY OF LONDON.—The programme for the first half of the winter season begins with the annual general meeting on Oct. 13th, at 8 P.M., followed by the presidential address from Mr. V. Warren Low and a paper on Angina Pectoris by Dr. F. de Havilland Hall. On Oct. 27th, at 8 P.M., Colonel A. L. A. Webb will open a discussion on the Reclassification and Treatment of Pensions, in which Sir A. Pearce Gould, Lieutenant-Colonel E. L. Gowlland, and Captain R. McNair Wilson will take part. Nov. 10th is a clinical meeting. On Nov. 24th Dr. S. P. James will introduce a discussion on the Treatment of Malaria. Further details will be given in the Medical Diary. Dr. Herbert R. Spencer is to deliver the Lettsomian lectures in February and March, 1920, and Sir D'Arcy Power the annual oration in May, 1920.

THE Wellcome Historical Medical Museum will be reopened on Monday next, Oct. 13th.

MEDICAL MAYOR.—Dr. Henry Arthur Latimer. J.P., has accepted a unanimous invitation of the corporation of Tunbridge Wells, of which he has been a member since 1914, to be the chief magistrate in the coming municipal year.

DONATIONS AND BEQUESTS.—The late Sir Andrew McDonald, of Edinburgh, has left by will £1000 each to the Edinburgh Royal Infirmary and to the Royal Edinburgh Hospital for Incurables (Longmore Hospital), and £500 each to the Royal Hospital for Sick Children, Edinburgh, and the Scottish Blinded Soldiers' and Sailors' Hostel.

Colonel James Turton, F.R.C.S., has been placed on the commission of the peace for the borough of Brighton. In 1894 Colonel Turton raised the Sussex and Kent Volunteer Infantry Brigade Bearer Company, which was the first Bearer Company in the Volunteer Force. He commanded the company for 10 years.

ROYAL SANITARY INSTITUTE.—On Friday, Oct. 17th, at 6.30 P.M., in the Town-hall, Poole, a discussion will take place on Influenza, to be opened by Dr. A. T. Nankivell, medical officer of health, Poole, and on Food Inspection, to be opened by Mr. F. St. B. Ramsden, inspector of nuisances. Dr. Louis C. Parkes will preside.

Dr. T. M. Bonar, of Probus, Cornwall, has resigned the appointment of medical officer of health of the Truro Rural District and district medical officer of the Truro Union after 30 years' service.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.—The thirty-eighth session of the society opened at the West London Hospital on Oct. 3rd with the induction of the new President, Mr. Herbert W. Chambers, and the presentation of the Keetley Memorial Medal to the retiring President, Lieutenant-Colonel E. M. Wilson, C.B., C.M.G., D.S.O. Mr. Chambers delivered his presidential address on London Medical Societies, a Glimpse of their History and Work.

Dr. Edward Hindle, Kingsley Lecturer and Bye Fellow of Magdalene College, Cambridge, Assistant to the Quick Professor of Biology, has been elected to the Chair of Biology in the School of Medicine, Cairo, Egypt.

AT a meeting of the Wiltshire branch of the British Medical Association held at Trowbridge on Sept. 28th the following resolution was passed:—

> "That notice be given to the Friendly Societies that in six months time medical men in Wiltshire will only accept members for attendance at the same rates and terms as may then be agreed to for insured persons. For children under 16 years of age and persons in necessitous circumstances special rates shall be arranged."

ROYAL PORTSMOUTH HOSPITAL.—At a meeting of governors of the Royal Portsmouth Hospital held on Oct. 3rd it was reported that the attendance for treatment in the venereal department now exceeded 400 weekly. The cost of the department, which is in course of extension, was stated to be £2000 per annum: it had been necessary to engage a medical clinical assistant and additional orderlies. As the result of an application made to the British Red Cross Society an up-to-date X ray apparatus, formerly used at King George's Hospital, has been given. Arrangements have been made for the treatment of war pensioners in the wards and also for pensioners requiring massage and electrical treatment; in consequence of the strike a number of men unable to get to Netley Hospital have been treated at Portsmouth.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Wednesday, Oct. 15th.

HISTORY OF MEDICINE (Hon. Secretaries—Arnold Chaplin, F. G. Crooksbank): at 5 P.M.
Paper:
Mr. M. W. Hilton-Simpson: Some Arab and Shawia Remedies.

Thursday, Oct. 16th.

DERMATOLOGY (Hon. Secretary—Henry MacCormac): at 4.30 P.M.
Cases will be shown by:—
Dr. H. W. Barber: (1) Acanthosis Nigricans; (2) Premycosic Erythrodermia (two cases).
Dr. G. Pernet: Granuloma Annulare.
Dr. W. K. Sibley: Onychia (trophic).

Friday, Oct. 17th.

ELECTRO-THERAPEUTICS (Hon. Secretaries—Walter J. Turrell, Stanley Melville): at 8.30 P.M.
Presidential Address by Dr. A. E. Barclay.

MEDICAL SOCIETY OF LONDON, 11, Chandos-st., Cavendish-sq., W.
MONDAY, Oct. 13th.—8 P.M., Annual General Meeting. 8.30 P.M., Ordinary Meeting. Presidential Address:—Mr. V. W. Low, C.B. Paper:—Dr. F. de H. Hall: Angina Pectoris with Low Blood Pressure.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

LONDON HOSPITAL MEDICAL COLLEGE, in the Clinical Theatre of the Hospital.
A Special Course of Instruction in the Surgical Dyspepsias will be given by Mr. A. J. Walton:—
MONDAY, Oct. 13th.—4.30 P.M., Lecture XXI.:—Symptoms, Complications and Treatment of Gall Stones.
FRIDAY.—4.30 P.M., Lecture XXII.:—Ætiology and Pathology of Acute and Chronic Pancreatitis.

ROYAL INSTITUTE OF PUBLIC HEALTH, in the Lecture Room of the Institute, 37, Russell-square, W.C.
Course of Instruction for Candidates as Tuberculosis Officers, General Practitioners and others. Bacteriological Demonstrations will be given in the Laboratories of the Institute, and visits arranged to Sanatoriums, Tuberculosis Dispensaries &c.
THURSDAY, Oct. 16th.—5 P.M., Lecture II.:—Dr. L. S. T. Burrell: Predisposing Causes of Pulmonary Tuberculosis.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.
WEDNESDAY, Oct. 15th.—4.30 P.M., Lecture:—Dr. P. H.-S. Hartley: Pneumothorax.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE CLINIC.
TUESDAY, Oct. 14th.—Lecture:—Dr. E. S. Reynolds: The Diagnosis of Affections of the Spinal Cord.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

ALLAN, J., M.D., B.Ch. Edin., D.P.H., has been appointed Assistant Surgeon, West of England Eye Infirmary, Exeter.

BIRD, G. W. H., M.A., M.B., B.C. Cantab., L.R.C.P., M.R.C.S., Medical Officer for the Bridgwater (Somerset) Workhouse.

CROMPTON, K. E., B.A., M.B., B.C. Cantab., Medical Officer and Public Vaccinator for Wotton-under-Edge (Gloucestershire)

STRATFORD, H. M., F.R.C.S. Edin., Honorary Surgeon to the Westminster General Dispensary.

Cambridge University: ADRIAN, E. D., M.B., B.C., Junior Demonstrator in Physiology; MARRACK, J. R., M.B., Lecturer in Pathological Chemistry; ROBERTS, F., M.D., Additional Demonstrator in Physiology.

Certifying Surgeons under the Factory and Workshop Acts: BLOOD, H. F., L.R.C.P. & S. Irel. (Belper); GOODALL, C. C., M.R.C.S., L.R.C.P. Lond. (Staveley); KING, F. J. O., M.B., B.Ch. Dub. (Brigg); SHEPPARD, H. P., M.B., Ch.B. Aberd. (Wadebridge); MACARTHUR, W. F., M.B., C.M. Edin. (Port Glasgow).

Vacancies.

For further information refer to the advertisement columns.

All Saints' Hospital for Genito-Urinary Diseases, Vauxhall Bridge-road, S.W.—Hon. Asst. S. Also H.S. £100. Also Clin. Assts.
Battersea General Hospital, Battersea Park, S.W.—Res. M.O. £200.
Bedford County Hospital.—Res. M.O. £150.
Belgrave Hospital for Children, Clapham-road, S.W.—H.P. and H.S. £100 and £75. Also Two Asst. P's.
Beverley, East Riding Education Authority.—Sch. Dent. £350.
Birmingham and Midland Ear and Throat Hospital.—S. and Asst. S.
Bolingbroke Hospital, Wandsworth Common, S.W.—S. Also Res. M.O. and H.S. £200 and £150.
Bristol Education Committee.—Asst. School M.O. £500.
Burton-upon-Trent County Borough.—Asst. M.O. £400.
Burton-on-Trent Infirmary.—H.S. £200.
Cancer Hospital, Free, Fulham-road, London, S.W.—Asst. S.
Carlisle, Cumberland and Westmorland Mental Hospital, Garlands.—Jun. Asst. M.O. £300.
Chelmsford, Essex Education Committee.—School Med. Inspcts. £400.
Croydon County Borough.—Clin. Tuberc. O. £550. Also Asst. M.O.H., Maternity and Child Welfare Work. £500.
Derby, Derbyshire County Council.—Tuberc. O. £500.
Dewsbury and District General Infirmary.—H.S. £250.
Dorchester, Dorset County Council Education Committee.—School Dentists. £400.
Dudley County Borough Education Committee.—Asst. School M.O. and M.O.H. £500.
Dumfries, Crichton Royal.—Asst. P. £350.
Dundee District Asylum.—Asst. M.O. £325.
East London Hospital for Children and Dispensary for Women Shadwell, E.—H.P. £125. Res. M.O. £200. Radiologist. £100.
East Riding Education Authority.—School Dent. £350.
Elizabeth Garrett Anderson Hospital, Euston-road, N.W.—Clin. Assts. Res. M.O. at House of Recovery, New Barnet. £60. (All Female appts.)
Evelina Hospital for Children, Southwark, S.E.—Hon. Phys. for Skin Dept. Also Hon. Dent. Surg.
Frimley, Brompton Hospital Sanatorium.—Med. Supt. £800. Also Asst. M.O. £250.
German East Africa Occupied Territory.—M.O.'s. £400–£20–£500.
Gloucester County Asylums.—Jun. Asst. M.O. £300.

Gloucester, Gloucestershire Royal Infirmary and Eye Institution.—Asst. S.

Hackney Union Infirmary, 230, High-street, Homerton, E.—Junior Asst. M.O. £250.

Halifax Royal Infirmary.—Male Attendant for Venereal Department.

Hampstead General and North-West London Hospital, Haverstock-hill, N.W.—S. to Out-patients, Clin. Asst. in the Ear, Nose, and Throat Department, Two P.'s to Out-patients, and P. for Diseases of the Skin.

Hereford County and City Mental Hospital.—Senior Asst. M.O. £350.

Home Office, Reformatory and Industrial Schools Department.—Medical Inspector. £500.

Hospital for Consumption and Diseases of the Chest, Brompton, S.W.—S. H.P. for six months. 30 gs. Asst. Res. M.O. £150. Asst. P. £250. Asst. in Dept. of Path. £250. Part-time Asst. in Dept. of Path. £250.

Hospital for Diseases of the Throat, Golden-square, W.—Hon. Asst. S.'s.

Huddersfield County Borough Education Authority.—Asst. School M.O. £400.

Huddersfield Royal Infirmary.—Asst. H.S. £100.

Hull, City and County of Kingston-upon-Hull.—Res. M.O. £450.

Ipswich, East Suffolk and Ipswich Hospital.—H.P. £250.

King's College Hospital, Denmark Hill, S.E.—Senior Orthopædist, Junior Orthopædist, Junior Neurologist, and Junior P.

London Homœopathic Hospital, Great Ormond-street, Bloomsbury, W.C.—M.O. for Electro-Therapeutical Dept.

Maidstone, West Kent General Hospital.—H.P. £200. Also Second Hon. Anæsthetist.

Manchester, Ancoats Hospital.—H.S. £100.

Manchester, Booth Hall Infirmary for Children, Charlestown-road, Blackley.—Asst. Res. M.O. £300.

Middlesbrough, North Riding Infirmary.—H.S. £200.

Mile End Old Town Infirmary.—Med. Supt. £400.

Newcastle-upon-Tyne, Royal Victoria Infirmary.—H.P.'s and H.S.'s

Newport, Mon., Royal Gwent Hospital.—Three Res. M.O.'s £225, £200, and £160 respectively.

Norwich, Norfolk Education Committee.—Asst. School M.O. £400.

Nottingham General Hospital.—H.S. £150.

Oldham Royal Infirmary.—Third H.S. £200.

Plymouth, South Devon and East Cornwall Hospital.—H.S. £200.

Poplar Hospital for Accidents, E.—Jun. Res. M.O. £120.

Rochdale Infirmary and Dispensary.—Junior H.S. £125.

Royal Chest Hospital, City-road, E.C.—Asst. P.'s.

Royal Free Hospital, Gray's Inn-road, W.C.—Cas. O. £100.

Royal London Ophthalmic Hospital, City-road, E.C.—Senior H.S. £150.

Ryde, Royal Isle of Wight County Hospital.—Res. M.O. £250.

St. Mary (Islington) Infirmary, Highgate Hill, N.—Asst. M.O. £280.

St. Pancras Tuberculosis Dispensary, 39, Oakley-square, N.W.—Tuberc. Officer. £500.

Scarborough Education Committee.—School Dent. S. £200.

Serbia, Serbian Relief Fund Hospital.—Surg.

Sheffield Royal Hospital.—Asst. Cas. O. £120.

South London Hospital for Women, South Side, Clapham Common, S.W.—H.P. £100.

Wakefield General Hospital.—Jun. H.S. £150.

Warrington County Borough.—Asst. M.O.H. £450.

West Bromwich and District Hospital.—Res. H.S. £200.

Worksop, Victoria Hospital and Dispensary.—H.S. and M.O. £300.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Royton, Forkhill, Hadleigh, and Shildon.

Births, Marriages, and Deaths.

BIRTHS.

BARRINGTON-WARD.—On Oct. 6th, at Harley-street, the wife of L. E. Barrington-Ward, F.R.C.S., of a daughter.

CUNNING.—On Oct. 3rd, at Upper Wimpole-street, the wife of Joseph Cunning, F.R.C.S., of a son.

GREENFIELD.—On Oct. 3rd, at 23, Topsham-road, S.W. 17, the wife of J. Godwin Greenfield, M.B., M.R.C.P., of a son.

VIDAL.—On Oct. 3rd, at St. Elmo, Hornsey Lane-gardens, Highgate, the wife of Major A. C. Vidal, D.S.O., R.A.M.C., of a son.

WARREN.—On Oct. 2nd, the wife of Richard Warren, M.D., F.R.C.S., of a son, at 45, Weymouth-street, W.

MARRIAGES.

EASTES—MOORE.—On Oct. 4th, at the Parish Church, Leatherhead, George Leslie Eastes, M.B., B.Sc., of Harley-street, W., to Margaret Emily, only child of Mr. and Mrs. A. H. Moore, of Leatherhead.

HORSLEY—GORDON.—On Wednesday, Oct. 1st, at Christ Church, Clifton, by the Ven. Archdeacon Talbot, D.D., assisted by Rev. H. T. Dixon, D.D., Lancelot Horsley, M.R.C.S., L.R.C.P., younger son of Dr. Henry Horsley, of Croydon, to Grace, younger daughter of Geo. Gordon, Esq., of Bristol.

PHILIP—GAULER.—On August 26th, at the Church of St. John in the Wilderness, Naini Tal, India, James Leslie Rutholm Philip, M.B., Ch.B. Glasg., Captain, Indian Medical Service, to Nellie Hilda, eldest daughter of J. W. Gauler, Sutton Mandeville, Wilts.

DEATHS.

NICHOL.—On Sept. 24th, at Dunkirk, the result of an accident, Edward Frank Nichol, M.C., Captain, 3rd Loyal Lancashire Regiment, dearly loved husband of Edith Frances Nichol, and youngest son of Dr. and Mrs. Nichol, of Margate, aged 22.

ROWORTH.—On Sept. 30th, at St. David's, Chelston, Torquay, Alfred Thomas Roworth, M.R.C.S. Eng., L.R.C.P., aged 77.

WALLS.—On Sept. 30th, at Scarborough, Dr. Wm. Kay Walls, of St. John-street, Manchester, the beloved husband of Edith M. Walls.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

RULES FOR THE PRESCRIBING OF BATHS.

BY CHARLES F. SONNTAG, M.D. EDIN.,

PHYSICIAN IN CHARGE OF THE HYDROTHERAPY DEPARTMENT OF THE SPECIAL MILITARY SURGICAL HOSPITAL, SHEPHERD'S BUSH, W.; LATE TEMPORARY CAPTAIN, R.A.M.C.

BATHS may be conveniently arranged in three groups—hot, neutral, and cold—according to their thermal relationship to the temperature of the nerve endings in the skin—i.e., to the so-called zero of temperature sense. The zero varies in different parts of the skin in different individuals and at different times during the day and night. Consequently, a range of temperatures (92°–97° F.) is chosen for the neutral baths, because their heat corresponds to the physiological zero. Hot baths have a temperature from 97° upwards, and cold baths have a temperature below 92°. For therapeutic purposes these three ranges are subdivided as follows: Very hot baths, temperatures above 104°; hot, 97°–104°; neutral, 92°–97°; tepid, 80°–92°; cool, 65°–80°; cold, 55°–65°; very cold, below 55°.

Both hot and cold baths give rise to definite nervous and circulatory changes in the body. At the moment of application, the changes induced are called the action effects, but, sooner or later, the so-called reaction phenomena, which have a totally opposite character, appear. Cold has a depressing action, but the reaction to it is tonic or invigorating. Heat, on the other hand, stimulates in action and depresses in reaction. The prescription must be drawn up so as to attain, in the majority of cases, the reaction to cold and the action of heat. The four factors which must be definitely stated are the type of bath, its temperature and duration, and the nature of any mechanical stimulation, such as massage under water.

Hydrotherapeutic treatment must be ordered and regulated on physiological principles, a condition which is frequently disregarded. When whirlpool baths were introduced in 1916, it was the custom to prescribe them at a temperature which was the limit of toleration by the patient. No account was taken of the facts that tissues have their functions lowered by high temperatures. Moreover, the limbs which were submitted to the baths had their vitality so diminished by trauma or sepsis that high temperatures were more liable to be injurious to them.

Hydrotherapeutic measures can be divided into two classes—full or general, and local. In the former the trunk and limbs are immersed, but in the latter the application is made to one or more limbs or to a restricted area of the trunk. In the former the temperatures must be lower and the durations shorter than in the latter group.

Hot Baths.

Hot baths produce stimulation or excitement at the moment of immersion, but sooner or later they cause depression and the intensity of these changes depends on temperature and duration. All hot applications will, in time, cause death of the tissues. Cohnheim showed how the leg of a rabbit perishes instantly at 129° F., but it can be exposed, with safety, for a considerable period to the temperature of 107·6°. There is, therefore, a point, called the optimum, at which immersions can be prolonged and at which the activities of the tissues are greatest.

Local Hot Baths.

One of the notable therapeutic advances which have resulted from the war is the employment of local hot baths in the treatment of diseases and injuries of the skin, muscles, bones, joints, and nerves. The measures employed are turbine, aeration, paraffin, and radiant-heat baths.

At the Red Cross clinic in London, which was the pioneer establishment in this country, I carried out a number of investigations into the effects of local hot baths on the irritability of the muscles. The objects of the experiments, in which I had the able assistance of Mr. M. King, was to settle the optimum temperatures and durations of the different procedures. The result of nearly a hundred experiments was that all hot-water baths had an optimum temperature of 108° F. for prolonged applications, such as 20 minutes. Some baths were more stimulating than others, as is shown in the following table, which embodies the results.

The figures give the foot pounds of work done by the right flexor sublimis digitorum, before it was fatigued, after being immersed in the baths for 20 minutes. The control muscle gave out 27·02 foot pounds of work.

Table showing the Effects of Local Hot Baths on the Irritability of the Muscles.

Work done by a muscle in foot pounds after immersion in—	Temperature (Fahr.).					
	95°	100°	105°	108°	109°	110°
Still water	33·81	38·45	49·04	54·12	39·28	32 18
Turbine	47·70	49·25	50·33	52·12	51·56	47·98
Air and turbine ...	49·56	50·05	51·96	53·02	43·47	42·17
Aeration	49·89	49·97	52·46	57·35	53·57	40 43

The temperature for a local bath should, therefore, be 108° for prolonged immersions, and the duration for higher temperatures is shown in the following table:—

Temperature.	Duration.	Temperature.	Duration.
103° F.	20 min.	114° F.	10 min.
110°	12 ,,	116°	9 ,,
112°	11 ,,	118°	8 ,,

The temperature and duration appropriate for each case depends on the resistance of the skin, the condition of the peripheral nerves, and the presence or absence of sepsis. If the skin has diminished resistance to thermic irritation owing to a lesion of the peripheral nerves, or if it has thin, delicate scars, one must be careful in prescribing baths. In the former case, trophic ulcers may appear, and, in the latter, if the bath is too hot, the tissues may break down. In these cases I begin with a 20-minute application of radiant heat at the temperature of 150°. It is dry heat, and it can be tolerated easily on that account. As the case improves I prescribe an aeration bath at 105°, rising by degrees to 108° for 20 minutes. Eventually the temperature is raised to 110°, and the duration is cut down to 12 minutes. If the skin is healthy, and the object of treatment is to manipulate stiff joints or to free dense adherent scars, I prescribe 110° for 12 minutes at the outset, and the same order is given for a bath before massage and electrical treatment when the nerve exhibits well-marked signs of recovery.

Paraffin baths consist of molten paraffin wax, and are employed for local immersions only. Their therapeutic range is 120°–130° F., and their duration is ten minutes. Injuries and diseases of the leg are treated at the lower point, and of the arm at the higher temperature. The temperature employed is higher than that of water, because the wax has a lower specific heat, and a layer of it condenses on the skin in a few seconds. The thermal stimuli are not so intense as in water, and they only act for a few seconds. The indications and precautions are the same as for water baths, and a case may be submitted in succession, as it progresses, to radiant heat, water, and paraffin baths.

Full Hot Baths.

Full hot baths have a pronounced effect on the circulation, and the duration for each degree of heat applied can be established from the changes so produced. If we examine the pulse of a patient at three-minute intervals before and during a full hot bath, we see a sequence of changes which are constant in type for temperatures between 98° and 106° F., but above the latter point the characters are different and harmful. There is, moreover, no indication for a full hot bath at a temperature exceeding 106°. Between 98° and 104°, the pulse first slows down, but after a variable period it accelerates again, and the rate increases till a point is reached at which it remains constant. A steady level is then maintained for a longer or shorter period, till it is terminated by a series of fluctuations, and the general level of the chart drops. Above 106° the pulse shows paralytic dilatation from the start. I take the period when the oscillations begin as the maximum duration for the bath. The changes and durations are shown in the following table:—

Temperature of the bath.	Pulse-rate before.	Maximum retardation.	Maximum acceleration.	Time of onset of oscillation.
				Minutes.
106° F.	80	None.	104	8
104°	92	69	102	20
102°	92	72	94	22
100°	80	74	92	23
98°	80	78	80	27
96° (Neutral).	80	76	None.	30

The above table shows that the duration of the bath should decrease in all cases with a rise in its temperature. The bath first produces peripheral vaso-constriction and internal vaso-dilatation, so that headache and other symptoms may appear. When the cutaneous vessels dilate, the internal ones are depleted of blood and cerebral anæmia is produced, with possible syncope, to prevent which the face should be sponged with cold water before all baths whose temperature exceeds 100° F., and a wet towel wrapped round the head. The cerebral capillaries are thereby reflexly constricted, and they do not experience violent circulatory changes.

The therapeutic uses of the full hot bath can be arranged in the following groups, and the temperature and duration of the bath depend on the object in view in treatment.

1. *As a healing measure.*—It is a cardinal rule of hydrotherapeutic practice never to apply cold to the whole body unless the skin has been heated up previously. When tonic measures are indicated in sluggish metabolism, paralysis following diseases and injuries of the brain and spinal cord, weakness of the vaso-motor centres, and the debility of anæmia and convalescence, I prescribe the following treatment: Immerse the patient in the full hot bath (aerated if the apparatus is at hand) at the temperature of 102° F. for 20 minutes, followed by a Scottish douche, with the hot jet at 105° and the cold one at 60°–70°, and the pressure regulated to suit the case.

2. *As an eliminating measure.*—During fatigue and exhaustion very hot baths are indicated and *cold baths are absolutely forbidden.* The bath must be both hot and brief in duration. A useful prescription is a full hot bath, at a temperature of 104°, for nine minutes, followed by rest.

3. *As an anti-spasmodic measure.*—The spasmodic conditions in which hot baths are of value are spastic paraplegias and vascular spasm, and crises which occur in arterio-sclerosis, nephritis, plumbism, &c. In these cases the bath must not be too hot as a prolonged action is desired. The temperature and duration should be 102° for fifteen minutes, followed by rest. Care must be taken to prevent the patient getting into draughts, for the cold air will act on the heated skin and favour the return of the spasm.

4. *As an analgesic measure.*—Dysmenorrhœa with spasm and pain should be treated as in Group 3.

Neutral Baths.

A neutral or indifferent bath has a temperature the same as that of the nerve-endings in the skin (92°–97°). Such baths are not followed by circulatory, thermic, or nerve reactions, so they can be prolonged indefinitely. They cut off the thermic and mechanical stimuli from the skin and allow the nervous and circulatory organs, which are always in a state of activity responding to the environmental impressions, to rest. The bath is useful in shell shock, traumatic neurasthenia, extensive burns, delirium and mental excitement, exhaustion, and fever.

Cold Baths.

Cold baths may be brief or prolonged. In the former category we include plunge baths and, in the latter, the cold friction bath for enteric fever and the Nauheim bath for cardiac diseases. In the prolonged baths there are certain mechanical and chemical adjuncts which permit of the long application of cold stimuli. The mechanical friction in the cold bath for fever maintains a powerful rhythmic activity of the peripheral circulation, and the carbonic acid gas bubbles in the Nauheim bath confer a sensation of warmth on the patient by a selective action on the heat spots of the skin.

Cold plunge baths.—These baths are employed for hygienic purposes, and their duration is from three to five seconds. Their temperature varies from 45°–60° according to the season. In winter low temperatures can easily be procured, but the average domestic cold water-supply will lie between 50° and 60°. They must be preceded, accompanied, and followed by friction to warm the skin and promote reaction.

The Brand bath is the cold friction bath which yields excellent results in enteric fever by soothing the nervous system. Contrary to the generally accepted but quite erroneous view, its antipyretic action is a secondary consideration. The temperature of the water is 70°–65° and the duration is from 15–20 minutes. The initial bath, which is to be administered when the patient's temperature reaches 103°, is at 70°, and subsequent baths are at temperatures of 1° lower till 65°, the minimal point. The adjuncts to the bath are: (1) affusions to the head and neck which are to be applied at the temperature of 50° every five minutes (2) a damp towel which is to be wrapped round the head during treatment; (3) frictions during the bath of all parts of the body except the abdomen.

The graduated bath of von Ziemssen is employed by some in preference to the Brand bath in enteric fever. The patient is immersed at the temperature of 90° and cold water (40°) is added, and water is removed till the temperature is 72°. Friction is also applied. The duration o treatment is 30 minutes.

Alternating Applications.

In alternating applications the part is exposed first t heat, then to cold for a shorter period, and that succession is repeated several times daily at each sitting. Two form are used extensively in hydrotherapy departments: (1) th contrast bath, (2) the Scottish douche. The essential difference between them is that thermal stimuli operate alone in the former and are supplemented by mechanical impact in the latter. Their temperatures and durations are shown in the following table:—

Bath.	Hot application.		Cold application.	
	Temperature.	Duration.	Temperature	Duration.
Contrast	116° F.	30 sec.	40°–50° F.	15 sec.
Scottish douche	110°–115°	30 ,,	50°–65°	15 ,,

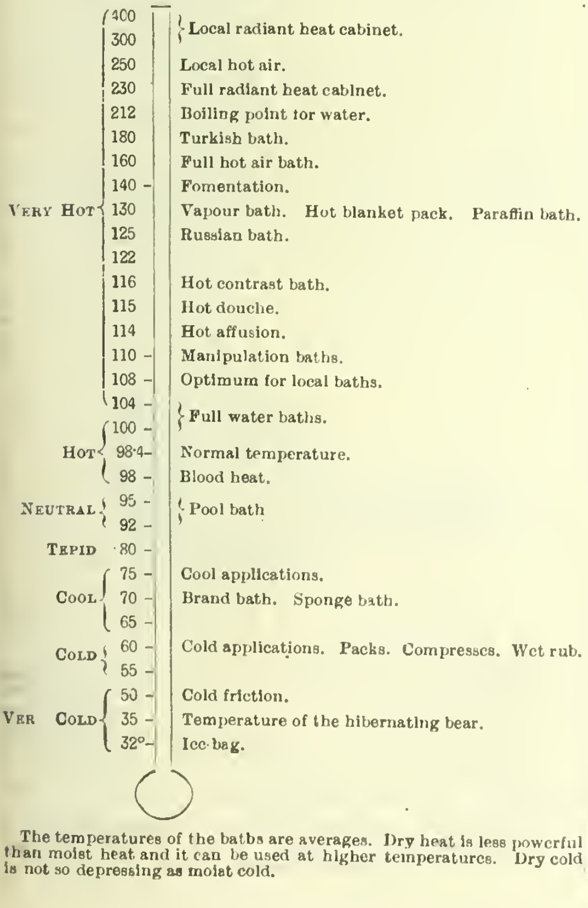
These hot and cold applications are repeated each day for 15 minutes in the contrast bath, and for from three to five minutes in the douche, and the indications are shown as follows:—

Contrast bath.	Douche.
Chronic stage of trench foot. Vaso-motor paresis after:— (*a*) Prolonged splinting. (*b*) Prolonged sepsis. Flat-foot and talipes with anæmia and profuse perspiration.	As a sequence to hot baths. Debility of:— Anæmia, Convalescence, Neurasthenia. Malingering. (N.B. — The pressure of the water is to be maximal.)

Conclusion

From what has already been described it is obvious that baths of different kinds are powerful agents. If they are prescribed in accordance with the rules given above the patient will experience untold relief or cure, but, if not, much harm may ensue. Although they are not so deadly as drugs erroneously prescribed, they can produce much discomfort and suffering if they are used in defiance of physiological principles. As the result of much clinical experience I have been led to discard medicines to an increasing extent in favour of hydrotherapeutic procedure, and I am so sure that others who try these methods will come to the same conclusion that I would put in an urgent plea for the greater use of baths by the medical profession. I submit a diagram which has been found useful by my assistants at Shepherd's Bush.

Diagram of a Hydrotherapeutic Thermometer.



VERY HOT	400 300	Local radiant heat cabinet.
	250	Local hot air.
	230	Full radiant heat cabinet.
	212	Boiling point for water.
	180	Turkish bath.
	160	Full hot air bath.
	140	Fomentation.
	130	Vapour bath. Hot blanket pack. Paraffin bath.
	125	Russian bath.
	122	
	116	Hot contrast bath.
	115	Hot douche.
	114	Hot affusion.
	110	Manipulation baths.
	108	Optimum for local baths.
	104 100	Full water baths.
HOT	98·4	Normal temperature.
	98	Blood heat.
NEUTRAL	95 92	Pool bath
TEPID	80	
COOL	75	Cool applications.
	70	Brand bath. Sponge bath.
	65	
COLD	60	Cold applications. Packs. Compresses. Wet rub.
	55	
VERY COLD	50	Cold friction.
	35	Temperature of the hibernating bear.
	32°	Ice-bag.

The temperatures of the baths are averages. Dry heat is less powerful than moist heat and it can be used at higher temperatures. Dry cold is not so depressing as moist cold.

CAUSE AND EFFECT.

SUCH problems as the following, concerning the hen and the egg, and the worm and the duck, are always intriguing. The duck eats the worm, but in course of time the worm assuredly eats the duck. Who started? The population of Egypt suffers to an extent hardly realised in this country from bilharziasis, as will be gathered from two communications in our columns this week. The life-history of the parasite is well known. The bilharzia is a flat worm from whose intermediate host, the fresh water mollusc, the larvæ are discharged into water and pierce the skin of those humans who bathe therein, the worm finding its way back to the water in the excretions of man. Europeans are now protected from this disease by bathing regulations, but as regards natives such regulations would be impossible to enforce, and apparently the authorities have come to look on this infection as a plague of Egypt which nothing but divine intervention can eradicate. It is proverbial, however, that those who do not attempt to help themselves receive no aid, and Dr. Elgood and Dr. Cherry have advanced a theory which should anyhow have a thorough trial on the modest scale indicated by them. They claim to have proved that snails are absent from those ponds to which ducks have free access, and are convinced that if the keeping of ducks by natives were officially encouraged, the intermediate hosts and thus the parasite would be stamped out, or at any rate kept in bounds. Their idea of a bonus for birds of specified quality for table use suggests eventual cold storage for export and perhaps a substantial local source of revenue. We may have here a solution of one of the problems which has puzzled many thinkers—at any rate, whoever started bilharziasis we may confidently hope that the duck will end it.

CHILD WELFARE.

THE pamphlet on child welfare, which has recently been published by the Ministry of Reconstruction ("Reconstruction Problems: No. 33, Child Welfare"), will well repay perusal by those whose work or interest brings them into touch with the children of the poor. It contains a short and concise account of the child welfare problem as it exists at the present time, using the term in its widest sense.

The pamphlet opens with a discussion and explanation of infant mortality and its causes, and describes briefly what has already been done to overcome the many dangers which beset infant life. Under such headings as "Supervision of the Infant in the Home," "Supervision of the Infant at the Infant Welfare Centre," "State Aid," &c., infant welfare work is traced to its beginnings, and much valuable information is given, included in which are the provisions of the Notification of Births Act, 1907, of the Notification of Births Extension Act, 1915, and of the Child Welfare and Maternity Act, 1918, together with a description of Infant Welfare Centres and their work, and the functions of the Local Government Board and Board of Education with regard to infant welfare, which have been taken over by the Ministry of Health. Little is said, however, on the all-important subject of antenatal mortality, and on the urgent need for supervision during pregnancy, and for a more thorough investigation of the causes of stillbirth than is carried out at the present time. The section on the child from 2 to 5 years includes a paragraph on measles and whooping-cough, and a brief but comprehensive description of day nurseries and nursery schools. Part II. deals with the welfare of the child at school and gives an account of the school medical service and its administration, medical inspection, the school clinic, open-air education, and the various kinds of special schools which have been set up and in which children who are defective, either physically or mentally, are taught. This little book embodies in a comprehensive way information which is essential for all practitioners of medicine, and which is so often asked for by the non-medical public.

Importance of the Children's Health Realised.

Public health work has changed so much during the past few years that it is difficult for the practitioner to keep in touch with it; its ramifications are so great and so far reaching that only a proportion of them is likely to come within the purview of one doctor. Nevertheless, they are but branches of a composite whole, an understanding of which is necessary if full opportunities are to be taken of them and the greatest possible benefit to the public health is to be secured. Never before has the importance of the children's health been so fully realised. All who are engaged in the task of treating the sick know the amount of disease which exists among their own patients, but it needed the greatest war in history to demonstrate the amount of incapacity there is in the nation as a whole. Incidentally we discovered that much, if not most, of this incapacity is preventable in early life, and that if we want to rear a healthy population we must ensure a healthy childhood. The pamphlet on child welfare has therefore been published at a most opportune moment, giving, as it does, an account of what has been done to preserve child life and health, which will prove useful alike to the medical and non-medical reader. Hardly enough stress has been laid, perhaps, on the need for instruction in mothercraft both to mothers and to the elder girls at school. It cannot be insisted upon too emphatically that the time to train the mother is while she is still at an age when it is possible for her to learn, while her brain is impressionable, and while she has time and leisure to think. Much of the good which might be done at an infant welfare centre or at a children's hospital is abortive, because in many cases the mother is unable to profit by the advice given to her. She is too ignorant to understand the most simple instructions, or is mentally incapable of grasping new facts. A table of statistics taken from the Report of the Registrar-General for 1911 shows that the mortality of upper- and middle-class children is only 76·4 per cent., that of the children of unskilled workers is 152·5 per cent., and that of the children of all classes is 132·5 per cent. It is questionable whether the lower infant mortality rate among the children of the well-to-do is not due to the skilled care which is available for them more than to their hygienic environment. Medical officers of infant-welfare centres fully realise that good mothercraft is, if the choice has to be made, a more valuable asset in rearing a healthy family than good housing and sanitation, however urgently needed these may be. As far as day nurseries are concerned we are still behind the times. There is no definite standard to which all must attain, notwithstanding the efforts which have been made by the National Society of Day Nurseries. State grants are given only to those nurseries which are under medical supervision, and in some cases that supervision is not as close as it should be.

Nutrition of Children Improved during the War.

Much anxiety was felt during the war as to whether the children had suffered from lack of food. The general opinion among those who were carrying out school medical inspections was that the children were never so well cared for and so well fed. In many cases the mothers were better off than they had ever been. As is pointed out in the pamphlet, soon after the outbreak of war the number of children fed (in the elementary schools) reached its maximum, but before long the distribution of separation allowances, the rise in wages, and the increase in employment caused the number fed to become less than at any period since 1906. The nutrition of the children has, on the whole, improved during the war, and defects have usually been due to circumstances other than inability of parents to procure food.

In London, at any rate, there are ample means for medical treatment for school children. There remains, however, the difficulty of persuading the parents that treatment is necessary; many are very obdurate in this respect, and it is only in extreme cases that a charge of neglect can be upheld. If every child on leaving school had to be certified as medically fit before being employed, this in itself would bring pressure to bear indirectly on parents who were careless or neglectful.

HYGIENE ON BOARD SHIP.

H.M.S. *Hawkins*, which is proceeding to China as the new flagship, has special recreation-room accommodation on board for the crew, and dish- and plate washing machines also are established, so the mess gear is taken in after each meal and re-issued a quarter of an hour before the next. This washing of the mess traps in water that is really boiling should do a great deal to keep down the number of cases of sore-throat. A statement from the Admiralty, say in April, 1921, that in 1920 there had been more, the same, or fewer, cases of sore-throat in ships with washing machines for mess traps would be welcomed, and might do something to encourage those responsible for large establishments to instal these conveniences. They certainly should make for better health.

SPECIMEN CASE-PAPERS.

WE have received from Dr. Astley V. Clarke, senior physician to the Leicester Royal Infirmary, specimen case-sheets devised by him and accepted for use at that institution. House physicians who leave resident posts at their own hospitals for work at non-teaching institutions are apt to find the clerical work irksome, with the result that where chiefs are not vigilant hospital records suffer. Skeleton case-sheets of the pattern before us might be found very useful. They consist of a covering sheet on which prescriptions and diet only are exposed to the view of patients and their friends. Sufficient space is allotted within to family and personal history, details of condition on admission—a small space for the results of a general or negative examination of each system, and a large one in which progress can be recorded. In addition, there are separate sheets of different colour for each system, with headings and stamped diagrams for insertion if one system is specially affected. We regard the absence of a sheet for post-mortem findings as an omission, doubtless in some measure justified by the excellence of the results obtained at the institution in question.

SPIRITUALISM.

To the Editor of THE LANCET.

SIR,—Is it not time to state the evidence against spiritualism now in the hands of the medical profession? Apart from actual fraud, my own experience is that spiritualism can do much harm, both physically and mentally. I should be grateful if your readers would, in strict confidence, send me the number of patients in their own practice who through spiritualism and its methods have become: (1) insane; (2) obsessed; or (3) reduced to a state of nervous debility I am, Sir, yours faithfully,

W. A. GRIGGS, L.R.C.P. Lond., M.R.C.S. Eng.

60, Montpellier-road, Brighton, Sept. 27th, 1919.

THE LAW AND PARENTAL RESPONSIBILITY.

AT the Roborough (Devon) police-court recently a parent was summoned for neglecting to have the tonsils of his child, aged 12 years, removed when ordered by the school medical officer. The child's mental condition was affected by the tonsils, but for the prosecution it was admitted that the question of operation was open to controversy. Eventually the father promised to obey the doctor's instructions and the case was adjourned.

Partly-qualified Man.—The British Federation of Medical and Allied Societies may be the body of which you have heard. The temporary address is 20, Hanover-square, London, W.1, and the points you put are exactly such as the secretary wishes to have brought to his knowledge.

Communications, Letters, &c., to the Editor have been received from—

A.—Administration Générale de l'Assistance Publique, Paris; Dr. J. Allan, Exeter.

B.—Dr. H. W. Barber. Lond.; Mr. E. V. Bell, Middlesbrough; Dr. H. W. Bayly. Lond.; *British and Colonial Pharmacist*, Lond., Editor and Staff of; Dr. G. Blacker, Lond.; Dr. F. F. Bond, Trowbridge; Prof. D. T. Barry, Cork; Dr. J. Blomfield, O.B.E., Lond.; Dr. E. T. Burke, D.S.O., Lond.; Board of Pension Commissioner for Canada, Ottawa; Board of Education, Lond.; Mr. G. Bethell. Lond.; Messrs. Burroughs Wellcome and Co., Lond.

C.—Child Study Society, Lond., Sec. of; Dr. A. Castellani, Paris; Mr. L. Colledge. Lond.; Capt. J. P. Cullen, R A.M.C.: Dr. H. P. Cholmeley, Forest Row; College of Physicians of Philadelphia; Miss G. Cowlin, Lond.; Chicago School of Sanitary Instruction; Mr. J. F. Colyer Lond.; Sir J. Cantlie, K.B.E., Lond.; Dr. H. Chambers, Lond.; Dr. E. L. Collis, Cardiff.

D.—Dr. V. Dickinson, Lond.; Mr. H. Dickinson, Lond.; Dr. J. Driberg, Lond.

E.—Dr. J. R. Earp, Lond.

F.—Dr. J. G. Forbes, Redhill; Dr. G. L. K. Finlay, Lond.; Factories, Chief Inspector of, Lond.: Dr. N. Farah. Alexandria; Miss D. P. Foster, Lond

G.—Mr. W. A. Griggs, Brighton; Maj.-Gen. Sir T. J. Gallwey, K.C.M.G., C.B; Director-General Sir John Goodwin, K.C.B., C.M.G., D.S.O., A.M S.

H.—Mr. S. Hastings, Lond.: Capt. H. A. Haig, R.A.M.C.; Messrs W. Heinemann (Medical Books), Ltd., Lond.: Hunterian Society, President and Council of; Prof. W. D. Halliburton, Lond.

J.—Mr. R. R. James, Lond.

K.—Prof. A. Keith, Lond.; Miss M. Knightley, Lond.; Dr. H. C. Kidd, Bromsgrove.

L.—Dr. E. B. Leech, Manchester; Mr. V. W. Low, Lond.; London Medical Exhibition, Secs. of; Dr. C. Lillingston, Gorleston; Messrs. Lawson and Co. (Bristol), Ltd., Lond.; Capt. W. S. R. Lorraine, R.A.M.C.(S.R.)

M.—Ministry of Health, Lond.; Dr. M. F. Moloney, Dungarvan; M. L. J.; Medical Research Committee, Lond.; Dr. R. Marshall, Belfast; Mr. J. MacLean, Sheffield.

N.—Dr. L. E. Napier. Old Windsor; Prof. G. H. F. Nuttall, Cambridge.

P.—Rev. C. R. Pollock, Bristol; Sir D'Arcy Power, K.B.E., Lond.: Mr. W. H. Plows, Lond.; "Partly Qualified Man"; Capt. G. S. Parkinson, D.S O., R.A.M.C, Gibraltar; Mr. V. G Parr, Lond.; Penal Reform League, Lond.

R.—Dr. K. Rogers, O.B.E., Lond. Mr. H. Ruddle, Southsea; Dr R. R. Rentoul, Liverpool; Dr D. G. Rice-Oxley, Lond.; Dr J. D. Rolleston, Lond.; Roya College of Physicians, Lond. President and Fellows of.

S.—Prof. W. Stirling, Manchester South Australia, Registrar General of Births, Deaths, an Marriages, Adelaide; Dr. H Sutherland, Lond.; Mr. R. L Sheppard, Lond.

T.—Dr. A. H. Thompson, Lond. Dr. A. L. Taylor, Lond.; D F. H. Teale, Lond.

U.—University of St. Andrews University of Chicago Press Chicago.

V.—Mrs. C. Vince, Lond.; *Vision* Lond., Editors of; Villa Centres Council, Lond., Chairman of.

W.—Sir Gordon Watson, K.B.E C.M.G, Lond; Dr. H. Williamson, Lond.: Wellcome Historical Medical Museum, Lond., Curator of; Dr. E. H. Worth. Lond. Mr. H. W. Wilson, Lond.; Dr J. W. Wood, Eastcote; Dr. C Wilson, Lond.; Dr. S. A. K Wilson, Lond.; Col. A. Webb C.B., C.M.G., A.M.S.

Communications relating to editorial business should b addressed exclusively to the Editor of THE LANCET
423, Strand, London, W.C. 2.

An Introductory Address

ON

THE THIRD EYELID.

Delivered at the Middlesex Hospital on Oct. 15th, 1919,

BY SIR JOHN BLAND-SUTTON, F.R.C.S. ENG.,
SURGEON TO THE HOSPITAL.

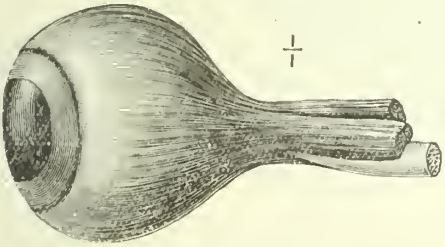
MR. PRESIDENT AND GENTLEMEN,—The Fates have been kind and allowed me a little leisure to take up a study that beguiled me in my early days. As a teacher of anatomy I took a keen interest in the metamorphoses of muscles, and I will attempt to tempt freshmen, some of whom may regard practical anatomy with distaste, perhaps with disgust, to study some remarkable changes in the muscles of the orbit, and though they are not mythic fancies, like the metamorphoses described by Ovid, some, at least, are as wonderful and rest on a solid foundation of fact. I want to encourage the student of human anatomy to realise that apart from the practical value of a knowledge of human anatomy to physicians and surgeons there is an aspect of anatomy that will lead him into some fascinating realms of speculative science. A striking example of this occurs in the muscles that move the eyelids of reptiles, birds, and beasts.

THE MUSCLES OF THE ORBIT.

Can anyone dissect the orbit without feeling a deep interest in the neat set of anatomical structures it contains? A little anatomical world! The study of the morphology of its muscles increases the interest. The muscles form two sets—one set moves the globe and the other the lids. Those that move the globe number six, four straight and two oblique. The straight muscles, from their position in man's orbit, are known as rectus superioris, rectus inferioris, rectus internus, and rectus externus. These, according to their position, move the eyeball upwards, downwards, inwards, and outwards. The oblique muscles produce rotatory movements, and the complex movements occurring from the combined actions of the oblique and straight muscles have led to much controversy and speculation.

The straight muscles are thin straps arising around the optic foramen, at the apex of the orbit, and are inserted into the sclerotic coat of the eye near the margin of the cornea. They form a hollow cone around the optic nerve. The oblique muscles lie outside this muscular cone. The superior oblique is sure to attract attention because it threads a neat fibrous pulley at the inner (nasal) corner of the orbit; this pulley deflects it at right angles to be inserted on the globe, towards the outer part of its periphery. The inferior oblique is a short muscle arising from the floor of the orbit at a spot diagonally opposite to the pulley of the superior oblique.

FIG. 1.

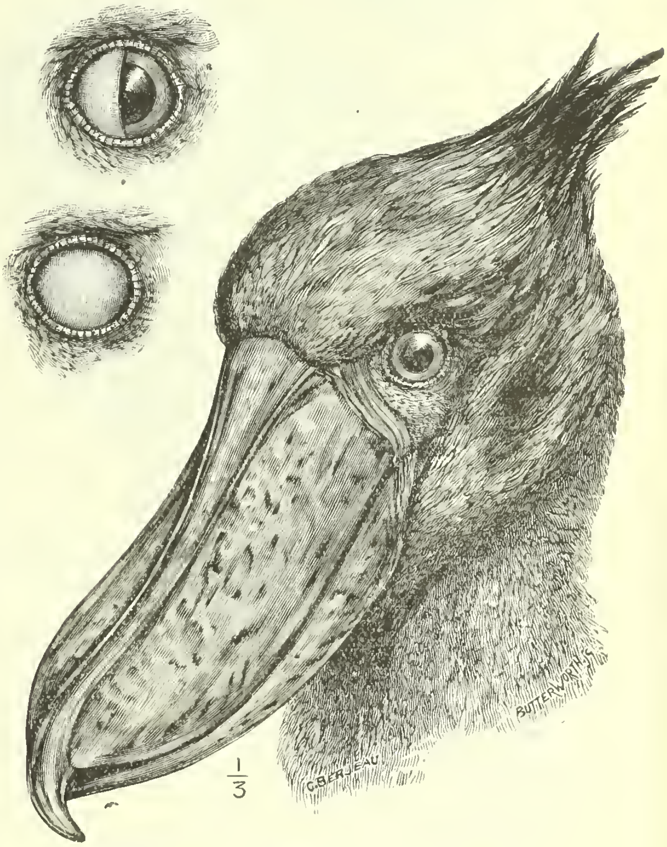


Eye of sheep showing the retractor bulbi muscle.

A remarkable feature of the orbital muscles is their monopoly of three cranial nerves. The third cranial nerve, known as motor oculi, supplies the internal, inferior, and superior rectus, as well as the inferior oblique and the levator of the upper lid. The fourth cranial nerve, trochlearis, is monopolised by the superior oblique, and the sixth cranial nerve, abducens, goes exclusively to the external rectus.

Compared with the majority of vertebrates, man has a small number of muscles in his orbit. The six muscles just described are constant. There is in addition a long muscle to raise the upper lid. Man and monkeys possess only two eyelids, but many mammals, birds, reptiles, lizards, and amphibians possess three. The third eyelid, a very plastic membrane anatomically and morphologically, is moved by an interesting set of muscles lodged in the orbit. The upper and lower lids are moved by a simple muscular mechanism. The upper lid, very movable in man, is raised by its special muscle, *levator palpebræ superioris.* The lower lid is not very mobile and lacks a depressor; both lids are closed by a muscle with elliptical fibres—the *orbicularis palpebrarum*, a muscle of expression, supplied by the facial nerve. In birds the lower lid is very mobile and has a well-marked depressor muscle, corresponding in shape, dimensions, and power to man's levator.

FIG. 2.



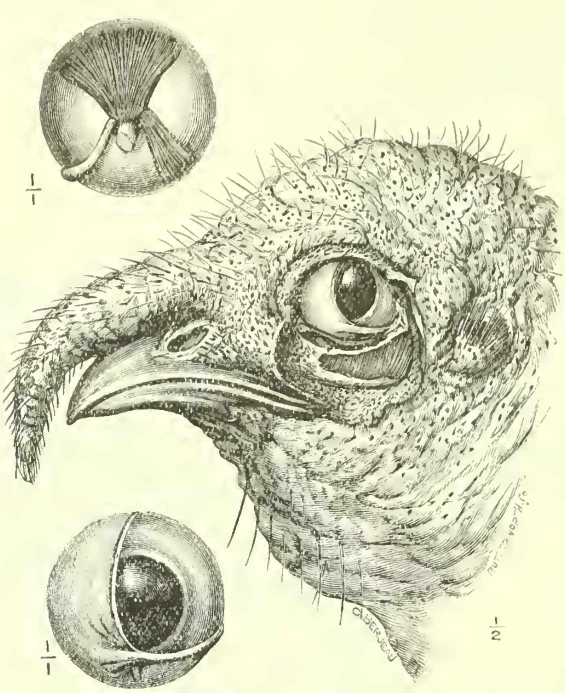
Head of shoebill. The insets show the eye in partial and complete eclipse.

The muscle that moves the third lid may be studied in its simple condition in a horse or a sheep. When the levator and the four straight and two oblique muscles are removed a funnel-shaped muscle surrounding the optic nerve will be exposed. This is the retractor bulbi, and as it resembles a cave lodging the optic nerve it is also called the choanoid muscle.

THE RETRACTOR BULBI.

This muscle arises from the apex of the orbit in common with the straight muscles. Its origin is tendinous and narrow, but as the muscle advances along the orbit it spreads out like the gamopetalous corolla of a primrose and envelops the optic nerve, which resembles the style; the expanded portion of the muscle is inserted into the sclerotic coat of the eye within the embrace of the four straight muscles. (Fig. 1.) It is supplied by the motor oculi. When the retractor bulbi acts it draws the eyeball into the orbit and at the same time the third eyelid, or nictitating membrane slips across the cornea. When the muscle relaxes, the membrane, being elastic, retreats and refolds itself on the nasal side of the orbit, like a folding blind or shutter. Veterinary anatomists teach that when the

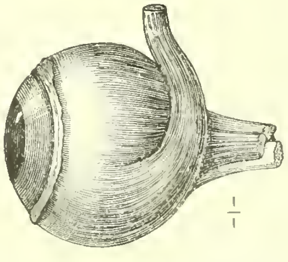
Fig 3.



Head of turkey. The insets show the pyramidalis and quadratus; also the termination of the tendon in the nictitating membrane. The relations of the tendon are also shown in the large figure.

retractor draws the globe backwards the pressure causes the soft fat within the orbit to bulge forwards and thus push the nictitating membrane over the eye. Whichever explanation may be offered this at least is true: The retractor muscle is responsible for the movement of the membrane across the eye. When a horse is suffering from tetanus it is well known that if the eyelids be opened during a spasm the nictitating membrane will be found spread in front of the cornea.

Fig. 4.



Eye of an alligator, showing the powerful muscle that moves the third eyelid and the retractor bulbi.

There is no retractor bulbi in man's orbit, but on careful dissection a fibrous funnel-shaped tunic will be found lying within the embrace of the four straight muscles, intimately associated with them, and embracing the optic nerve. The anterior portion of the tunic spreads out on the posterior part of the sclerotic repeating the method of insertion of the retractor bulbi. This tunic, or capsule, was described by the French anatomist and surgeon Tenon, a hundred years ago; it is named after him, Tenon's capsule. A critical examination of this capsule in the orbit of man and monkeys convinces me that it is the degenerate representative of the retractor bulbi as surely as the little pleat of mucous membrane, known as the semilunar fold, is the vestige, or remnant, of the third eyeball.

The Muscles of the Third Eyelid.

The muscular mechanism of the third eyelid or nictitating membrane of birds is easily studied in a turkey, owl, eagle, or ostrich. The membrane is neatly folded in the nasal side of the orbit and lies between the eye and its lids; it sweeps across the cornea at right angles to the eyelids. A special gland supplies fluid to facilitate its movement. It is amusing to watch the movements of this membrane, especially in big birds. In the owl and shoebill (Fig. 2) it is pearly white; the movements are very deliberate and give these birds a weird appearance. The shoebill is very grotesque with its huge bill, feathery crest, and large eyes, but when the nictitating membrane glides across the eye like a movable shade on a lamp, or more slowly producing crescent shapes resembling the phases of the moon, the varying shapes are singularly attractive and unforgettable.

The muscles that work the nictitating membrane are lodged within the orbit and attached to the globe; they can be easily dissected in big birds like rooks, owls, or turkeys. Two muscles, known as the pyramidalis and the quadratus, move the membrane. The quadratus arises from the sclerotic above the optic nerve, and its narrowest border, the one nearest the optic nerve, forms a sling. (Fig. 3.) The pyramidalis or nictitator muscle, arises from the nasal side of the sclerotic and ends in a long neat tendon that plays in a loop or sling formed by the quadratus; it then winds round the convexity of the globe, under the conjunctiva, and ends in the lower angle of the nictitating membrane. In fact the free border of this membrane may be described as the terminal expansion of the tendon of the pyramidalis. The muscular sling formed by the quadratus not only facilitates the action of the pyramidalis, but prevents contact of the tendon and the optic nerve. When the pyramidalis contracts it pulls the membrane over the eye; the membrane retracts and refolds by its own elasticity.

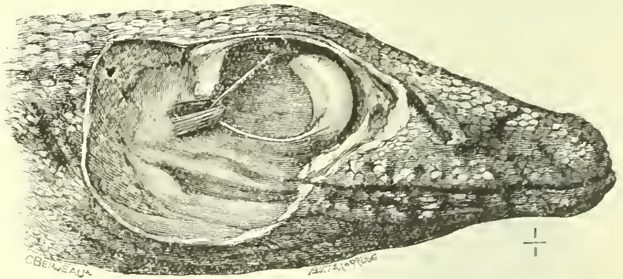
Crocodiles.

In the crocodile the nictitating membrane is transparent, and when the brute is under water, though the membrane is drawn across the eye, he can watch an enemy or an intended victim with advantage. Paraphrasing "Alice in Wonderland":—

> Quite unconcerned he seems to lie,
> Moves neither tail nor claws,
> But when he winks that watchful eye
> The prey is in his jaws.

In the crocodiles and alligators the third eyelid is drawn across the eye by a powerful nictitator, which arises from the nasal side of the sclerotic and extends as a thick muscle half across the circumference of the globe. (Fig. 4.) It ends, as usual, under the conjunctiva, in the lower corner of the third eyelid.

Fig. 5.



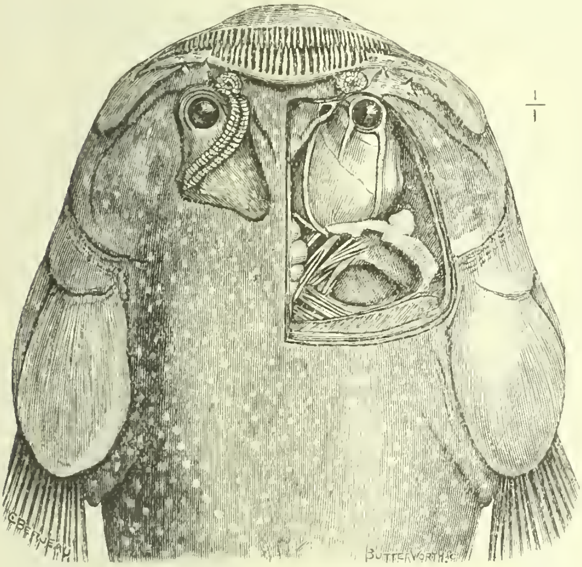
The orbit of a monitor, *Varanus salvator*. The eye has been removed to show the tendon representing the pyramidalis and its relation to the nictitating membrane, and a portion of the bursalis muscle. (Museum Royal College of Surgeons.)

Lizards.

The muscles which move the nictitating membrane of lizards are even more modified than those of birds. In some lizards the eyes are protected by special shields and plates developed from scales and skin. *Ablepharus*, a lizard of the Transcaspian Desert, has the lower eyelid fused with the upper; it is transparent and, like a window, lets in light, but excludes sand. This modification of the eyelids is of use to lizards living among sand. When the South African Force occupied Luderitzbucht (now Bothaland) in 1914, the dust of that remarkable sandy, diamond-strewn desert, blown by the prevailing wind, proved so troublesome that the eyes of the transport mules required protection by goggles.

In lizards a long slender tendon fixed to the roof of the orbit passes in the usual fashion to the lower corner of the nictitating membrane. (Fig. 5.) At the level of the optic nerve this tendon threads a sling in the bursalis muscle, which muscle represents the retractor bulbi of mammals; it arises from the back of the orbit, runs parallel with the optic nerve, and is inserted into the sclerotic coat of the eye. When the bursalis contracts it acts on the tendon and draws the nictitating membrane across the eye. It is a rare arrangement for a muscle to be inserted into the tendon of another muscle. There is an example in man in his foot: the muscle is called accessorius.

FIG. 6.



Orbit of the Stargazer, dissected to show the electric muscle.

The pyramidalis is curiously modified. In crocodiles it is relatively big and muscular throughout. In birds it is one-fourth muscle and three-fourths tendon. In lizards the pyramidalis, entirely represented by a tendon, is activated by the retractor (bursalis) muscle. In sheep and many mammals the retractor works the nictitating membrane indirectly by acting on the globe. In man it is represented by a fibrous funnel that serves as the wall of a lymph-channel. In a fish, *Astroscopus*, some of the orbital muscles become electric organs.

ELECTRIC MUSCLES IN THE ORBIT.

The contractile substance of muscles is structureless and enclosed in a husk, called the sarcolemma. The jelly in each muscle husk receives the terminal of a motor nerve and serves as a means for the discharge of the force developed in nerve cells. Embryologists have discovered that in spite of the differences in structure of muscle cells and nerve cells they have the same origin but nerve cells are modified to originate impulses which are conducted by the nerves and discharged by the muscles.

Organs are not strictly adapted to one purpose; they have a main function and subsidiary functions. Changes may gradually affect an organ and a secondary function become dominant. This happens to a surprising degree in some fishes, for definite tracts of muscle are so modified that the electric property predominates. In such fishes the electrical muscles, like ordinary muscles, are under voluntary control and become exhausted by use.

Electric muscles exist in several fishes—torpedo, skate, electric eel (which is not an eel), the stargazer, and the mormyr, a fish of peculiar shape living in the Nile. It was venerated by the ancient Egyptians and depicted on monuments. The proof that electric organs are modified muscles is furnished by the skate. In this fish the electric muscles lie in the tail. When the skate is young and like a big tadpole its electric organs are muscles, and Ewart succeeded in tracing the transformation of the muscle cells into electric cells.

The eyes of the stargazer are on the top of its head and the mouth is in such a position that, without knowledge of the cunning contrivance in the orbits, it would not be easy to understand how this fish secures food. Each orbit is roofed with a patch of soft skin, and this covers an electric organ. (Fig. 6.) The fish lies in the sand, and small fishes passing over it, paralysed by an electric shock, tumble into its open mouth. In an example dissected by Dahlgren the stomach contained a number of small swiftly swimming fishes, such as young herring and mackerel. The electric organ lies in the midst of the orbital muscles, and receives a large branch from the third nerve and branches from the trigeminus (Sylvester).

Progress in the acquisition of reliable knowledge concerning life depends on accurate instruments. For example, the minute structure of muscle was unknown before the invention of the microscope, and the elucidation of the physics of muscular contraction required the assistance of delicate measuring apparatus. An accurate knowledge of animal heat was obtained by the use of a reliable and delicate heat measurer, the thermometer, an instrument which proved that animals have within themselves a source of heat. To-day clinical thermometers are as common in nurseries as the toy called Noah's Ark. John Hunter, when he laid by experiments controlled by Ramsden's reliable thermometers, the foundations of modern knowledge on this important matter, never imagined that muscles are the chief source of animal heat.

The study of the muscles concerned in the movements of the third eyelid may cause you to reflect deeply on the absorbing subject of the physiology of muscles. Such a study may lead some of you to make discoveries in physics and neurology that will one day make the world gape with astonishment.

References.

Dahlgren and Sylvester: Anat. Anzeiger, 1906, xxix.
Lockwood, C. B.: Journ. of Anat. and Phys., 1885, xx., 1.
Tenon: Mémoires et Observations sur L'Anatomie, Paris, 1806.
Weber, M.: Arch. f. Naturgesch., 1877, xlviii., 261.

SEROLOGICAL DIFFERENCES BETWEEN THE BLOOD OF DIFFERENT RACES.

THE RESULT OF RESEARCHES ON THE MACEDONIAN FRONT.*

BY DR. LUDWIK HIRSCHFELD,
DOZENT AT THE UNIVERSITY OF ZURICH;
AND
DR. HANKA HIRSCHFELD,
OF THE CENTRAL BACTERIOLOGICAL LABORATORY, ROYAL SERBIAN ARMY.

Race Problems and Researches in Immunisation.

IT is a well-known fact that it is possible to produce antibodies by injecting an animal of one species with the red blood corpuscles of an animal of a different species. These antibodies, which we call hetero-antibodies are capable of reacting with the erythrocytes of all representatives of the species used for immunising. A rabbit immunised with the blood of a man of any race will produce agglutinins or hæmolysins which can influence to a greater or lesser degree the blood corpuscles of men of any race. The hetero-antibodies are thus specific for a species and cannot bring us nearer to the solution of the race problem.

But, as Ehrlich showed in goats and von Dungern and Hirschfeld[1] in dogs, we do possess a means of finding serological differences within a species. This is effected by immunisation *in the species*. The reason for this can be explained in a few words. Those antigen properties which are common to the giver and receiver of blood cannot give rise to any antibodies, since they are not felt as foreign by the immunised animal. The antibodies produced within the species which we call iso-antibodies do not, therefore, act against the whole of the antigen properties of the species, but only against the differences between the blood of the animal which provides the blood for injection and that of the recipient. The iso-antibodies thus do not influence all representatives of the species, but only the blood used for injection and other kinds of blood similar to it. If we inject into dogs the blood of other dogs it is in many cases possible to produce antibodies. By means of these antibodies we have been able to show that there are in dogs two antigen types. These antigen types, which we recognise by means of the iso-antibodies, we may designate biochemical races.

---

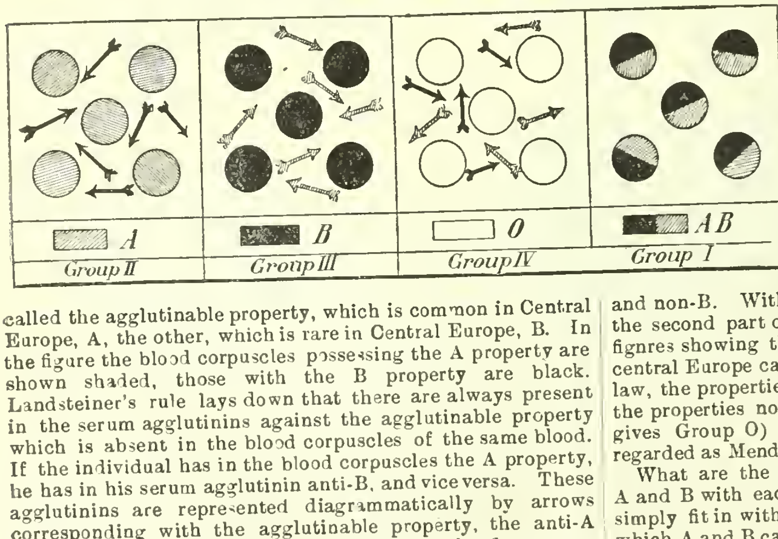
* Paper read before the Salonika Medical Society, June 5th, 1918, and submitted to us for publication in September 1919.

[1] Von Dungern: Münchener medizinische Wochenschrift, 1911. Von Dungern and Hirschfeld: Zeitschrift für Immunitätsforschungen, 1911, Comm. I., II., III.

It was, therefore, clear to us from the beginning that we could only attack the human race problem on serological lines if we could succeed in making use of antibodies of this kind, for the iso-antibodies alone are capable of selecting from the whole of the biochemical elements which serologically characterise human blood as such those elements that are characteristic of the blood of only a part of the human species.[2]

Such a differentiation of the human species is now possible by means of the iso-agglutinins first analysed by Landsteiner. If the serum and the blood corpuscles of different pairs of human beings are brought together agglutination sometimes occurs. Accurate analysis of the agglutinable properties of the blood and of the agglutinating properties of the serum showed that this phenomenon has nothing to do with disease. It depends on the following physiological facts. There are present in human blood two agglutinable properties, which, however, are not equally marked in all individuals. In the serum there is never present an agglutinin reacting with its own blood, but always an agglutinin which reacts with that property which is absent in that particular blood. As has often been pointed out in the literature of the subject, these properties are of great importance in blood transfusion, for a blood must never be injected which can be agglutinated by the recipient. Either of the two agglutinable properties may be present or both together, or both may be absent, and we can therefore distinguish four different combinations in man. In the literature of the subject we therefore most often find the statement that there are in the human species four different groups. But since we have, indeed, four groups but only two agglutinable properties, von Dungern and Hirschfeld[1] introduced another definition which is shown in the accompanying table. (Table I.) They called the agglutinable property, which is common in Central Europe, A, the other, which is rare in Central Europe, B. In the figure the blood corpuscles possessing the A property are shown shaded, those with the B property are black. Landsteiner's rule lays down that there are always present in the serum agglutinins against the agglutinable property which is absent in the blood corpuscles of the same blood. If the individual has in the blood corpuscles the A property, he has in his serum agglutinin anti-B, and vice versa. These agglutinins are represented diagrammatically by arrows corresponding with the agglutinable property, the anti-A being shaded, the anti-B black. We see in the first square of the figure the shaded red blood corpuscles A surrounded by the black arrows anti-B, while in the second square are the black blood corpuscles B with the shaded anti-A agglutinins. In the third square we see the non-agglutinable red blood corpuscles which possess neither A nor B property, called by von Dungern and Hirschfeld the Group O. In accordance with Landsteiner's rule that in the blood there are always agglutinins against the qualities lacking in the corpuscles we have here both the shaded anti-A and the black anti-B arrows. Finally, in the fourth square are represented the red corpuscles, which have both A and B properties, and accordingly no agglutinins. Below our diagram we have given the classification used by English writers on the subject. The English Group I. corresponds to our A B, Group II. is our A, and Group III. our B. As against Mosse, we wish to point out that Group I. does not represent any special individuality, but merely, as can easily be proved by absorption experiments, the combination of the properties A and B. For the differentiation of the groups, therefore, we require not three, but only two sera, A and B.

TABLE I.—*Landsteiner's Law of Iso-agglutinins.*



Results of Experiments.

What biological significance, then, has this peculiar differentiation of the blood within the human species, and how are these marks of the biochemical race inherited? Von Dungern and Hirschfeld first undertook experiments on the inheritance of these characteristics in dogs, and found that the biochemical properties of the blood are sometimes inherited and sometimes disappear in the off-spring. They established, further, that the anatomical and biochemical characteristics are inherited independently of one another. Young dogs which had the general structure and colour of the mother showed the agglutinable properties of the father and vice versa.

Researches on the inheritance of the bio-chemical group properties in man as differentiated by means of Landsteiner's iso-antibodies permitted von Dungern and Hirschfeld to come to an important conclusion as to the nature of these properties. We succeeded in showing that the A and B properties are generally inherited, but sometimes may disappear in the offspring. When the parents had A or B we found sometimes the Group O occurring in the children. On the other hand, we never found either A or B property in a child when it was absent in the parents. This observation will permit under certain circumstances of medico-legal decisions being made in order to find the real father of a child. If we find in a child either A or B property when it is absent in the mother it must be present in the real father.

The analysis of our numerical results proved that we can apply Mendel's law to the inheritance of the bio-chemical properties A and B. Since the A and B properties may disappear but never appear spontaneously, we can regard them according to Mendel's law as those properties which once present in the germ-plasm must also be ontwardly visible. Mendel, as we know, named such a property or quality, which always gives the species its outward appearance, the dominant, while the absence of the property (which property may appear in children although absent in the parents) is considered as latent or recessive, and is set in contra-distinction to the dominant. If, for example, the dominant is *red* the Mendelian quality or property antagonistic to it—e.g., *white*—is described as *non-red*. If we introduce the Mendelian terminology we can in our cases speak of non-A and non-B. With certain premises, which are discussed in the second part of von Dungern and Hirschfeld's paper, the figures showing the frequency of occurrence of A and B in central Europe can be brought into harmony with Mendel's law, the properties A and B being recognised as dominant, the properties non-A and non-B (the combination of which gives Group O) as recessive. A and non-A thus may be regarded as Mendelian pairs and similarly B and non-B.

What are the laws, then, governing the relationships of A and B with each other. The calculation showed that they simply fit in with the calculation of probability according to which A and B can come together when they do not influence each other. When A, for instance, occurs in half of all cases and B in one-tenth, A B will be found together in about one-twentieth—i.e., in 5 per cent. Experience has shown that the occurrence of Group I. (our Group A B) approximates to this figure. If, therefore, Landsteiner's rule is regarded from the broad biological point of view it can be stated as follows: There are within the human species four properties of blood, A, non-A, B, and non-B

---

[2] This only applies to non-absorbed sera.

A and non-A, B and non-B behave to each other according to Mendel's law, while A and B, non-A and non-B do not influence one another. Experience has shown that the inheritance of the biochemical blood properties in man is not influenced by sex and does not correspond with the inheritance of anatomical qualities (family resemblance, &c.), so that we have to do with an independent heredity. The agglutinable properties appear already in embryonic life; we have observed them in a six-months' fœtus. We have succeeded in finding these properties in the placental blood even when they were absent in the mother. The iso-agglutinins, however, do not appear until the second year of life. We can confirm Landsteiner's observation that these group-properties have nothing to do with disease. They appear also not to alter with time. We ourselves possess the same groups and agglutinins which we found in our blood eight years ago in spite of the fact that one of us has had typhoid and now suffers from chronic malaria. The experiments in heredity, also, point to the constancy of the biochemical properties of the blood. There exist, indeed, weakly agglutinable blood corpuscles and weakly agglutinating sera. An accidental coming together of these might simulate Group O where in reality A or B was present.

We have often examined hundreds of specimens of blood with 10 different sera and found mostly only quantitative differences between the different A and B sera for the agglutinin is seldom absent. Rarely there are to be found certain anti-A (Group B) sera which agglutinate the corpuscles of rather more individuals than other sera. The corresponding groups are distinguished by von Dungern and Hirschfeld as Large-A and Small-a. We have therefore always used several sera for the examination of a people or a race, and, on the other hand, always used the same set of sera for the examination of different races. We have never observed that malaria has any influence on the agglutinations. The clumping in the blood of anæmic patients has nothing to do with the agglutinations, as one of us has succeeded in proving.[3] The red blood corpuscles always sink in their own plasma as soon as their number is so small that they cannot support each other. The rate of sinking thus runs parallel with the anæmia. It seemed, therefore, that it would be of interest to make use of the properties of blood, as defined by Landsteiner's rule, to form an anthropological criterion for the discovery of hitherto unknown and anatomically invisible relationships between different races. Through the accident of the war we happened to come to a part of the globe where more than elsewhere various races and peoples are brought together, so that the problems we are discussing, which otherwise would have necessitated long years of travel, could be brought in a relatively short time nearer to solution.

Technique.

The technique is as follows. We add a few drops of blood from the ball of the finger to a mixture of sodium chloride and sodium citrate solution (normal saline 9 parts, 2·5 per cent., Na citrate 1 part). A drop of the blood mixture is brought in contact in a small test-tube with a drop each of the A and B sera, of which the activity and specificity have always been established by a control experiment. The result was never read off in less than half an hour—a point of great importance, as particularly Group B is but slowly agglutinated. We used only Serbians as providers of serum. For each race several sera are used, but the same set of sera for all races. Our material consists for the most part of soldiers from various districts. This is to be regarded as a very favourable circumstance, since they are mostly unrelated to each other, so that the possibility that the frequency of a group might depend on family relationship is excluded. The refugees, as our statistics for the Jewish race particularly show, give evidence of great individual differences in the first, second, and other hundreds examined, so that the results must be confirmed by tests on more extensive material. The exact statistics with regard to the different tribes, provinces, anatomical structure, &c., will appear in an anthropological journal. We examined 500–1000 persons of each race. For the Germans we quote from memory the results of von Dungern and Hirschfeld as the statistical table for these is unfortunately not to hand. For the Austrians we use the Vienna statistics of L. Landsteiner. For the Jews we used the refugees from Monastir belonging to a people which came from Spain about 400 years ago. For the Greeks we examined 300 soldiers from Old Greece and the Islands and 200 refugees from Asia Minor and Thrace. For the Turks we used Macedonian Mahommedans. These last must certainly contain a large admixture of Slav blood, and the statistics should be confirmed in Turkey. We wish to emphasise particularly that all these people, except the Indians, who are as a nation for the most part vegetarians, are receiving exactly the same food and are exposed to the same hardships and diseases, so that it would not be correct to refer the great differences we have found in the frequency of A and B Groups to special climatological or pathological conditions.

Statistical Analyses.

We wish to point out as the first important fact that we found the Groups A and B present in all races examined. Table II. shows the percentage of A and B. The figures in the right-hand column of Table II. represent the total numbers of each race examined. A glance at the table shows that we find marked differences in the incidence of A and B in the different races. From the English onward we see that A always diminishes, whereas B increases.[4] In order to give an exact analysis we will first look at our data from the point of view developed by von Dungern and Hirschfeld in the second part of their paper.[5] The group A B was regarded by them as the accidental coming together of A and B. If we analyse our statistics from this point of view we reach the following figures: If A is present in 43·4 per cent. and B in 7·2 per cent. For the calculation of probability we must multiply 43·4/100 by 7·2/100, which gives 301/10,000 = 3·1 per cent. In reality we found 3·1 per cent.

TABLE II. TABLE III.

—	A in per cent.	B in per cent.	A B in per cent.	O in per cent.	Total No. examined.	A B.		O.	
						Really found.	Calculation of probability.	Really found.	Calculation of probability.
						%	%	%	%
English ...	43·4	7·2	3·0	46·4	500	3·1	3·1	46·4	47·9
French ...	42·6	11·2	3·0	43·2	500	3·0	4·7	43 2	46·6
Italians ...	38·0	11·0	3 8	47·2	500	3·8	4 1	47·2	49·5
Germans...	43·0	12·0	5·0	40·0	ca.500	5·0	5·1	40·0	43·1
Austrians	40·0	10·0	8·0	42·0	?	8·0	4·0	42·0	42·6
Serbs... ...	41·8	15·6	4·6	38·0	500	4·6	6·5	38·0	42·7
Greeks ...	41·6	16·2	4·0	38·2	500	4·0	6·7	38·2	43·4
Bulgarians	40·6	14·2	6·2	39·0	500	6·2	5 7	39·0	42·3
Arabs ...	32·4	19·0	5·0	43·6	500	5·0	6·1	43·6	47·5
Turks ...	38·0	18·6	6·6	36·8	500	6·6	7·0	36·8	39·9
Russians...	31·2	21·8	6·3	40·7	1000	6·3	6 8	40·7	44·9
Jews... ...	33·0	23·2	5·0	38·8	500	5·0	7·6	38·8	44·5
Malagasies	26·2	23·7	4·5	45·5	400	4·5	6·2	45·5	49·5
Negroes (Senegal)	22·6	29·2	5·0	43·2	500	5·0	6·5	43·2	47·6
Annamese	22·4	28·4	7·2	42·0	500	7·2	6·4	42·0	45·3
Indians ...	19·0	41·2	8·5	31·3	1000	8·5	7·8	31·3	43·7

Since A occurs in 43·4 per cent. and A B in 3·1 per cent., we have the property A altogether in 46·5 per cent., and correspondingly the non-A in 53·5 per cent. Similar calculations give for non-B 89·7 per cent. The calculation of probabilities thus gives for Group O: $\frac{53\cdot5}{100} \times \frac{89\cdot7}{100} = \frac{4798}{10,000} = 47\cdot9$ per cent. We actually found 46·4 per cent.

We made the same calculations for each people and race, and have shown the results in Table III. The table shows only slight differences between the calculation and the facts, the calculation giving somewhat higher results.

Basing our opinion on the whole of our material embracing about 8000 cases we look on Group O (the English Group IV.)

---

[3] L. Hirschfeld: Korrespondenzblatt für Schweizer Aerzte, 1917.

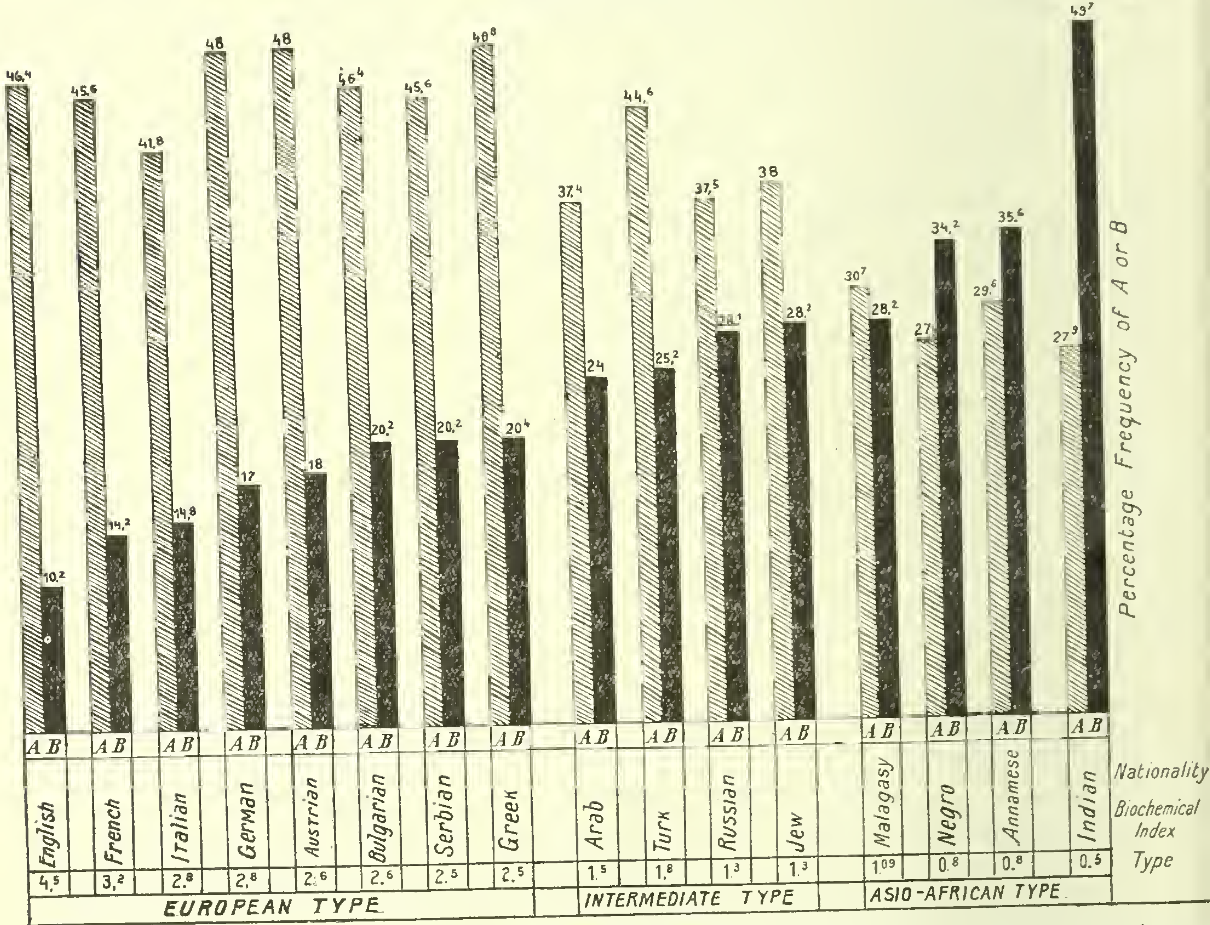
[4] In the English literature of the subject we find that the frequency of occurrence of B is higher and corresponds to the figures given by Landsteiner for Vienna. We cannot corroborate this. We examined our English material several times with seven different anti-B sera without finding a greater frequency than that here given.

[5] Loc. cit.

as the accidental conjunction of the two groups non-A and non-B, while Group I., our A B, is to be regarded as the accidental conjunction of the groups A and B. If, then, we wish to find exactly the frequency of A and B, we must add the English Group I. (our A B) to the Groups II. and III. Thus in the English subjects instead of 43·4 per cent. A, 7·2 per cent. B, and 3 per cent. A B, we read 46·4 per cent. A and 10·2 per cent. B.

In Table IV. the figures arrived at are shown diagrammatically, Group A being shaded and Group B black. The result is remarkable.

TABLE IV.—*Showing the Percentage Frequency of A and B Serological Reactions in Various National Types.*



The prevalence of the Group A is characteristic of the European peoples. Most European peoples have not less than 45 per cent. A; in the Italians alone we found 41 per cent. This frequency of A only applies to Europe. In Africa and in Asia we find far fewer cases of A; the Malagasies have 30 per cent., Negroes 27 per cent., Annamese 29 per cent., and Indians 27 per cent. of A. The countries lying between Asia and Central Europe, with the exception of the Macedonian Turks who have the European A frequency, show the intermediate type; the Arabs 37 per cent., the Russians 37 per cent., the Jews 38 per cent. Thus we see that going southwards and eastwards the frequency of A constantly diminishes. If we now consider Group B we find the exact opposite: the English who are farthest west have only 10 per cent., the French and Italians 14 per cent., the German Austrians 17 to 18 per cent. Of the Balkan peoples the Serbians and Greeks have the same frequency of 20·2 per cent. the Bulgars 20·4. The contrary is found in Africa and Asia. Group B, which is numerically low in Europe, reaches 28 per cent. in the Malagasies, in Negroes 34 per cent., in Annamese 35 per cent., and finally in Indians a maximum of 49 per cent. The peoples of the Mediterranean basin and the Russians in this also show the intermediate type: the Arabs have 24 per cent., Turks 25 per cent., Russians and Jews 28 per cent. The Russians arranged according to districts show the following relationships:—

TABLE V.

—	A %	B %	Total.
Central Russia	37·6	25·2	400
Siberia	36·5	29·0	321
Ukraine	35·1	33·3	111
Perm, Vologda, &c.	36·8	34·5	84

Central Russia and Siberia show the intermediate type. Little Russia and the Volga District have the Asiatic type.

We see thus that A and B are present in different proportions in different races. The serological formula for a particular race is in no way affected by the anthropological characteristics. The Indians, who are looked on as anthropologically nearest to Europeans, show the greatest difference from them in the blood properties. The Russians and the Jews, who differ so much from each other in anatomical characteristics, mode of life, occupation, and temperament, have exactly the same proportion of A and B. On the other hand, it is clear that the distribution of A and B corresponds with surprising accuracy to geographical situation. The nearer to Western and Central Europe the more A and the less B, the nearer to Africa and Asia, especially to India, the less A and the more B. The peoples lying between Central and Western Europe on one side, and Africa and Asia on the other—that is to say, the peoples of the Mediterranean basin—show the intermediate type. In order to designate these relationships by a number we will call the proportion of A to B the biochemical race-index. We see that the race-index in the European peoples varies between 4·5 and 2·5, in the Asio-African peoples it is 1 or less, while the intermediate type is characterised by the race-index 1–2. (Table V.)

This remarkable fact, that A and B are represented in very different proportions in different races may be discussed from two standpoints. One can imagine that when man appeared on the earth A and B were present in the same proportions in different races. In this case the differences which are now present in different races would depend on the assumption that for unknown reasons A is more suitable for increased resistance of the organism to disease in a temperate climate, while B is more suitable in a hot climate. The hypothesis is improbable.

We see that the Russians in Siberia have the same proportion of B as the natives of Madagascar. The Jews who have lived for centuries in Monastir show a type of blood different from that of the other Balkan peoples. It is also a priori improbable that the climatic conditions should influence the frequency of A and B. If B could not be acclimatised in a temperate climate it should have died out in those climates long ago in the extended periods of time which we can take into consideration. It is very difficult to imagine one single place of origin for the human race in view of our statistics, since it would then be inexplicable why A diminishes from west to east and south, while B increases. The figures arrived at by us are most easily explained on the assumption that A and B had different points of origin and that there are two different biochemical races which arose in different places. In this case the mutual infiltration of these races is the cause of the varying proportion of A and B. Since the greatest frequency of B is found in India,[6] we should then look for the moment on India as the cradle of one part of humanity—namely, of the biochemical race B. Both to the east (Indo-China) and to the west, towards Europe and Africa, a broad stream of Indians poured out, ever lessening in its flow, which finally, although continually diminishing, penetrated to Western Europe. A similar single place of origin for A cannot be indicated, since all European peoples show a greater or less preponderance of A, which only seems to diminish somewhat in the Italians. Since, however, the Asiatic and African peoples are poor in A, we must assume hypothetically that A arose in North or Central Europe and spread out thence southwards and eastwards. A detailed examination of the northern races may lead us to unexpected and important conclusions on this point.

Conclusion.

We see then that the analysis of the figures we obtained has led us to remarkable results and that the highly interesting problem of a possible double origin of the human race has become a question which can be studied by means of serological methods. A problem of such dimensions may be propounded, but can hardly be resolved by the experimental results of a science, the introduction of which into these problems is here attempted for the first time. Still, we believe that we have shown in this paper that experiments in immunisation deserve to be made use of for the solving of anthropological questions. A close coöperation would be necessary between anthropologists and serologists, and the researches should be conducted on an international basis. The present war has brought so many races and peoples together that the main problems should certainly be capable of solution in a short time and without great labour. A series of important special researches, such as the examination of various stocks, primitive races, and anthropoid apes, should be begun without delay.

In our experiments we received much help from many medical and other officers of the Allied Armies in Macedonia. We owe our gratitude to the Directors of the Medical Services of the several armies for permission to examine soldiers and for other assistance. Major Stefanovitch and Captain W. L. Murphy, the liaison officers of the Serbian and British Army Medical Services, have undertaken the translation of the paper into English, for which we offer them our best thanks.

---

[6] Of the greatest importance are the researches from the Central Asia plateau.

THE War Office states that nurses whose names are mentioned in despatches for work in France, Egypt, or other places overseas will receive a certificate of the King's appreciation of their services.

TWO STUDIES OF MENINGOCOCCUS CARRIERS.

I.—THE SITE OF CARRYING IN CHRONIC MENINGOCOCCUS CARRIERS.

BY DENNIS EMBLETON, M.A., M.B. CANTAB.,
TEMPORARY MAJOR, R.A.M.C.; BACTERIOLOGIST, ROYAL VICTORIA HOSPITAL, NETLEY;
AND
W. SOHIER BRYANT, A.M., M.D. HARV., U.S.A., F.A.C.S.,
LATE CONSULTING RHINOLOGIST, MANHATTAN STATE HOSPITAL.

II.—A STUDY OF 905 MENINGOCOCCUS CARRIERS.

BY DENNIS EMBLETON,
AND
GEORGE H. STEVEN, M.B., CH.B. EDIN.,
TEMPORARY CAPTAIN, R.A.M.C.; BACTERIOLOGIST, ROYAL VICTORIA HOSPITAL, NETLEY.

(Reports to Medical Research Committee.)

I.

THE "site of carrying" of the meningococcus has been investigated in 40 chronic carriers, 21 of these had already suffered from cerebro-spinal fever, 19 had never suffered from the disease, but had been found to be carriers on examination of the naso-pharynx. With only five exceptions these chronic carriers had been subjected to treatment with a Levick spray, charged with either chloramine or zinc sulphate daily for two months or more prior to this investigation. All the carriers were known to have carried for at least four weeks, the most chronic had been carrying for 15 months.

The naso-pharynx was illuminated by means of a forehead mirror and direct sunlight, material for culture being taken with a small-looped platinum wire from the various sites chosen. The patients were not exposed to any form of antiseptic treatment for 24 hours prior to examination. The sites chosen were:—

Through the nose.—Anterior ends of the lower turbinates, anterior ends of the middle turbinates, posterior ends of the lower turbinates, anterior wall of the sphenoid, fossæ of Rosenmüller upper, Luschka's tonsil.

Through the mouth.—Faucial tonsil crypts, fossæ of Rosenmüller lower, back wall of the naso-pharynx.

These sites were also strategical, as any discharge from the accessory sinuses of the nose would appear at one of these points. Thus discharge from the sphenoid sinus would appear on the front wall of the sphenoid; the discharge from the anterior ethmoidal, frontal, and maxillary sinuses over the anterior third of the lower turbinate; and the discharge from the posterior ethmoidal cells over the posterior third of the lower turbinate.

The utmost steadiness and care was required to obtain an uncontaminated loop through the obstructed nasal fossæ from the deep structures. Only such loops as were thought to be uncontaminated were used for culture. The following method of obtaining cultures from these sites was devised in order that the various parts examined might not be contaminated by infected material before they were themselves cultured.

The anterior end of the lower turbinate was cultured first, as it was accessible in every case. The anterior end of the middle turbinate was often hidden. Eucaine and adrenalin had to be applied in these cases to the anterior end of the lower turbinate before the middle turbinate could be seen and reached without contaminating the platinum loop. The posterior end of the lower turbinate was cultured after it was brought plainly into view by shrinking the anterior portion. Then the anterior wall of the sphenoid was exposed by shrinking the middle turbinate.

Up to this point a straight wire was employed, but for the investigation of the fossæ of Rosenmüller a platinum wire was bent slightly on the flat of the loop. The nasal orifices were held apart by a speculum, the wire was passed along the floor of the nose steadied against the speculum, with the loop well up from the floor. After the loop had passed by the posterior end of the lower turbinate and the Eustachian ring the wire was rotated, bringing the loop pointing towards the fossæ of Rosenmüller. The loop was then pushed deep into the fossa, the extraction of the loop was accomplished by reversing the process of insertion. The next cultural site, Luschka's tonsil, was reached with a straight wire, the loop being inserted deep into the pharyngeal tissue.

The faucial tonsils were cultured through the mouth, a platinum wire with a small loop 2·5 mm. in diameter and bent at right angles was used, which could be readily carried to the bottom of one or more crypts. The deepest and most difficult to culture of all the sites were the lower portions of the fossæ of Rosenmüller. The reason for this difficulty was that the velum palati was apt to contract against the platinum loop, making it touch the medium region of the back wall of the naso-pharynx below Luschka's tonsil. In order to obtain accurate cultural material from these positions great patience had to be observed. The wire was bent in a curve to allow it to pass readily over the tongue and by the edge of the velum palati. The curved wire was passed flat over the tongue until it had passed beyond the edge of the velum, the end of the wire was then turned upwards pointing towards the fossa of Rosenmüller and inserted. A posterior rhinoscopic mirror was not used in these patients because of the labour required in educating them to coöperate in this method of examination. Instead, the moment when the velum was relaxed the wire was quickly passed into the fossa and out again.

The last culture was taken with the curved wire from the back wall of the naso-pharynx below Luschka's tonsil.

As many of these sites as was possible were examined at one sitting of the patient. The greatest attention was paid to regions found to be more usually infected by the meningococcus, whereas the regions which were proved to be least infected were not cultured so often.

The material as soon as it was obtained was planted on to a trypsinised ox-heart legumin hæmoglobin agar plate, made according to the formula of the Central C.-S.F. Laboratory (Lieutenant-Colonel M. H. Gordon), fresh and not frozen ox-hearts being used. The medium was kept warm (as near as possible 37° C.) until inoculated with the material from the platinum loop, was then rapidly rubbed over the surface with a glass spreader, and returned to the incubator while still warm. The plates were examined within 24 hours, two likely colonies from each plate being subcultured. These two subcultures were examined after 24 hours' growth, and if shown to be Gram-negative cocci were subjected to agglutination tests, against the standard sera supplied by the Central C.-S.F. Laboratory, Lieutenant-Colonel Gordon's technique being followed. No specimen was admitted to contain meningococci unless one at least of these colonies agglutinated with a specific serum and not with a normal.

The extreme degree of specificity of the standard serum and the constancy of its properties has been noteworthy throughout the whole time that it has been issued.

TABLE I.

(A) Number of examinations. (B) Number showing meningococcus. (C) Percentage showing meningocccus. (D) Percentage of positive cultures giving nearly pure culture of meningococcus.

—		Convalescent cases.				Contact carriers.				Totals.		
		(A)	(B)	(C)	(D)	(A)	(B)	(C)	(D)	(A)	(B)	(C)
Ant. end lower turbinate.	R.	14	0	—	—	12	0	—	—	48	0	—
	L.	11	0	—	—	11	0	—	—			
Ant. end middle turoinate.	R.	11	0	—	—	6	0	—	—	32	0	—
	L.	8	0	—	—	7	0	—	—			
Post. end lower turbinate.	R.	9	0	—	—	7	1	14	—	29	2	7
	L.	7	0	—	—	6	1	17	—			
Ant. wall of sphenoid.	R.	15	0	—	—	7	0	—	—	34	0	—
	L.	10	0	—	—	2	0	—	—			
Luschka's tonsil.	R	77	22	29	36	69	27	39	63	288	97	34
	L.	76	22	29	36	66	26	40	52			
Fossæ of Rosenmüller, above.	R	10	1	10	0	14	7	50	14	49	19	39
	L.	14	5	36	25	11	6	55	17			
Faucial tonsil crypts.	R	81	8	10	0	77	13	17	0	320	38	12
	L.	79	8	10	0	83	9	11	22			
Fossæ of Rosenmüller, below.	R.	55	22	40	27	42	28	67	64	191	99	52
	L.	56	29	52	31	38	20	53	60			
Back wall of naso-pharynx.		81	32	40	37	73	44	60	48	154	76	49

R., Right; L., Left.

From Table I. it is at once apparent that in the chronic carrier the upper and anterior portion of the nose is free from infection with the meningococcus. 143 examinations of this portion—i.e., the lower and middle turbinates and the anterior wall of the sphenoid—gave only two positive cultures. These two cultures were obtained from the same carrier on the same day. The infection was exceedingly light as only three colonies were found on the right posterior end of the lower turbinate and four colonies on the left. It is probable that this infection of the turbinates was accidental and may have been produced by sneezing.

The posterior and lower portion of the naso-pharynx was richly infected with the meningococcus. 682 examinations of this region—i.e., Luschka's tonsil, the fossæ of Rosenmüller, and the back wall of the naso-pharynx—gave 291 positive readings, or 43 per cent. This position is the part swabbed in examining a carrier. 43 per cent. is, however, a very low reading to obtain from a series of chronic carriers, even though it is known that chronic carriers are apt to be intermittent. This matter has already been dealt with in another paper; as, however, an explanation seems to be required for this low reading the following figures are quoted.

388 swabs were taken from the posterior naso-pharynx on an identical series of cases over the same period of time, 239 were made with a stiff brass wire (gauge 18), giving 163 positives, 68 per cent.; and 149 with an ordinary platinum loop, giving 71 positives, 48 per cent.

The increased number of positives, 20 per cent., brought out by the use of the stiff wire was thought to be due to the meningococci not being only on the surface but being squeezed out of the crypts by the greater pressure able to be exerted by the stiffer wire.

The faucial tonsillar crypts were also found to be infected. 336 separate examinations gave 41 positive readings, or 12 per cent. This had been unexpected, though the tissue examined is of the same character as Luschka's tonsil. The importance of this observation is that the tonsils are not examined as a routine measure in chronic carriers, whereas this shows that they are an important carrying site. See also Table III.

TABLE II.

—	No. examined.	Tonsils proved positive in—	Tonsils positive.
Convalescent cases known to be carriers	21	9	43 %
Contacts known to be carriers	19	12	63 %
Total	40	21	52·5 %

Thus, Table II. shows that although the percentage of examinations in which the tonsils were found to be infected was low, 12 per cent., more than half of the carriers investigated were found to be tonsillar carriers.

It is not desired to lay too much stress upon the actual sites investigated or to labour the points that Luschka's tonsil showed 33 per cent. of positive examinations, whereas the back wall of the pharynx, a position at most an inch away, showed 49 per cent. It would be quite impossible to differentiate accurately between the fossæ of Rosenmüller above and below, Luschka's tonsil, and the back wall of the naso-pharynx. In this region various factors have to be considered as liable to infect one site from another.

1. *Cilia*.—The ciliated epithelium extends downwards as far as the level of the Eustachian tubes. The action of these cilia is to propel superficial bodies from the direction of the nasal orifices posteriorly and downwards towards the back wall of the naso-pharynx. The cilia will thus heap up the debris removed from the upper part of the nose on the stratified epithelium which joins on to the ciliated epithelium at the level of the Eustachian tubes.

2. *Coughing and sneezing*.—The former clears the posterior pharyngeal wall and might also force infected material in an upward direction. Sneezing would be apt to project infected material upwards, and thus sites not usually found infected might be found temporarily so, until the cilia had cleared up the infected debris.

3. Moisture trickling down from higher positions would also tend to infect lower positions. The direction of infection in this case would correspond with the currents produced by the cilia.

Thus in the chronic carrier the parts infected with the meningococcus are: Luschka's tonsil, the fossæ of Rosenmüller, the posterior wall of the naso-pharynx, and the faucial tonsils.

The accessory nasal sinuses were not found to be infected in any of these cases. They were not investigated directly, so it is possible that their ostia may have been occluded so that the discharge did not appear at our strategical points. Against this view it can be urged that the examinations were carried on for two months, so the occlusion, if present, cannot have been of a temporary nature, and, also, none of these cases ever showed any symptoms of sinus trouble subsequently, although observed for many months. There were also among these carriers no cases which subsequently suffered from relapses. The relationship between infection of the sphenoidal sinus and relapsing cases will be discussed in another paper.

TABLE III.

Convalescent cases.	Age.	Duration of carrying before this investigation.	Total period remained a carrier.	Type of meningococcus.	Bacterial distribution.					Anatomical condition.					
					Luschka's tonsil.	Rosenmüller, above.	Rosenmüller below.	Back wall of naso-pharynx.	Faucial tonsils.	Degree of nasal obstruction.	Pharyngeal lymphoid hypertrophy.	Faucial tonsils hypertrophy.	Definite "adenoids" present.	Carious teeth.	Nasal discharge.
		Months.													
Be.	21	1	10	I.	0	0	+	+	0	2nd.	Sil.	0	0	+	+
Bl.	25	5	6	I.	+	+	+	+	0	1st.	Yes.	+	+	0	0
Bo.	22	5	13	II	+	0	+	0	+	2nd.	Sli.	0	0	0	0
Dy.	26	2	11	I.	0	–	+	+	0	2nd.	Yes.	0	0	0	0
El.	22	4	7	I.	+	+	+	+	0	1st.	Yes.	+	+	0	0
Fr.	20	3	16	II.	+	0	0	+	0	3rd	Yes.	0	0	+	0
Gi.	20	2	6	I.	+	–	+	+	+	3rd.	Yes.	+	+	+	0
Ha.	19	2	10	I.	0	+	+	+	+	3rd.	Yes.	+	+	0	+
Ho.	37	5	12	II.	+	0	+	+	+	2nd.	Yes.	+	+	0	0
In.	27	3	16	I.	+	–	+	+	0	1st.	Yes.	0	0	+	0
Ja.	20	4	8	II.	0	–	+	0	+	1st.	Yes.	0	0	+	0
Jo.	25	5	10	I.	0	–	–	+	0	1st.	Yes	++	++	0	0
La.	20	3	4	I.	+	–	+	+	0	2nd	Yes	+	+	0	0
Ma.	36	1	3	I	0	0	+	0	0	1st.	Sli.	0	0	P	+
Mi.	24	6	13	I.	+	0	+	0	0	3rd.	Yes.	0	0	+	0
Ni.	40	6	12	IV.	+	+	+	+	+	3rd.	Yes.	0	0	0	0
Sc.	22	4	6	I	+	–	+	0	0	1st.	Yes.	+	+	0	0
Sb.	18	2	4	I	+	–	+	+	+	3rd.	Sli.	+	+	0	0
Sm.	27	15	?25	I.	0	0	0	+	0	1st.	Yes.	+	+	+	+
Ta.	19	7	13	I.	+	–	+	+	+	3rd.	Yes.	+	+	+	0
Wo.	24	3	4	II.	+	0	0	+	+	2nd.	Yes.	0	+	0	0
Contact Carriers.															
An.	33	5	9	II.	+	–	+	+	+	3rd.	Yes.	+	+	0	0
Don.	34	5	8	II.	+	–	+	+	+	2nd.	Yes.	0	0	+	0
Dor.	40	3	14	II.	+	+	+	+	+	2nd	No.	0	0	+	0
Du.	22	9	21	II.	+	0	+	+	0	3rd.	Yes.	+	+	0	0
Har.	37	5	16	II.	+	+	+	+	+	2nd.	Yes.	0	0	+	0
Hay.	37	2	14	III.	+	+	+	+	0	2nd.	Yes.	0	0	0	0
Hi.	21	5	14	II.	+	0	+	+	0	2nd.	Yes.	+	+	0	0
LaM.	20	3	4	IV.	0	0	+	0	0	2nd.	Yes	0	0	+	0
McC.	19	5	18	II.	+	+	+	+	+	2nd.	Yes.	+	+	+	0
McF.	39	5	16	II.	+	0	–	+	+	1st.	Mar.	0	0	0	0
Ne.	27	3	15	I.	+	0	+	+	0	3rd.	Yes.	0	0	+	0
Nr.	28	4	8	II.	+	–	+	+	+	2nd.	Yes.	0	0	+	0
Pa.	57	3	5	II.	+	+	0	+	0	Sli.	Yes.	0	0	+	0
Pb.	21	2	8	II.	+	–	+	+	+	3rd.	Yes.	+	+	+	0
Pi.	39	5	7	II.	+	+	+	+	+	2nd.	Yes.	0	0	0	0
Th.	31	4	10	I.	+	–	+	+	+	3rd.	Yes.	0	0	0	0
Web.	28	5	11	II.	+	0	+	+	+	3rd.	Yes.	0	0	0	0
Wed.	31	5	8	II.	+	–	+	+	+	2nd.	Yes.	0	0	0	0
Ye.	18	4	5	IV.	0	–	+	+	0	2nd.	Yes.	+	+	0	0

+, Meningococcus proved to be present by agglutination tests or condition under examination present. 0, Meningococcus or condition under examination not found. –, Examination not made. P. Marked pyorrhœa alveolaris. Sil., slight. Mar., marked.

Nasal obstruction 1st degree is taken to mean that the surfaces of the nose which are normally free are in contact at one or more points. ¼ obstructed. *2nd degree:* One or two of the nasal fossæ, upper or middle, are closed ¼ to ½ of whole obstructed. *3rd degree:* Three nasal fossæ on one side and the other side partially stopped; mouth breathing ¾ of whole obstructed.

In Table III. an attempt is made to set forth the infected sites in these carriers and the observed anatomical or pathological conditions of the naso-pharynges. In addition, the ages and the length of time which these cases had been known to carry up to the time of this investigation, and the total length of time ultimately carried by them, is tabulated.

In every case there was some degree of nasal obstruction. Of the 40 cases examined, 13 showed 3rd degree obstruction, 17 showed 2nd degree, 9 showed 1st degree, and 1 slight obstruction only. It was noticeable that the obstruction in the convalescent cases was less than in the contact carriers. There was no marked relationship between the nasal obstruction, the length of time the patient remained a carrier, and the heaviness of the meningococcus infection.

The average times these cases showing the various degrees of nasal obstruction remained carriers are as follows: Nasal obstruction 3rd degree, 11 months; 2nd degree, 10 months; 1st degree, 9 months.

In estimating the average carrying time for the 1st degree obstruction patients (Sm.) is not included, as there was an element of uncertainty in his earlier history as a carrier. He was treated in another hospital for his acute illness, and was discharged suffering from cephalalgia and other symptoms suggestive of internal hydrocephalus. On admission to this hospital he was examined and found to be a carrier; his carrying period in Table III. is estimated from the onset of the acute attack, as all other cases examined here showing these symptoms have been shown to be carriers, although intermittent.

All carriers examined showed pharyngeal lymphoid hypertrophy with one exception. It is possible that this condition may favour the carrier state, but the almost universal presence of this state among the troops in a greater or lesser degree shows that it cannot be the only factor causing the "chronic carrier."

The enlarged tonsils and definite adenoids, again, cannot be looked upon as the cause of the "chronic carrier," as these were observed in less than 50 per cent. of these men only. A definite nasal discharge was only occasionally observed. The infection of an accessory nasal sinus does not appear necessary for the production of a "chronic carrier." In this we differ from Captain F. J. Cleminson,[1] who considers that his observations "point in the direction of the accessory sinus as being the main seat of meningococcus infection in carriers." No relationship could be established between the position infected and the length of time the "carrier condition" persisted. The average age of the contact carriers investigated was greater than that of the convalescent cases, but from so small a number of men it would be unsafe to draw conclusions.

The exact reason why a person infected with the meningococcus becomes a chronic carrier is not clear, it is probable that nasal obstruction and pharyngeal lymphoid hypertrophy favour this condition. The presence or absence of definitely enlarged tonsils and adenoids does not seem important. If the nasal obstruction, &c., is to be regarded as essential, it is extraordinary that the cases ultimately became free from infection without any surgical interference.

All carriers have been most rigorously subjected to nasal disinfection in the Netley Carrier Centre; the full details of the treatment have been recently published.[2] No method of treatment has apparently in any way influenced the carrying period of the chronic carriers. The effect of the treatment was to reduce the superficial organisms, both in number and variety, so that the naso-pharyngeal cultures became in nearly all cases practically pure cultures of the meningococcus. It has also been suggested that the organisms more particularly existed in the deeper retro-pharyngeal tissue and not only on the surface. This has been referred to earlier in this paper, where a 20 per cent. increase in positive readings was obtained in the results of the naso-pharyngeal swabs when performed with a stiff brass wire, over the results obtained with a more flexible platinum loop. This increase was attributed to the pressure able to be exerted with the brass wire, so squeezing meningococci out of the deeper tissues.

The factor which was by far the most powerful in eliminating the meningococcus in the chronic carrier was the incidence of "a cold in the head." The plate which previously had shown a nearly pure culture of the meningococcus became deeply infected with some other bacterium and most frequently the meningococcus disappeared for good. The chronic meningococcus carrier, however, seemed to be relatively immune to "colds"; it was only occasionally that an infectious cold spread to more than one or two individuals. The outbreak of influenza in July, 1918, attacked nearly every carrier in the camp (more than 100 men); there were no severe cases, and in July and August a very large proportion of the carriers became free from infection.

The other method by which a chronic carrier became free from infection was by the invasion of the "site of carrying" by some other bacterium; this was very easily observed in many cases where a readily recognisable pigment-producing organism was the agent. This question is dealt with more fully in the ensuing article.

It would thus appear that the meningococcus disappears from the naso-pharynx when an invasion by some other bacterium is successful. This suggests the fact that these chronic carriers must always exist as carriers of some bacterium, and if that bacterium is non-pathogenic so much the better.

If once the "site of carrying" is infected by the meningococcus, the meningococcus will remain entrenched in this position until ousted by some other bacterium. The length of time taken for the eviction of the meningococcus will correspond with the length of time the case remains a carrier. What exact factors are requisite for the eviction of one organism by another are not at present known. But it is possible that the factor which influences the production of the chronic carrier and the factor which promotes the eviction of one organism by another are closely related.

The exact site of carrying would appear to be either in the muciferous glands or in the crypts of Luschka's or the faucial tonsil. The technique adopted in this paper is insufficiently specific to determine this point.

The authors beg to acknowledge their extreme indebtedness to Miss I. Harmer and Miss D. Gardiner for their able assistance in carrying out the technical details in connexion with this research.

Conclusions.

1. The sites of carrying in the chronic meningococcus carrier are Luschka's tonsil, the fossæ of Rosenmüller, the retro-naso-pharyngeal wall, and the faucial tonsils.
2. The anterior and upper parts of the nose and the nasal sinuses are not as a rule infected.
3. The presence of lymphoid hypertrophy and nasal obstruction, although it may favour the production of a "chronic carrier," is not necessarily the cause.

References.—1. Cleminson: Brit. Med. Jour., July 20th, 1918. 2. Embleton and Steven: "The Persistence of Cerebro-spinal Fever Cases as Carriers of the Meningococcus during Convalescence," THE LANCET, May 10th, 1919.

II.—MENINGOCOCCUS CARRIERS.

BY DENNIS EMBLETON AND GEORGE H. STEVEN.

There were 905 carriers investigated at the Netley Cerebro-spinal Fever Centre between Sept. 29th, 1916, and April 26th, 1919. The earlier period from 1914 to September, 1916, is not included in this paper, for although the work was performed by the same bacteriologist, the meningococci found in the naso-pharynges of the carriers were not proved by serological tests, cultural and sugar reactions only being relied upon. In this paper no organism has been accepted as a meningococcus unless it agglutinated with the standard sera supplied by the Central C.-S.F. Laboratory (Lieutenant-Colonel Gordon) and not with normal serum.

The subject of carrying in cases and contacts of cerebro-spinal fever is discussed in this paper under the following heads: 1. Acute and Chronic Carriers. 2. Treatment of Carriers. 3. Mechanism of Elimination of the Meningococcus. 4. Non-agglutinable (?) Meningococcus Colonies. 5. Bacterial Replacement of the Meningococcus.

1. *Acute and Chronic Carriers.*

The technique adopted for the examination of the carriers was as follows:—

A weekly examination of the carriers was made except in those cases actually under a prolonged course of treatment. Cases under naso-pharyngeal treatment were not examined within 24 hours of the last application of antiseptic. Swabbing was performed with a stiff brass wire (gauge 18), which was wrapped with a thin pledget of cotton-wool for its last inch. This last inch was bent nearly at a right angle with the rest of the wire. The tongue was depressed with the handle of a table-spoon, and the bent end of the wire carried as far up behind the soft palate as possible. Firm pressure was applied to the posterior naso-pharyngeal wall with the wire, which was finally withdrawn, great care being always observed to avoid touching the tongue, mouth, &c.

The swabs very rarely showed any blood-stain, but if a second swab were taken immediately after the first it was always found stained with blood. The pressure exerted did not cause appreciable discomfort, the wire being always preferred to the "West swab" by the patient. Petri dishes containing trypsinised ox-heart legumin hæmoglobin agar (prepared according to Lieutenant-Colonel Gordon's formula) were brought warm to the swabbing room; they were lightly inoculated on the surface with the swab, spread at once with a glass spreader, and transferred as soon as possible, while still warm, to the incubator. Twenty-four hours later two likely colonies were picked off and subcultured. These subcultures, if found to be Gram-negative cocci, were both then subjected to agglutination with the standard sera. If either or both cultures gave a positive agglutination the case was regarded as still a carrier. No carrier was discharged until he had two consecutive negative examinations at a week's interval.

In the case of carriers of over three months' duration, owing to the discovered intermittency of carrying, three consecutive negative weekly examinations were required before discharge. In this paper a carrier has been considered to cease carrying from the day on which the first of the terminal negative examinations is discovered.

Of the 905 carriers examined, 86 were carriers after an attack of cerebro-spinal fever (case carriers). 819 had never suffered from the disease, but had been found to be carriers after an examination of the naso-pharynx (healthy carriers), The types of the meningococcus and the length of time that these patients remained carriers are set forth in Table IA. The first or upper part of this table is devoted to "healthy carriers," the second or lower half to "case carriers." Opposite to the Roman figures, denoting the type of meningococcus recovered from the naso-pharynges, are given the number of carriers who became free from infection

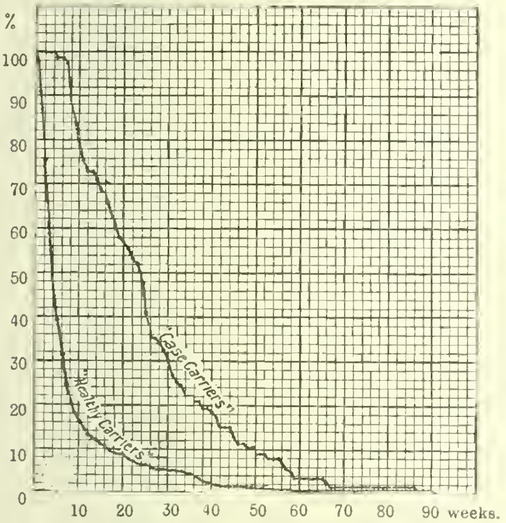
TABLE IA.

—	Weeks.																Lunar months.																		
	1-7 days.	8-14 "	15-21 "	22-28 "	29-35 "	36-42 "	43-49 "	50-56 "	57-63 "	64-70 "	71-77 "	78-84 "	85-91 "	92-98 "	99-105 "	106-112 "	113-140 "	141-168 "	169-196 "	197-224 "	225-252 "	253-280	281-308 "	309-336 "	337-364 "	365-392 "	393-420 "	421-448 "	449-476 "	477-504 "	505-532 "	533-560 "	561-588 "	589-616 "	617-644 "
Total remaining "healthy carriers"	819	743	622	481	372	324	257	202	165	149	133	123	111	104	99	92	85	71	52	47	43	32	16	15	11	9	7	7	5	4	3	3	1	1	1
Type of meningococcus. I.	19	35	43	31	12	22	21	14	7	7	4	4	2	2	2	0	1	4	2	4	6	5	0	1	1	1	0	0	0	0	0	0	0	0	0
II.	48	68	71	71	32	39	31	20	5	9	4	8	5	3	5	7	11	13	3	0	5	11	1	3	1	1	0	1	1	1	0	2	0	0	1
III.	4	8	10	2	2	6	0	3	4	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
IV.	5	10	17	5	2	0	3	0	0	0	2	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total discharged	76	121	141	109	48	67	55	37	16	16	10	12	7	5	7	7	14	19	5	4	11	16	1	4	2	2	0	2	1	1	0	2	0	0	1
Total remaining "case carriers"	86	86	86	86	86	85	85	82	75	73	70	65	63	63	61	59	58	49	41	30	22	18	16	13	9	8	6	3	3	1	1	1	1	1	0
Type of meningococcus. I.	0	0	0	0	0	0	2	2	1	3	2	0	0	2	1	1	5	1	8	2	0	1	2	2	0	0	2	0	2	0	0	0	0	0	0
II.	0	0	0	0	0	0	0	4	1	0	3	2	0	0	0	0	4	5	2	5	4	1	1	2	0	2	1	0	0	0	0	0	0	1	0
III.	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IV.	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Total discharged	0	0	0	0	1	0	3	7	2	3	5	2	0	2	2	1	9	8	11	8	4	2	3	4	1	2	3	0	2	0	0	0	0	1	0
Grand total discharged ...	76	121	141	109	49	67	58	44	18	19	15	14	7	7	9	8	23	17	16	12	15	18	4	8	3	4	3	2	3	1	0	2	0	1	1

during the period noted at the head of the column. Opposite to the "Total remaining" heading are given the numbers of carriers still remaining infectious at the commencement of the period denoted at the head of the column. Opposite to the "Total discharge" heading are given the numbers of carriers who became free from infection during the period noted at the head of the column.

In order to demonstrate the rate of discharge of the carriers graphically, a chart has been prepared (Table IIA.). In this graph the number of carriers remaining infectious at the end of each week has been expressed as a percentage. The "healthy carriers" and "case carriers" are charted separately. The regularity of the "healthy carrier" curve is particularly noteworthy.

TABLE IIA.



On examining Table IA. it is at once apparent that the discharge rate for "healthy carriers" rises to its maximum in the third week, and drops away week by week until at the end of the eighth week it reaches a steady level. This period of maximum discharge is due to the clearing of the acute or temporary carriers. It would thus appear that the dividing line between the acute and the chronic carrier should fall at the end of the eighth week.

"Healthy carriers." Per cent.	Discharged by end of—
9·3	1st week.
24·1	2nd ,,
41·3	3rd ,,
56·6	4th ,,
68·6	6th ,,
79·9	8th ,,

Thus from a batch of 819 "healthy carriers" 79·9 per cent. were discharged at the end of eight weeks, 20·1 per cent. remaining carriers, so that the proportion of acute or temporary carriers to chronic carriers is as 4:1. The average length of time that the acute carriers remained infectious was 24 days, the maximum rate of discharge occurred during the third week. The "rate of discharge" appears to be approximately the same for all types of meningococci.

The average time for which the chronic carriers carried—i.e., those of over eight weeks' duration—was 159 days, or 5½ months. The longest time a carrier remained infectious was 634 days, or 1 year and 9 months; this man carried a Type 2 meningococcus. The average length of time during which the "case carriers" remained infectious was 173 days, which is slightly longer than the average carrying time of the "chronic healthy carriers."

In a previous communication [3] we have drawn attention to the fact that it is extremely rare for a "case carrier" to change the type of coccus found in the naso-pharynx. Only 1 case out of 104 was ever demonstrated to have changed type; this change was from a Type 1 to a Type 2 coccus. Of 819 healthy carriers investigated we have never found an example of change of type, in spite of close association between carriers of all the four strains of meningococci. This fact we look upon as of considerable importance, as it undoubtedly points to the fact that some degree of immunity is established in the carrier, which is specific to type. In making this statement we do not mean to imply that we have never isolated, for example, a Type 3 coccus from the naso-pharynx of a Type 2 carrier, but that if this did occur a further swab would show that this was accidental or temporary, and that the Type 2 coccus was the real infection. These anomalies were possibly due to some accident, either in marking the colony or plate, or to overlapping of one half of the Petri dish by another specimen, where two swabs had been cultured on one plate. Sometimes it appeared that a change from Type 1 to Type 3, or Type 2 to Type 4 had occurred, a colony giving a greater agglutination to one or other type than usual. It was, however, found that if a saturation test were performed the original type was shown to be still present. This was found fairly frequently, and is easily understood, as the relationship between a Type 1 and Type 3 coccus is close, as is also the relationship between a Type 2 and Type 4. More rarely a carrier was found to have apparently changed from, say, a Type 2 to a Type 1. As an example of this the following Type 2 carrier can be quoted. This man's coccus agglutinated for several weeks purely to Type 2 serum, then for several weeks a slight agglutination was also recorded for Type 1 as well as Type 2. He then gave colonies which agglutinated only to Type 1 serum. It appeared that a change of type had occurred. The coccus that agglutinated to Type 1 serum was tested by the saturation test, and was shown to be a Type 2. Thus, the apparent change of type was due to an anomalous agglutination and was not real.

2. *Treatment of Carriers.*

In a previous paper [3] we have detailed in full the methods adopted for the treatment of meningococcus carriers at Netley. It is not necessary here, therefore, to give more than a summary of these methods. Within 24 hours of a case of C.-S.F. being proved all the immediate contacts were swabbed; they were then placed under treatment. In the majority of cases the early treatment consisted in parades held twice a day, when 1-5000 potassium permanganate dissolved in 0·9 per cent. normal saline was sniffed up the nostrils. This treatment was continued until the arrival of a Levick spray apparatus at the camp, or until the men found to be carriers were removed to the Netley Carrier Centre. The proved carriers were then vigorously treated twice daily by one of the following methods:—

Inhalation chamber—Chloramine-T, zinc sulphate.

Hand spray—Flavine and adrenalin, chloramine in paraffin, lecithin in paraffin, electrosal.

Direct application—Ferri perchlor., mercuric ointment.

Each of the above methods can claim a certain number of "cures," inasmuch as it was the last used before the case eventually ceased to "carry"; on the other hand, each method has been used in many cases for prolonged periods without eliminating the meningococcus. No method of treatment employed appeared greatly to influence the rate of disappearance of the meningococcus from the naso-pharynx. An example of the effect of the Levick spray on a series of carriers who had already carried for six weeks may be quoted. (Table IIIA.)

TABLE IIIA.

Treatment.	Dates.		No. treated.			No. discharged.
	From—	To—	Carried over.	New.	Total.	
Chloramine	7/4/17	26/4/17	—	—	23	5
Zinc sulphate	27/4/17	3/5/17	18	5	23	2
Chloramine	4/5/17	16/5/17	21	6	27	0
Zinc sulphate	17/5/17	23/5/17	27	0	27	0
Chloramine	24/5/17	23/6/17	27	1	28	0
Zinc sulphate	24/6/17	18/7/17	28	0	28	2

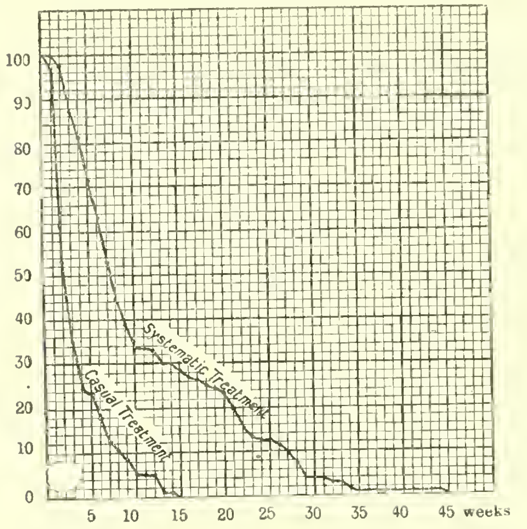
Seventeen of the carriers shown in Table IIIA. were treated with either chloramine or zinc sulphate from 7/4/17 to 18/7/17, a period of 102 days, and were still carriers at the end of this time. Cultures taken from carriers within half an hour of exposure to the Levick spray, when either charged with chloramine or zinc sulphate, frequently showed a pure culture of the meningococcus.

These observations led to the idea that not only were the Levick spray and other intensive methods of treatment of little avail, but that it was possible that they even prolonged the carrying period. It was decided that comparative observations should be made on a large series of carriers, to determine whether casual or systematic treatment produced the most rapid clearance of carriers.

All carriers occurring between 3/12/17 and 3/12/18 were divided into three groups: (1) Those receiving systematic treatment from the beginning—i.e., Levick spray twice daily or the hand spray charged with flavine, &c.; (2) those receiving casual treatment—i.e., at most an occasional douching with 1–5000 potassium permanganate; (3) those receiving a combination of 1 and 2. Group 3 were small in number, and no particular conclusions can be drawn from them. They are therefore not further referred to. Group 1, systematic treatment, includes 130 carriers; Group 2, casual treatment, includes 106 carriers.

In Table IVA. the number of men remaining infectious is expressed graphically as a percentage. At the end of four weeks 75·4 per cent. of the "casuals" were discharged, as opposed to only 18·4 per cent. of the "systematically treated." At the end of eight weeks 89·6 per cent. of the "casuals" and 55·4 per cent. of the "systematics" were free from infection. In 15 weeks all the casually treated carriers were free from infection, whereas it took 45 weeks to clear the systematically treated ones. It is noteworthy in addition that the man who conducted the systematic disinfection was the most prolonged of all the carriers, carrying altogether for 634 days. It would thus appear that vigorous treatment of the naso-pharynges of carriers prevents rather than aids the elimination of the meningococcus. Tulloch[4] also has suggested that strong antiseptics may be harmful and retard the clearing of carriers.

TABLE IVA.



3. *Mechanism of Elimination of the Meningococcus.*

From the above discussion it would appear that, if careful and accurate examinations of the naso-pharynges are made, none of the methods of naso-pharyngeal disinfection tried have any appreciable deleterious effect on the meningococcus when once this has invaded the deeper tissue. To what process can one then attribute the disappearance of the meningococcus from the carrier?

In a previous paper[5] it has been shown that the "carrying site" in chronic carriers is extremely restricted in area. The upper and anterior parts of the nose are not infected, but the infection is limited to: Luschka's pharyngeal tonsil, the fossæ of Rosenmüller, the back wall of the naso-pharynx, and the faucial tonsils.

There is no doubt that the superficial areas can be dealt with and sterilised, but it appears impossible for the disinfectant to penetrate the deeper structures—i.e., the crypts of the adenoid tissue, or the muciferous glands—and this is quite easily understandable. The mechanism by which the meningococcus is ousted is obscure; it does not appear to us to be in any way connected with the antiseptic, but appears to be ousted by some other bacterium.

It was noticed that if a chronic carrier developed a "cold in the head" he very frequently became free from infection with the meningococcus. The area invaded in a common cold is the same area as that inhabited by the meningococcus in a carrier. It was not at all common for carriers to develop "influenza colds," and if one man developed a cold it very rarely spread to others. It was not clear whether this was due to the fact that the carriers were under continuous nasal disinfection, or that they were living an open-air camp life, or that it was due to the fact that the site of infection in the "common cold" was already occupied by another organism (the meningococcus), and this prevented the invasion of the "cold" organism. In the "Spanish influenza" epidemic of June and July, 1918, there were 105 carriers in the camp; of these practically every man was down at one time or another. The symptoms were very typical, and were limited to headache, sore-throat, and fever, the whole disease being over in three days. The epidemic was not characterised by profuse nasal discharge, and the symptoms were not those usually associated with a common cold. The effect on the carriers was not so pronounced as usual in the way of clearing, but in spite of this the discharge rate—i.e., the percentage discharged to the total under examination—rose from May 20 per cent., June 18 per cent., to July 51 per cent., August 50 per cent.

In examining the plates from a series of contacts before any treatment has commenced it can be observed that the naso-pharyngeal plates show innumerable colonies of many different organisms. As soon as treatment of the naso-pharynx is commenced the total number of colonies appearing is markedly reduced. If a swab be taken within an hour of treatment few, if any, colonies can be obtained unless sufficient pressure is exerted to squeeze bacteria from the deeper parts of the tissues. While a naso-pharynx is under systematic treatment it is rare to find many different types of organisms present at the same time. Frequently only one type of colony appears, and if there are other organisms present they only appear as a few isolated colonies. This observation leads to the conclusion that whatever organisms may be present superficially, only one organism as a rule at a time inhabits the deeper tissues. Thus, in a meningococcus carrier under treatment the plates week after week show little else than meningococcus colonies until they cease to appear.

It was noticed that a pigment-producing organism was frequently associated with the disappearance of the meningococcus. It was subsequently noticed that in almost all cases when once this organism had appeared the meningococcus ceased to appear. The disappearance of the meningococcus did not appear due to inability to grow in the presence of this organism, for frequently half the colonies on a plate were typical well grown meningococcus colonies, which on subculture would agglutinate well. As we have stated above, the plates from a chronic meningococcus carrier under treatment usually show few organisms in addition to the meningococcus, many being to all intents and purposes pure cultures. On the appearance of the pigment-producing organism the usual numbers of colonies appear the same, but the plate is shared between the meningococcus and this organism, usually well in favour of the pigment producer; other colonies do not become more numerous. The following week all or nearly all the colonies may belong to the pigment producer, no meningococcus and few, if any, other colonies appearing. The patient thus appears to have a practically pure infection with the pigment producer. No investigation has been made to determine if the carriers ever become chronic carriers of this organism, but in the majority of cases this organism either disappears, or becomes submerged in other organisms, as soon as naso-pharyngeal treatment ceases, when a very great increase in the number of colonies and their variety has always been noted to occur. This pigment-producing organism is a Gram-negative rod, which on meningococcal medium produces medium-sized moist colonies more opaque than the meningococcus, but less opaque than the staphylococcus. Its characteristic is the blackish-brown smoky appearance it gives to the medium. It is possibly related to the pyocyaneus.

No particular study was made of this organism, as it was soon realised that it was only because of its "eye-catching," pigment-producing property that it had been recognised at all.

Other organisms were noticed to behave in the same way —for example, a Gram-negative rod giving a large slimy, white colony and a *Staphylococcus albus*. These organisms all had some out-standing feature about their colonies that rendered them readily recognisable, and it is probable that this was the reason that they were noticed. There is, however, great difficulty in telling when a man is finally ceasing to "carry," because of the apparent intermittency in carrying which is so noticeable in chronic carriers. It did not appear that there was any particular organism or group of organisms that had the power of ousting the meningococcus, but rather that there was some other factor, such as possibly the resistance of the patient to an organism, which permitted the organism to invade the "meningococcus-carrying site."

In the majority of carriers the meningococcus thus appeared to be ousted by some other bacterium. Occasionally, however, it is possible that the meningococcus was missed, while still present, owing to the invasion of the "carrying site" by an organism which microscopically was similar, but which gave agglutination with normal as well as specific sera; this organism is now generally known as a "flavus." The flavus may have been replacing the meningococcus, in the same way as the pigment-producing organism, or the flavus colonies may have been confused with the meningococcus colonies. This mistake, if it ever occurred, must have been very rare, for flavus colonies were very rarely picked in mistake for the meningococcus. In the last 1000 suspected meningococcus colonies examined by agglutination test, flavus colonies were only taken in error 47 times, or 4·7 per cent. We are inclined to believe that the flavus was ousting the meningococcus rather than that a mistake between the two colonies was made.

Very frequently towards the end of the time that a man was considered to be a carrier, an organism having the cultural and microscopic appearances of the meningococcus began to appear with frequency; no other alteration in the type of colonies on the plate was apparent. This organism, however, refused to agglutinate with any of the standard sera, and thus was not accepted as the meningococcus. Carriers who showed this type of organism were therefore discharged as free from infection. Two typical examples of this phenomenon are quoted. (Tables VA. and VB.)

"*A case carrier*" (Th.). Onset 10/10/18; carried continuously a Type II. coccus until 3/2/19. Every plate was proved positive, and during this time only 11 per cent. of his naso-pharyngeal cocci were non-agglutinating. His subsequent examinations were as follows:—

TABLE VA.

Date of examination.	Plate report.	Agglutination results.		Result reported.
		1st colony.	2nd colony.	
19/2/19	Negative.	—	—	Negative.
23/2/19	Typical colonies.	Negative.	Negative.	,,
4/3/19	,, ,,	Weak II.	,,	Positive.
11/3/19	Under treatment for a fortnight.	—	—	—
18/3/19	Pure culture.	Negative.	Negative.	Negative.
26/3/19	Typical colonies.	,,	,,	,,
2/4/19	,, ,,	,,	,,	,,
8/4/19	Pure culture.	,,	,,	,,
15/4/19	Typical colonies.	,,	,,	,,

TABLE VB.

Date of examination.	Plate report.	Agglutination results.		Results reported.
		1st colony.	2nd colony.	
3/2/19	Pure culture.	Negative.	Flavus agglut.	Negative.
10/2/19	,, ,,	,,	Negative.	,,
15/2/19	,, ,,	,,	,,	,,

"*A healthy carrier*" (Mi.). First found positive Type II. coccus 25/3/18; carried persistently until 27/1/19. 79·2 per cent. of the naso-pharyngeal plates were proved positive, and during this time only 15 per cent. of the colonies examined failed to agglutinate. Table VB shows his subsequent examinations.

It has already been stated that it is particularly towards the end of a man's period as a recognised carrier that these non-agglutinable organisms predominate. And it is chiefly owing to the presence of these organisms that the intermittency of a chronic carrier appears so marked. We believe that in the majority of instances, anyhow, this non-agglutinable organism is the meningococcus.

4. *Investigation of the Non-agglutinating Organism which Resembles the Meningococcus.*

A great deal of work has been done on organisms of this class; the only reason for publishing our observations is that we approach the subject from a different angle. It was early realised that from an apparently pure culture of the meningococcus on a plate many colonies could be picked which would not agglutinate on primary subculture with the standard sera. This can be realised better on examination of Table VIA, which includes the last 2167 plates found positive by agglutination tests; of these 107 represent cerebro-spinal fluids from acute cases, and 2060 post-nasal swabs from "case carriers" and "healthy carriers."

TABLE VIA.

—	Total positive plates examined.	Pure cultures.					Non-pure cultures.				
		Total positive.	Positive in both colonies.		Positive in one colony.		Total positive.	Positive in both colonies.		Positive in one colony.	
			No.	Per cent.	No.	Per cent.		No	Per cent.	No	Per cent.
C.-S. fluids...	107	107	65	60·7	42	39·3	—	—	—	—	—
Case carriers	365	108	58	53·7	50	46·3	257	134	52·2	123	47·8
Healthy carriers ...	1695	499	268	53·7	231	46·3	1196	661	55·3	535	44·7

The number of non-agglutinable colonies varied from man to man and from time to time, some men having few or none, others very many. If these plates had only been derived from the naso-pharynx it might have been thought that other organisms having similar colonies were present. But this was not so, as the plates from the C.-S. fluid of acute cases, taken with the greatest aseptic precautions, gave similar results, 19 6 per cent. of the colonies examined being non-agglutinable.

Again, compare the results obtained from pure naso-pharyngeal cultures with the results from impure cultures. In the impure culture it would be expected that there would be a greater chance of picking some other organism in mistake for the meningococcus. However, for case carriers 46·3 per cent. of the pure plates and 47·8 per cent. of the impure plates had non-agglutinable colonies; for healthy carriers 46 3 per cent. of the pure plates and 44·7 per cent. of the impure plates had non-agglutinable colonies, showing that the non-agglutinable colony is probably not of extraneous origin.

TABLE VIIA.

Type of carrier.	Per cent. of non-agglutinable colonies found.
I.	23·0 per cent.
II.	23 8 ,,
III.	21·4 ,,
IV.	32·6 ,,

(For these figures all colonies showing any group agglutination are excluded; only colonies absolutely monovalent have been counted.)

TABLE VIIIA.

—	Total colonies.		Per cent. Colonies non-agglutinating.
	Examined.	Non-agglutinating.	
From case carriers ...	730	173	23·7
From healthy carriers ...	3390	766	22·6
Total	4120	939	22·8

The non-agglutinable colony does not appear more often in a carrier of any one particular type of meningococcus than another; the high percentage under Type IV. can be discounted, as an insufficient number of Type IV. colonies were examined to get true figures. (Table VIIA.)

From Table VIIIA. it appears that about 20 per cent. of the colonies taken for examination failed to agglutinate.

From Table VIA. it can be seen that from a total of 2060 plates 557 were positive in both colonies examined and 1453 in one colony out of two only. It is reasonable to expect that half of the 1453, or 726, would have been regarded as negative if only one colony had been examined instead of two. This would have led to only 1283 plates being regarded as showing meningococci, instead of 2060, and 726 or 36 per cent. of the plates would have been marked free from infection. Thus it is evident that one subculture from a plate is very unsatisfactory, and if it had been realised by us that the percentage of non-agglutinable colonies was so high, three instead of two colonies would have been subcultured as a routine procedure. We have, however, been in the habit of subculturing six or more colonies in carriers where it was known that non-agglutinable colonies predominated. Many carriers have by this means been proved to be carriers long after they would otherwise have been discharged on the grounds that no epidemic strains were found.

The non-agglutinable organisms are in many cases very closely related to, if not identical with, the meningococcus. Colonies have been obtained from the C.-S. fluid. cultures of acute cases which would not agglutinate when first tested. The sugar reactions of these colonies were typical; a saturation test showed that the colonies, though they did not agglutinate in the primary culture, were capable of removing agglutinin from a monovalent meningococcic serum, showing that they really were meningococci. Subsequently, after repeated subcultures, these non-agglutinable organisms could be made to agglutinate with one of the special type sera.

Many non-agglutinable organisms have been examined also from the naso-pharyngeal cultures. In by far the majority of instances we have been able to prove that they were meningococci. A typical example of this can be quoted from a chronic case carrier (Wi), Type I. Five colonies were examined, two serum dilutions only are quoted. (Table IXA.).

TABLE IXA.—*Agglutination Results.*

No. of colony.	Type of serum.								
	I.		II.		III.		IV.		Normal.
	1/100	1/200	1/100	1/200	1/100	1/200	1/100	1/200	1/50
1. 1st subculture	–	–	–	–	–	–	–	–	–
12th ,, ...	++	++	+	–	–	–	+	–	–
2. 1st ,, ...	–	–	–	–	–	–	–	–	–
12th ,, ...	++	++	+	–	–	–	+	–	–
3. 1st ,, ...	–	–	–	–	–	–	–	–	–
12th ,, ...	++	+	+	–	–	–	+	–	–
4. 1st ,, ...	–	–	–	–	–	–	–	–	–
12th ,, ...	+	+	+	+	–	–	+	–	–
5. 1st ,, ...	–	–	–	–	–	–	–	–	–
12th ,, ...	++	+	–	–	–	–	+	–	–

Sugar reactions.—Glucose and maltose were rendered acid by the second day in all five colonies, and saccharose was untouched in four days. In some instances, although sugar reactions have been typical, we have never been able to obtain agglutinations with the standard monovalent sera, even after prolonged subcultivation. Saturation tests also were unsatisfactory; agglutination, however, could be obtained with a powerful treatment serum such as the M.R.C. Pooled Types I. and II. We have never felt certain how to regard these cocci, as it has been thought that the agglutination obtained has been due to group agglutinin in the powerful serum, and this might not be evidence that the cocci are capable of producing meningitis. Fildes[6] has drawn attention to the presence of cocci of this type, where he was able to obtain agglutination with a Flexner serum when agglutination to the four main epidemic types failed.

We have not been able to arrive at the exact percentage of non-agglutinable colonies which, if carried through all the above tests, could be subsequently proved to be meningococcus, owing to the enormous labour entailed, but it is certain that a very high percentage of these non-agglutinable colonies are really the meningococcus, which for some reason or other fails to respond at first to the specific agglutinin.

It is interesting that Glover[7] reports that he found a large number of non-agglutinable cocci in the naso-pharyngeal plates examined at X depôt. The technique for examination of these plates is not given. It would be interesting to know how many subcultures were examined from each plate, as the value of his results would depend upon whether one, two, three, or more colonies were subjected to agglutination tests. If his results are based upon the agglutination of one colony per plate, it is probable that if he had examined two or more colonies his carrier-rate would have been much higher.

The clearance of a meningococcus carrier is effected either by the replacement of the meningococcus by some other organism or by some change in the meningococcus whereby it loses its power of agglutinating with standard sera.

5. *Bacterial Replacement of the Meningococcus.*

Attempts have been made to free carriers from infection by the application of cultures of organisms which had been observed to replace naturally the meningococcus in other carriers. In this connexion various dangers have to be considered. It is always uncertain what effect an even apparently non-pathogenic organism may have on an individual, and in any case untoward occurrences following the application might always be attributed to the living organism used. Empyemata of the accessory sinuses of the nose or inhalation pneumonia are serious considerations. The pigment-producing Gram-negative rod, which. as far as we were then aware, was a non-pathogenic organism, was used in one chronic "healthy carrier." The culture was prepared and swabbed over the "meningococcus-carrying site." A most severe and alarming diarrhœa followed, which lasted for at least a week. That this organism was responsible for the trouble there can be no doubt, as a very carefully prepared pure culture was subsequently used on the same patient, again giving rise to the same symptoms; the patient remained a carrier of the meningococcus. The organism evidently did not "take" on the correct site. The above-mentioned possibilities discouraged further investigation on these lines, especially as it was felt that it was the resistance of the patient to the organism and not the organism itsel which was the determining factor in permitting invasio and replacement of the meningococcus.

In order to see if replacement of the meningococcus woul take place naturally more rapidly under no treatment at all. than under systematic treatment, sterile tap-water wa supplied for use in the nasal atomisers, which were use twice daily exactly as they had been used before. The rat of clearing of carriers per month for five months before th treatment and for three months after treatment ha commenced is given in Table XA.

TABLE XA.

Months.	Percentage of carriers discharged.	Treatment.
September, 1918 ...	24	Nasal disinfectant.
October, ,, ...	17	
November, ,, ...	24	
December, ,, ...	21	
January, 1919 ...	12	
February ,, ...	46	Tap-water spray.
March ,, ...	38	
April ,, ...	33·3	

This gives a very striking result, showing, as in Table IV. that disinfection does not aid in clearing carriers bu prolongs the carrying period. It might be thought that th rate of discharge was influenced by the inclusion of a larg number of acute carriers. That this is not so in this case i evident as the total number of fresh carriers admitted fro September, 1918, to December, 1918, was 90, whereas th total number of fresh carriers from January, 1919, to Apri 1919, was 55. January, 1919, is included in the second hal as carriers admitted during this month would influence th February rate of discharge.

We would thus conclude that meningococcus carriers ten to become free from infection more rapidly when not sub jected to any of the forms of nasal disinfection investigated, fresh air and exercise being the most beneficial forms of treatment. By this we do not mean to imply that there is no value in nasal disinfection, for in no instance in which nasal disinfection has once been started during an epidemic here has a further case of cerebro-spinal fever occurred. This we attribute to the fact that nasal disinfection is capable of destroying bacteria before they have gained access to the deeper tissues. We consider that it is the negative rather than the positive contacts that should receive nasal disinfection, and when once a carrier is discovered Nature, fresh air, and exercise should be prescribed.

No mention has been made hitherto of surgical interference with the naso-pharyngeal passages. In the first place it is difficult to persuade a carrier to have an operation when no definite promise of a cure can be given. Also there is probably a certain degree of risk of provoking cerebrospinal fever by surgical manipulation of the "meningococcus-carrying site."

In a previous paper [5] we have shown that although hypertrophied lymphoid tissue may favour the production of a chronic carrier it is not the only cause of this condition, and no relationship between the degree of lymphoid hypertrophy and the length of the carrying period could be established. If we accept the idea that the meningococcus disappears from the carrying site when ousted by some other bacterium, it does not seem to us that surgical interference is indicated, because if the meningococcus can invade hypertrophied lymphoid tissue, so can equally easily organisms to replace it.

Conclusions.

1. Meningococcus carriers can be divided into two groups: (1) Acute or temporary carriers, those carrying under eight weeks; (2) chronic carriers, those carrying over eight weeks.
2. Acute or temporary carriers remain infectious on an average for 24 days; the maximum discharge-rate occurs during the third week.
3. Chronic carriers remain infectious on an average for 5½ months; the longest carrying period found was 634 days, or 1 year 9 months.
4. 80 per cent. of carriers are acute or temporary, 20 per cent. chronic.
5. The type of coccus carried rarely changes; in 905 carriers this was only observed to occur once.
6. Treatment of the carrier appears to prolong the carrying period.
7. The meningococcus remains in the "carrying site" until ousted by some other bacterium.
8. A large number of non-agglutinable organisms, otherwise indistinguishable from the meningococcus, are probably altered meningococci.
9. The best method of freeing a meningococcus carrier from infection is Nature, open air, and exercise.

The authors beg to acknowledge their extreme indebtedness to Miss M. Stephens and Miss I. Harmer for their able assistance in carrying out the technical details in connexion with this research.

References.—3. Embleton and Steven: The Persistence of Cerebrospinal Fever Cases as Carriers of the Meningococcus, THE LANCET, May 10th, 1919. 4. Tulloch: Medical Research Committee, Special Report Series, No. 3. 5. Embleton and Bryant: Site of Carrying in Chronic Meningococcus Carriers (previous article). 6. Fildes: Medical Research Committee, Special Report Series, No. 17. 7. Glover: The Cerebro-spinal Fever Epidemic of 1917 at X Depôt, R.A.M.C. Journal, January, 1918.

Dr. T. N. Kelynack has been appointed by the Lord Chancellor a justice of the peace for the county of London.

UNIVERSITY OF MANCHESTER.—At the opening of the winter session the Vice-Chancellor, Sir Henry Miers, said that in spite of the violent dislocation of University studies during the war the registration of new students was now larger than ever. In the Faculty of Medicine alone there are at least 150 new entries, and a notably large increase of students in chemistry. The difficulty will be to find accommodation for the large influx of students. Great changes have taken place in the Senate, no less than ten professors having retired during the last academic year. Eight new chairs have been established during the same period, including a chair of psychology.

THE INSTABILITY OF RED BLOOD CELLS PRESERVED IN THE METHOD OF ROUS AND TURNER.

BY GEORGES DREYER, M.A., M.D.,
PROFESSOR OF PATHOLOGY, UNIVERSITY OF OXFORD;
AND
A. D. GARDNER, M.A., M.D. OXON., F.R.C.S. ENG., &C.,
BACTERIOLOGIST UNDER NATIONAL MEDICAL RESEARCH COMMITTEE, OXFORD.
(*From the Department of Pathology, University of Oxford.*)

IN 1916 Peyton Rous and J. R. Turner[1] described a method of preserving erythrocytes and stated that, under the conditions prescribed, the cells underwent no noteworthy change for a considerable period of time. "Cells kept for three weeks and for a month have been used for the Wassermann reaction, and compared with cells freshly obtained from the same sheep. They had the same hæmolytic titre and gave identical results in the reaction" (p. 227). And, again (p. 236), "The cells remain intact for about four weeks." It thus appeared that an important contribution had been made to practical serology. But their paper contains no adequate experimental demonstration of the accuracy of this statement. Nevertheless, it carried sufficient weight to lead a number of workers, and particularly J. S. C. Douglas and J. W. Bigger,[2] to assume its truth and to use this supposed fact as a basis for experiment. The last-named authors carried out a research designed to measure accurately the spontaneous deterioration of "complement"—i.e., the diminution of the power of fresh guinea-pig's serum to act together with a heated specific hæmolytic serum in hæmolysing sheep's red corpuscles. In order to express the rate of deterioration, as measured in their experiments, they made use of an empirical formula which had been suggested by Madsen in 1902[3] for calculating the rate of disappearance of antibodies from the circulation into which they had been injected.

A critical examination of the experimental data and theoretical calculations made it appear probable that at least two variable factors were concerned in the results obtained, the one being a change in sensitiveness of the preserved red cells, the other a steady weakening of the "complement." It was to test the validity of this view that the following series of experiments was undertaken.

Experimental Details.

A blood suspension was made exactly in the manner described by Rous and Turner in sufficient quantity to last for the whole series of experiments. Three parts of fresh venous blood from a human being were mixed with 2 parts of a 3·8 per cent. solution of sodium citrate in distilled water, and to this mixture was added 5 parts of a 5·4 per cent. solution of glucose in the same solvent. The glucose and the citrate solutions had been autoclaved separately. Full precautions were taken to ensure sterility. The emulsion was well shaken and then distributed into some 20 small bottles, the insides of which had been coated with paraffin wax to exclude the possible chemical action of soluble substances in the glass.

It is well to mention here that on every occasion when one of these bottles was opened a loopful of the suspension was sown into a tube of nutrient broth, which was then incubated for at least three days. On no occasion did any bacterial growth appear in the culture-tube. For every experiment the blood suspension was diluted to such a degree that 1 c.cm. contained always the same absolute quantity of hæmoglobin. This was secured by readings of the colour-strength of the hæmolysed suspensions in a Dubosq colorimeter.

The actual dilution employed in the experiments was one part of Rous-Turner suspension to approximately 29 parts of 0·85 per cent. NaCl solution. A certain variation in the different experiments was necessary in order to secure a constant amount of hæmoglobin in each unit volume on the different occasions, for otherwise errors would be introduced owing to the inequality of samples taken from the same or from different bottles of the suspension.

As a standard for the preparation of the diluted emulsion for any experiment a sample of that used in the last experiment was preserved in the cold store—a procedure that has been used by one of us (G. D.) in previous researches, and has been proved to give very accurate results. As hæmolytic agent pure saponin (Grübler) was used. To secure constancy, a fresh solution was made on each occasion by weighing out 10 mg. of dry saponin (kept in a closed box with $CaCl_2$) on a fine chemical balance and dissolving this in 100 c.cm. of sterile 0·85 per cent. NaCl solution in a dry measuring flask. This was found necessary because a definite though slight diminution in the hæmolytic effect of a 1/10,000 saponin solution in saline could be regularly demonstrated within 24 hours at temperatures of 5° C. or lower.

The detailed technique of measurement which has been used by us for years, and was also employed by Douglas and Bigger, is as follows :—

Where a full curve of hæmolysis from "total" to nothing was to be determined, a series of 13 test tubes was employed. Into the tubes were measured the following quantities of saponin solution diluted 1/20,000: 1·0, 0·8, 0·6, 0·5, 0·4, 0·35, 0·30, 0·25, 0·20, 0·17, 0·13, 0·10. In each tube the quantity of fluid was made up to 1·0 c.cm. by the addition of NaCl. solution. Tube 13 acted as a control for spontaneous hæmolysis, containing no saponin, but only 1 c.cm. of saline. Two or more duplicates of this tube were measured out and preserved as standards for making the diluted suspensions in the next experiment. To each tube of the series was then added 5·0 c.cm. of the blood suspension diluted to standard Hb content. In measuring the suspension full attention was paid to the necessity for continuous gentle agitation of the containing vessel while drawing the sample. Without this precaution it is impossible to secure even distribution of the red cells. After the addition of the suspension the tubes were all shaken and placed in a water-bath at 37° C., where they were kept for two hours. At the end of this period the tubes were shaken and the contents at once centrifugalised until a supernatant fluid entirely free from corpuscles could be poured off. The readings of the degree of hæmolysis were then made in a Dubosq colorimeter using a control tube fully hæmolysed by an excessive dose of saponin, as the standard solution representing 100 per cent. hæmolysis.

As seen from the tables in some of the experiments, only a certain number of the tubes representing the full series were set up, for these few gave all the desired information. For the sake of further control, a number of the experiments were carried out in duplicate, with emulsions made from two bottles of the original suspension. The experiments extended over a period of 27 days from the day the blood was drawn and the suspension made. In Douglas and Bigger's experiments the period was some 16 days—the minimum period for which they claim that the blood remains nearly constant.

Results of Experiments.

The results of the successive tests are given in Table I. and are illustrated by Diagrams 1 and 2. In the first diagram there is graphically represented the increase of hæmolysis caused from time to time by a constant dose of saponin (0·25 c.cm. of a 1/20,000 solution). The second diagram represents the quantities of saponin required on the various occasions to produce 60 per cent. of hæmolysis—i.e., the degree of hæmolysis chosen by Douglas as standard for his comparative tests. From Table I. and Diagram 1 it is seen that the longer the suspension is kept the greater is the degree of hæmolysis caused by the same dose of saponin. Thus, while 0·25 c.cm. on the first day of experiment only caused 3·1 per cent. of hæmolysis (i.e., only a slight trace), on the fourteenth day the same dose caused 53·3 per cent. hæmolysis, and on the twenty-seventh day 87·6 per cent., which almost corresponds to total hæmolysis when the tube is merely inspected with the naked eye.

TABLE I.—*Percentage of Hæmolysis caused by Various Quantities of Saponin on a "Rous" Blood Suspension (Human) at Various Intervals up to a Month.*

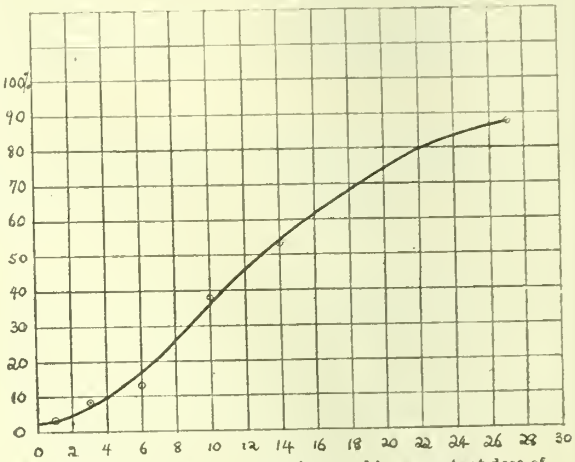
C.cm. of saponin.	Days (1 = the day on which the "Rous" suspension was made).					
	1	3	6	10	14	27
0·500	97·1	—	—	—	—	—
0·400	95·2	—	—	—	—	—
0·350	86·2	94·4	—	—	—	—
0 325	—	84·7	—	—	—	—
0·300	59·2	65·8	71·6	84·4	97·5	100·0
0·275	—	45·6	42·5	59·9	85·5	—
0·250	3·1	8·3	13·1	38·0	53·3	87·6
0·225	—	Trace (—)	—	10·3	14·9	—
0·200	Trace (—)	—	—	—	—	46·1
0·170	—	—	—	—	—	—
0·130	—	—	—	—	—	—

N.B.—For each experiment a fresh saponin solution was made from the dry solid.

TABLE II.—*Comparison of Hæmolytic Powers of a Fresh 1/2000 Saponin Solution with a Similar Solution Five Days Old.*

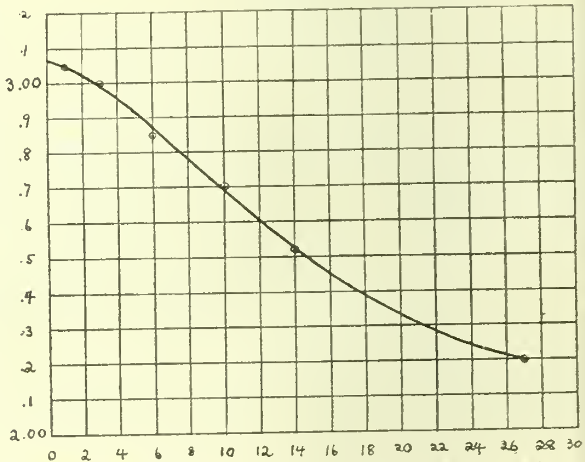
Doses in c.cm. of the saponin solutions.	Per cent. of hæmolysis.	
	Fresh saponin.	Five days old saponin.
0·300	66·1	54·8
0 275	41·5	18·6
0·250	18·8	6·6

DIAGRAM 1.



Showing the increase of hæmolysis caused by a constant dose of saponin.

DIAGRAM 2.



Showing the quantity of saponin required on the various occasions to produce 60 per cent. of hæmolysis.

It is thus evident that the sensitiveness of the red cells of the Rous and Turner suspension in no sense remains constant, as claimed by Douglas, but undergoes a steady and very considerable increase in sensitiveness to hæmolytic agents from day to day. It follows that were such a suspension used for the complement-fixation test, the same serum might on the one occasion give a definite positive reaction, while some few weeks later the reaction would appear to be negative.

In Diagram 2 the ordinates are the doses of saponin (diluted 1/20,000) expressed in decimals of a c.cm. and the abscissa represent the age of the suspension in days. The general form of this curve is seen to be the inverse of the curve in Diagram 1. We see that the dose required to produce the same degree of hæmolysis decreases gradually and regularly as the age of the suspension increases. This again demonstrates the regular increase of sensitiveness of the cells as the suspension grows older.

From the data given it can only be deduced that the statement made by Douglas—that "the susceptibility of such cells to hæmolysin, although somewhat increased during the first 48 hours, subsequently appears to remain nearly constant for a greater length of time than that covered by our experiments"—is not in correspondence with the facts. This statement would indicate that the change in sensitiveness is rapid in the first 48 hours, and then becomes so slow as to be negligible. A study of our table and diagrams shows that the change for the first two or three days is slower than on the subsequent days, and there is an indication that it becomes somewhat slower again in the later stages. In this connexion it is worth mentioning that a week or two after our last experiment the Rous-Turner suspension was found to show very marked spontaneous hæmolysis in all bottles, though their contents were proved to be absolutely sterile.

Solutions of Saponin.

Before concluding a few further remarks may be made on the subject of saponin solutions. In Table II. there is presented an experiment which demonstrates the instability of saponin in dilute solution.

Two precisely similar solutions (1/20,000), one fresh and the other five days old, were tested upon one and the same suspension of erythrocytes. It is seen that in three different doses the old solution is much less strongly hæmolytic than the fresh. Similar tests were done on a number of occasions, and then always gave the same result.

These findings furnish an admirable example of the truth that in all scientific work it is inadmissible to make assumptions as to the qualities (such as stability) of the materials employed. Such assumptions must be put to the test of experiment if the worker is to avoid the pitfall of false deduction.

Conclusions.

(1) By means of Rous and Turner's method it is not possible to obtain a standard suspension of red cells of constant sensitiveness to hæmolysins.

(2) Therefore the use of such suspensions as a standard unchanging material for experimental work or for routine complement-fixation tests would necessarily lead to erroneous results.

Note.—Since the completion of this paper an article by Dr. J. W. Bigger has appeared in the *Journal of Pathology and Bacteriology* (May, 1919), describing further experiments on lines similar to those of Douglas and Bigger. In that article some observations are recorded which are in full agreement with our results, though a full inquiry into the question of the stability of "Rous" suspensions was not carried out.

References.—1. Peyton Rous and J. R. Turner: Journal of Experimental Medicine, vol. xxiii., 1916, p. 219. 2. J. S. C. Douglas and J. W. Bigger: THE LANCET, July, 1918. 3. T. Madsen: Festskrift ved Indvielsen af Statens Serum-Institut, Copenhagen, 1902.

THE PROGNOSTIC IMPORTANCE OF TUBERCULOSIS OF THE LARYNX.*

BY SIR STCLAIR THOMSON,

PROFESSOR OF LARYNGOLOGY IN KING'S COLLEGE HOSPITAL; LARYNGOLOGIST TO KING EDWARD VII. SANATORIUM, MIDHURST.

AT the present moment the tuberculosis question is of ever-increasing urgency, for a study of statistics would tend to demonstrate that the death-rate has not only ceased the steady decline it had been pursuing for many years, but that since the year 1912 it has been steadily rising.

The early diagnosis of tubercle is of primary importance. But only secondary to it is the value of prognosis. On this to a large extent is based our care of the case, and the hopes we can hold out of cure or arrest. Besides, if we can see into the future with the eyes of to-day we can help in any plan of campaign, so as to obtain the greater value from it, and avoid the useless expenditure of energy, time, and money.

What can the laryngologist do in this direction? I would at once reply that he can do so much that I hold that every case of pulmonary tuberculosis, and every suspected case, should be examined by a skilled laryngologist not once only, but at regularly recurring periods; every tuberculosis sanatorium should have a laryngologist on its regular staff, and every laryngologist should embrace any opportunity that may come his way of examining the throat in consumptive patients.

In a few cases tuberculosis can be diagnosed in the larynx before it has sufficiently advanced elsewhere to cause any physical signs. One such patient now under my care has been one of the Allied plenipotentiaries in Paris since the beginning of the Peace Congress, and was sent to me as a case of laryngeal cancer. Another was under observation, in and out of a sanatorium, for three whole years before my diagnosis of his laryngeal condition was confirmed by signs in his chest; he still has no T.B.'s. Another, a medical man, died from tuberculosis in his larynx and pharynx without a pulmonary physical sign. These cases are quoted to show the responsibility which the laryngologist may have to bear in the matter of diagnosis and prognosis.

Analysis of the Midhurst Results.

In the last eight years I have examined the larynx in 1750 patients admitted to a sanatorium for tuberculosis. So as to be able, as far as we can, to see what the end-results are, I have limited my present investigations to the cases examined during the four years from July 1st, 1911, to June 30th, 1915. Hence, I can deal with the after-histories of these cases for a minimum of three years after leaving the sanatorium, while in some cases the after-history extends over a period of seven years. In this way we can obtain much more definite and reliable results than if we simply recorded the condition of the patient on discharge.

At the King Edward VII. Sanatorium, at Midhurst, we have a well-worked system by which we obtain a report as to each patient's condition once every year after his discharge. Every case is therefore followed all the years of his life, and till his death is recorded. In our island kingdom this task is doubtless easier than on large continents, and so enables us to produce some records which other countries might have no opportunity of securing.

Now, what may we learn from the after-history of over a period of three to seven years of the 883 consumptive patients whom I examined first between the years 1911 and 1915, and how does this after-history differ if we separate these 883 patients into (*a*) non-laryngeal cases and (*b*) laryngeal cases?

This is at once shown by reference to Tables I. and II.:—

After-History up to June 30th, 1918, of 883 Patients Examined between July 1st, 1911, and June 30th, 1915.

TABLE I.—*Non-Laryngeal Cases.*

(A) Number of cases. (B) Died from tubercle. (C) Died from other causes. (D) Percentage of deaths from tubercle.

Group.	Males.				Females.				Both sexes.			
	(A)	(B)	(C)	(D)	(A)	(B)	(C)	(D)	(A)	(B)	(C)	(D)
I.	10-	19	1	17·4	71	9	2	12·7	180	28	3	15·6
II.	236	95	5	40·3	109	36	1	33·0	345	131	6	38·0
III.	85	61	—	71·8	77	53	—	68·8	162	114	—	70·4
Total ..	430	175	6	40·7	257	98	3	38·1	687	273	9	39·7

TABLE II.—*Laryngeal Cases.*

(E) Number of cases. (F) Died. (G) Percentages.

Group.	Males.			Females.			Both sexes.		
	(E)	(F)	(G)	(E)	(F)	(G)	(E)	(F)	(G)
I.	11	5	45·5	3	1	33·3	14	6	42·9
II.	53	38	71·7	37	19	51·4	90	57	63·3
III.	54	43	79·6	38	29	76·3	92	72	78 3
Total.	118	86	72·9	78	49	62·8	196	135	68·9

(I should explain that at Midhurst every case, on admission, is placed in one of three groups, according to the Turban-Gerhardt method of classification. Briefly stated, a patient is placed in Group I. if the disease is limited to a small area of one or both apices; these are the slight cases. Group II. embraces cases more extensive than Group I., but affecting, at most, the whole of one lobe or severe disease extending at most to the half of one lobe; such cases would still be called of moderate severity. Group III. includes all cases of greater severity than Group II. and all those with considerable cavities; these are more serious cases.)

---

* Being the substance of an address delivered before the American Laryngological Association, in Atlantic City, N.J., on June 16th, 1919.

Conclusions to be Drawn.

Looking first at Table I.—the non-laryngeal cases—we note that of course the percentage of deaths is lowest in the cases of Group I., that it is more than doubled in Group II., and that in Group III. 70 per cent. are dead within seven years. Of all three groups together and both sexes 39·7 per cent. have died within this period of observation.

Now, comparing with these results the cases in Table II.—i.e., those with the larynx involved—what do we find? The first thing which strikes us is that the prognosis as shown by the percentage of deaths is rendered graver in both sexes and in all three groups. In the case of Group I. the percentage rises from 15·6 per cent. to 42·9 per cent., and in Group II. it rises from 38 per cent. to 63·3 per cent. In Group III. the increased mortality is not so striking—viz., from 70·4 per cent. to 78·3 per cent.—and this is what we would expect—viz., that in advanced cases the outlook is already so serious that a further addition to it is not noticeable. Taking all three groups together the presence of tuberculosis in the larynx raises the percentage of deaths during the 3–7 year period from 39·7 per cent. to 68 9 per cent. Put in other words, amongst all the fairly early cases of pulmonary tuberculosis admitted to a sanatorium the expectation is that 60 per cent. of them will be alive in three to seven years later. But of similar sanatorium patients with the larynx diseased only 30 per cent. will be alive at the end of that period.

We also note in Table II. that, just as in non-laryngeal cases, the percentage of deaths is higher in Group II. than in the early cases of Group I., and still higher in the advanced cases in Group III. But it is very striking to observe that the ratio of the death-rate in these three groups to one another is no longer the same as in Table I., for in Group II. the deaths are no longer more than double those of Group I., but only half as many again; and in Group III. the frequency of death is only slightly in excess of the figures of Table I. Moreover, whereas in the non-laryngeal cases the death-rate of the early cases of Group I. was less than a fourth of those in Group III., we see that in the laryngeal cases of Group I. the proportion of deaths has risen to more than a half of those in Group III. This surely shows that, even in a slight and early case of pulmonary tuberculosis—a Group I. case—the detection of a laryngeal lesion renders the prognosis more gloomy than in a case of more advanced pulmonary infection with a free larynx. Put in another way, if a case, whose pulmonary condition warrants the patient being classified in Group I., is discovered to have a laryngeal lesion, this would at once grade him down to Group II. It also demonstrates that in cases whose pulmonary condition would place them in Group II., so that only 38 per cent. would be dead within seven years, the involvement of the larynx lowers their prognosis to nearly that of the Group. III. cases, and 63·3 per cent. will be dead within the period of observation.

Other conclusions might be drawn from these tables, as for instance, that—

The proportion of laryngeal cases amongst all admissions to a sanatorium is	22·2%
The incidence of laryngeal disease amongst males being ...	21·5%
The incidence of laryngeal disease amongst females being	23·3%

We might even refer to the greater mortality amongst males than amongst females, whether with or without laryngeal lesions. But I refrain from the temptation to squeeze too much out of insufficient material, particularly as I hope to publish, later on, a study founded on 10 years' sanatorium work.

As, at all stages of pulmonary tuberculosis, so much depends on the prognosis, it is sufficient if I have shown the importance of a skilled examination of the larynx. One glance into a laryngeal mirror will often show that—

> "a man may prophesy,
> With a near aim, of the main chance of things
> As yet not come to life"—(*Henry IV.*, Part 2, iii., 1)

much more correctly than he can from all other clinical investigations without it.

A CASE OF
ANKYLOSTOMA DUODENALE
WITH PYLORIC OBSTRUCTION.

By H. K. V. SOLTAU, M.B., B.S. LOND.,
CAPTAIN, R.A.M.C. (S.R.).

Introductory Note on the Case by
COLONEL SIR CHARTERS SYMONDS, K.B.E., M.D., M.S., F.R.C.S.,
LATE CONSULTING SURGEON TO THE SOUTHERN COMMAND.

THE pyloric obstruction was the obvious cause of the vomiting in the case recorded below, and the movable mass to the right of the median line suggests a new growth. A new feature was, however, presented when the patient passed large masses of the ova of the *Ankylostoma duodenale*. These were sufficient to give a definite character to the stools and attract the notice of the nurses. Though the evacuation was not accompanied by any change in the tumour, the question arose whether there might not be ulceration caused by the ankylostoma with surrounding induration.

Clinically the mass resembled a pyloric cancer in outline, mobility, and situation, but might equally well be due to induration round an ulcer. Though malignant disease may occur early in the pylorus—there are several cases recorded under 30 and one at 24—his age was in favour of an ulcer, as was the hæmatemesis. The findings at the operation, fully described by Captain Soltau, support the non-malignant character of the enlargement. The disease was strictly limited at the pylorus, and involved both aspects of the stomach; it also extended for an inch or more along the lesser curve, resembling in this respect a malignant growth. The white plaques described by Captain Soltau were small, quite flat, not raised so as to be felt, and were scattered over the indurated area. They resembled those seen in simple inflammatory conditions rather than the nodules of cancer or tubercle. Another point against cancer was the absence of enlarged and cord-like lymphatics passing towards the lesser curvature. These infected lymphatics are usually present in such extensive disease, and their absence I would take as strong evidence in favour of simple ulceration. The palpable glands were oval in shape, elastic, and few in number. The small, hard, numerous glands so characteristic of malignant disease were absent. The gastro-hepatic omentum had not become thickened and shortened as in some pyloric ulcers. This, when advanced, anchors the tumour and may draw it up so far as to render it impalpable. When such an omentum is found at an operation, especially if the surface be smooth, a favourable view is justified. Lastly, the adhesion to the gall-bladder and liver is in favour of a simple condition, more especially as there were no nodules bordering on these adhesions.

Account of Case.

The patient whose history is here related was admitted to hospital in England in April of this year, after evacuation from the Egyptian Expeditionary Force.

J. G., a man of 22, had been in Egypt for the previous 18 months. In June, 1918, he was admitted to hospital with symptoms of dysentery—diarrhœa, with stools containing blood and mucus. Improvement followed a course of emetine, but after four weeks out of hospital he was readmitted in December with the same symptoms as before, but also with hæmatemesis, which continued for three days. Vomiting continued off and on for the next five months, but there was no more hæmatemesis, and the dysenteric symptoms soon ceased. On admission to hospital in England the patient presented an extremely anæmic and emaciated appearance. Weight just over 6 st. He complained of pain in the epigastric region and of vomiting. No diarrhœa. No blood in stools, but flecks of mucus present. The pain was referred to the pyloric region; it was sharp in character and worse at night, but occurred chiefly about an hour after feeds, and was relieved by a further drink of milk. Vomiting occurred once every 24 hours and consisted of the partially digested food of previous meals, but no blood. With daily stomach lavage this improved, until vomits recurred only at two- or three-day intervals. Examination of his abdomen revealed marked tenderness and resistance in the right hypochondrium. A rounded swelling could be felt, intimately connected with the lower border of the liver and extending towards the middle line and slightly upwards, along the line of the lesser curvature of the stomach. Liver not enlarged. Spleen not enlarged. Urine normal. No œdema of ankles. The stools were formed, but contained numerous flecks of mucus. Bacterial examination on April 17th showed: "Absence of pathogenic bacteria, but large numbers of ova which, on cultivation, yielded the typical rhabditiform larvæ of *Ankylostoma duodenale*."

Thymol treatment—gr. 30 in two doses, preceded by sod. bicarb. and followed by mag. sulph.—was given. Three days later ova were still present, and thymol was again given. The stools were negative, but ova were again present on May 2nd. After two more days of thymol all subsequent examinations of stools were negative.

Examination of blood on May 5th showed:—Reds: 2,976,000 per c.mm. No abnormal cells or parasites present. Hæmoglobin, 60 per cent. Colour index, 1·03. Leucocytes: 5486 per c.mm. No abnormal cells. Polymorphonuclears, 72 per cent.; lymphocytes, 22 per cent.; eosinophiles, 0 per cent.; large mononuclears, 3 per cent.; transitionals, 3 per cent.; mast cells, 0 per cent.

Although apparently free from hookworm infection, the patient's condition did not improve. The vomiting increased, and the abdominal tumour became much more obvious. Waves of contraction from the cardiac end of the stomach could be seen passing down to it. Accordingly an exploratory laparotomy was decided on, the provisional diagnosis being: "Pyloric obstruction, due to an inflammatory mass following ulceration in duodenum or pylorus caused by hookworms; probably requiring gastro-enterostomy."

Operation.

On May 26th the abdomen was opened. There was no free fluid in the general peritoneal cavity. Extending from the duodeno-pyloric junction towards the mid-line and involving the lesser curvature for about 2½ inches was a large mass firmly adherent to the liver, gall-bladder, and pancreas. On the surface and extending on to the anterior surface of the stomach were many small white irregularly shaped patches resembling in appearance an aphthous stomatitis. These patches were not raised or hard. No enlarged glands were felt in the mesentery, but the glands in the lesser gastro-hepatic omentum were palpable. In order to relieve his obstruction, posterior gastro-enterostomy was performed. The result was most encouraging. The patient only vomited once, soon after the operation, and never looked back. On June 30th his weight was 7 st. The tumour could then still be felt and did not seem to have altered in size or shape.

A blood examination at that time showed a marked improvement:—Reds: 4,624,000 per c.mm.; hæmoglobin, 60 per cent.; colour index, 0·65. Leucocytes: 8750 per c.mm.; polymorphonuclears, 66·5 per cent.; lymphocytes, 27·0 per cent.; eosinophiles, 0·5 per cent.; large mononuclears, 5·5 per cent.; transitionals, 0·5 per cent.; mast cells, 0·0 per cent. The patient steadily improved, and his weight was considerably over 8 st. when he left hospital in July.

Points of Interest.

The following points are of interest: 1. The onset, with dysenteric symptoms and improvement under emetine. 2. The hæmatemesis two months later, which lasted for three days only and never recurred. 3. The presence of a tumour—probably a direct result of the invasion of the pyloric wall by the hookworm—causing obstruction. 4. The distribution and character of the tumour. 5. The amount of thymol which had to be given before a final negative result was obtained—two doses of gr. 30 each are sufficient in nearly 90 per cent. of all cases. 6. The similarity between the blood count and that of pernicious anæmia, the diminution of reds and the high colour index, and the marked improvement of the anæmia as the result of the relief of the obstruction. 7. The complete absence of eosinophilia.

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL (UNIVERSITY OF LONDON).—The following elections to scholarships, each value £50, have been made: Pathology and Pharmacology Scholarship, H. A. Osborn; Anatomy and Physiology Scholarship, R. O. Lightwood; Arts Scholarship, A. L. Moorhy; Science Scholarship, L. I. Hyder.

MEDICAL OFFICERS OF SCHOOLS ASSOCIATION.—A general meeting of the association will be held at 11, Chandos-street, Cavendish-square, W., on Friday next, Oct. 24th, at 4.30 P.M., when Dr. A. A. Mumford will read a paper on the Standardising of Physical Efficiency during Growth, and Colonel Martin Flack, R.A.F., will open a discussion upon the subject. All interested are invited to the meeting.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF SURGERY: SUBSECTION OF ORTHOPÆDICS.

Exhibition of Cases and Specimens; Coxa Vara after Reduction of Congenital Dislocation of Hip.

A MEETING of this section of the Royal Society of Medicine was held on Oct. 7th, Mr. E. MUIRHEAD LITTLE, the President, being in the chair.

Mr. E. LAMING EVANS showed a case of Coxa Vara after reduction of congenital dislocation of hip.

The patient was 12 years of age. In March, 1913, Mr. Evans had reduced by manipulation a left-sided congenital dislocation of the hip. The reduction presented no difficulty, and an X ray examination after reduction showed no evidence of trauma, either at the epiphyseal line or in the neck of the femur. Retention was effected by a series of short unilateral plaster spicas in 90 degrees of abduction and 50–70 degrees of flexion for 18 months. This degree of flexion was necessitated by a tendency to anterior transposition. During the last 12 months of plaster retention the child walked on a 5-inch patten on the left or affected leg. After the plaster was removed a 1½-inch patten was used on the sound side to maintain abduction of the affected side. When the plaster was removed the affected leg measured 20¾ inches, and the sound leg 21 inches. The child had been kept under observation, and a series of 12 X rays had been taken during the 6½ years of treatment. Six years after reduction the left leg measured 25¾ inches, and the right 26 inches. Six months later the difference had increased to ½ inch, and the X ray showed a varal deformity of 100 degrees, occurring at the junction of the neck and great trochanter. The epiphysis was seen correctly placed upon the neck, and situated correctly in the acetabulum and underlying a well-formed roof. The occurrence of coxa vara after reduction of congenital dislocation of the hip had an important bearing upon the functional result of a successful reduction. It produced a limp from shortening of the leg and from gluteal insufficiency, which, though of different origin and of lesser severity than that of unreduced dislocation, was, nevertheless, regrettable, and should be avoided if possible. The recognised causes had been classified under five heads: (1) trauma inflicted at the time of reduction, either upon the epiphysis or on the femoral neck; (2) prolonged weight-bearing, either before or after reduction; (3) absence of ossification in the head of the femur; (4) absorption of the ossific centre, which had appeared; (5) acute traumatic reflex atrophy. That coxa vara was a not uncommon complication of successful reduction of congenital dislocation had been shown by Joachimstal, Horvath, and others. The points of interest in the present case were the remote period—i.e., six years—after reduction and the site of bending, which was at the junction of the neck and great trochanter. The functional disability with 100 degrees of varal deformity was slight, but necessitated further observation and treatment by a perineal crutch if it proved to be progressive.

Mr. H. A. T. FAIRBANK thought that the X ray suggested the presence of injury to the neck of the femur close to the epiphyseal line which might have influenced the coxa vara later. An increase in the inferior surface of the neck which was frequently seen in these cases often gave the appearance of coxa vara. With regard to treatment, he thought that the indication was to keep the weight off the leg.

Sir C. GORDON WATSON thought that the condition corresponded to a rickety softening with bending of the neck at the junction of the neck with the shaft.

Congenital and Paralytic Scoliosis.

Mr. P. B. ROTH showed two cases of Secondary Scoliosis, the one due to paralysis of the erector spinæ, the other to congenital malformation of the spine.

The first case was that of a child, aged 8 years, who was first seen by Mr. Roth at the end of 1918. She had been strong and healthy until the latter part of 1916, when, after a few days' drowsiness and loss of appetite, followed by feverishness and vomiting, she was found to be completely paralysed in both legs and was taken to hospital, where she was under treatment for two years. She had massage for the legs, and after spinal curvature developed was ordered a jacket, and later was put into plaster-of-Paris. The deformity had become very marked. On examination there was found severe paralysis of the right erector spinæ muscle and scoliosis, with the convexity to the right; there was deformity of the right ribs posteriorly, whilst the upper part of the trunk overhung the lower part to the right. A tracing was taken of the amount of rib deformity, and daily treatment by posture and exercise begun. She was not allowed to walk about, but spent the day lying in a spinal carriage, either supine or prone, with her body supported on her elbows and a cushion under her chest. She was allowed to sit up to the table for meals. She had been taught to swim, and could now swim several times across the bath. She was much stronger than when first seen, and there had been no increase in the amount of structural deformity of the ribs.

The second case was that of a child, aged 5 years, who was first seen at the end of 1918, when there was found an S-shaped scoliosis with deformity of the left ribs posteriorly and a moderate amount of projection backwards of the right erector spinæ in the lumbar region. She could be placed in a very much improved position and could voluntarily retain it. An X ray showed that an extra half vertebra carrying a rib was interposed on the left side between the eleventh and twelfth dorsal vertebræ, and that only the right half of the ninth dorsal vertebra was present, it being fused with the body of the tenth; four ribs, two on each side, sprang from the fused mass. Other abnormalities were also present. A tracing having been taken of the amount of deformity, treatment by posture and exercise was started at the beginning of 1919. She now held herself in excellent position. The rib deformity had not increased. The two cases were shown, Mr. Roth said, to demonstrate that the progress of deformity might be arrested without resorting to mechanical support.

Mr. A. S. **BLUNDELL BANKART**, in discussing the second case, said that the time would have to come when treatment must be stopped. The permanent scoliosis would remain and would then require support, and this might as well be applied now as later.

Mr. **LAMING EVANS** said that in paralysed cases the same principle should be applied as in cases of poliomyelitis of the legs, in which the overstretching of the paralysed muscles was prevented. This should be done by a support.

Mr. **FAIRBANK** said that in congenital malformations a distinction should be drawn between the primary scoliosis due to malformation, and the secondary curves, which might develop at any age, were not marked in small children, and were worse in older patients. A careful watch should be kept on cases of this kind to prevent deformity, if possible, and to take active measures to avoid it increasing. The treatment should be the same as that for any other variety of scoliosis.

Mr. R. C. **ELMSLIE** thought that two mechanical defects had been overlooked. One was that the right lower limb was shorter than the left; the other that the centre of gravity fell outside the pelvis, so that the weight was thrown on the paralysed muscles. He would apply a mechanical support so as to bring the centre of gravity over the centre of the pelvis, and then carry out muscular treatment.

Mr. **ROTH**, in reply, said that the mother had told him that the child had been treated as Mr. Elmslie had described. He agreed with Mr. Evans that the principle applied in infantile paralysis should be observed, but that after several years something active should be done. If the deformity had got worse after treatment he would have put on supports.

Infantilism.

Mr. R. C. **ELMSLIE** showed a case of Infantilism.

The patient, a female child aged 15 years and 10 months, was said to have been a healthy baby, but at the age of 1 year and 9 months had had diphtheria, and after this had suffered from gastro-intestinal disturbances until about the age of 13 years. Her general health was now excellent. She was only 3 feet high. The head measured 20 inches, the spine was scoliotic, with right dorsal and left lumbar convexities; there was coxa vara with limited abduction in both hips, slight genu valgum, and anterior curvature of the tibiæ. X rays of the hip showed coxa vara deformity of the rickety type. Those of the epiphyses at the wrist showed cupping of the ends of the diaphyses and widening of the epiphyseal regions as in rickets; those of the tibiæ showed a general lightness of the bone, with very thin compact layer. There was no sexual development. The urine contained a trace of albumin. There had been no opportunity to investigate the child's metabolism. Two conditions were present which might give rise to infantilism: one was that of chronic gastro-intestinal disturbances, and the other that of slight albuminuria. In which group should this case be placed?

The **PRESIDENT** said that the child had been an in-patient under his care when she was 12 years old, and was treated as a case of extreme rickets. The deformities were corrected by splints.

MEDICAL SOCIETY OF LONDON.

The President's Address.

A MEETING of this society was held on Oct. 13th, Mr. V. WARREN LOW, the President, being in the chair.

The **PRESIDENT**, in his opening address, referred to the advances which had been made in surgery during the war, and said that much of the time of the medical societies would be occupied for some years to come in digesting the war experiences and in seeing how far they applied to conditions of peace. A long period of clean surgery had found the surgeon quite unprepared for the septic wounds which were incidental to the war and had led at first to much confusion of thought and the abandonment by many surgeons of their customary technique; but as time went on the treatment of septic wounds became more standardised, and the value of free excision of infected tissue and early suture of wounds had gradually become recognised. The war had established beyond doubt the value of prophylactic injections of antitetanic serum and had demonstrated the existence of local tetanus, hitherto unknown. Advances had been made in the study of surgical shock, the researches on which would have a permanent significance. The conservative surgery which the exigencies of the South African war had imposed had been reversed under the novel conditions of the last war, early operation or exploration after intraperitoneal injuries having been shown to be the safe and proper procedure. It had been proved, also, that no mechanism designed for the conduct of operations under modified pressure was necessary in thoracic surgery. Opinions as to the wide field of usefulness for local anæsthesia had been fully justified. Great advances had been made in the treatment of fractures. Splints suitable for particular cases had been procurable, and this close coöperation between surgeon and mechanic embodied a principle which should continue under peace conditions.

Dr. F. DE **HAVILLAND HALL** read a paper on

Angina Pectoris with Low Blood Pressure.

He said that ever since the epoch-making discovery of Lauder Brunton in the year 1867 that anginal pain in a patient with aortic regurgitation was relieved by the inhalation of nitrite of amyl, drugs having a vaso-dilator action had been much employed in cases of angina pectoris. Their employment had been justified on the view that the immediate exciting cause of a paroxysm of angina pectoris was a sudden rise in the tension in the systemic arteries. Clinical observation certainly supported the statement that a sudden increase of tension in the peripheral arteries might give rise to an attack of angina pectoris. Broadbent pointed out that there were two factors present in an attack of angina—viz., high blood pressure and a degenerate heart muscle incapable of responding to the additional call put upon it, the determining cause being some unusual exertion giving rise to a further increase in pressure. In the past it was more or less assumed that high blood pressure was an invariable concomitant of angina pectoris, but in recent years attention had been directed to the occurrence of typical anginal attacks in the presence of a low blood pressure. It was, however, possible that while the usual blood pressure of the patient was low, the cardiac attack might be accompanied by a rise of pressure; hence the relief which was sometimes experienced in these cases from the inhalation of amyl nitrite. The weak point in his contention that angina pectoris might occur with a low blood pressure was, the speaker admitted, due to the fact that he had not had the opportunity of taking the blood pressure at the time of the attack. He could not, therefore, exclude the occurrence of a high blood pressure. In his experience the victim of angina pectoris had usually a blood pressure considerably above normal, and it was to an intensification of the already high pressure that an anginal attack was commonly due.

On the present occasion he was directing attention to those exceptional cases in which anginal symptoms occurred in patients who had in the intervals a systolic blood pressure about or below normal. He had been much struck by the failure of the drugs usually employed in angina pectoris to give relief in these cases; he was convinced that a fatal termination might be accelerated if vaso-motor dilators were incautiously administered. He thought that the prognosis, which was always a very grave one in angina pectoris, was distinctly worse when anginal symptoms occurred in patients with a low blood pressure. In other words, the failure of the nitrites to give relief in anginal pain was of bad omen, as it indicated myocardial degeneration and the tendency to death by sudden heart failure. He would insist that all indications of a failing myocardium, such as feebleness of the impulse, a feeble first sound at the apex, low blood pressure, a feeble infrequent pulse, dyspnœic attacks, swelling of the feet, and signs of commencing œdema of the lungs were of very grave prognostic omen; that these cases required a stimulating plan of treatment, and that vaso-dilators were useless, if not dangerous.

Though it was in cases of angina pectoris associated with high blood pressure that the vaso-dilators gave the best results and could be used with the greatest confidence, even in some cases of low blood pressure they might be tried, as they seemed to lighten the burden of the labouring heart. But in these cases vaso-dilators must be given with great caution and not pushed, as an undue lowering of the blood pressure might be attended with disastrous results. It had been suggested that if within a minute or two nitrite of amyl failed to give relief, a whiff of chloroform should be administered. He was doubtful of the wisdom of this procedure, especially in cases of low tension, and would prefer to give morphine subcutaneously. As a general rule angina pectoris, occurring in patients with a low blood pressure, required to be treated on different lines to cases in which the angina was associated with high blood pressure. Nitrites and other drugs promoting vaso-motor relaxation might be worse than useless. An ounce of brandy in hot water might be given, or the following mixture:—

℞ Spiritus ætheris ♏ xx.
Spiritus ammoniæ aromatici ♏ xxx.
Tincturæ cardamomi compositæ ♏ xx.
Aquam camphoræ ad ℥.
Ft. mist.

This might be taken every half hour for three doses if required. In cases of threatened collapse ether ♏ v. or camphor gr. iss. in sterilised olive oil might be injected intramuscularly. In cases in which pain was the chief symptom the only drug of any value was morphine in combination with atropine, which might be given in doses of ¼ to ½ gr. subcutaneously. The application of hot fomentations or a hot-water bag to the præcordium would often give relief. If the feet were cold, hot-water bottles should be applied to them. In the intervals the patient should be carefully dieted, the amount of alcohol should be limited, and tobacco forbidden. Excess in tea or coffee should be checked. Dyspepsia and other conditions of lowered vitality should receive appropriate treatment. Among cardiac tonics no drug was so generally useful as arsenic; it might be combined with iron if the patient were anæmic. The addition of strychnine would help to improve the tone of the patient.

Dr. DE HAVILLAND HALL supported his contention by reports of five cases. He also indicated the necessity for differentiating true angina pectoris from pseudo-anginal attacks occurring in neurotic individuals with a low blood pressure, and described a case illustrating this point. Pseudo-angina was especially met with in excessive smokers. He had seen it occur in patients who had also had abdominal angina.

Discussion

Dr. ALEXANDER BLACKHALL-MORISON said that in classical cases of angina he regarded the left ventricle as being in a state of inhibition. Later, when the ventricle recovered power, any bruit became more audible, the pulmonary second sound became less audible, and the blood pressure rose. In such cases nitrites were of great value, but he doubted whether their action was peripheral, and regarded them as centrally acting stimulants. He queried whether there was any relationship between high blood pressure and angina, often there was no evidence of any ætiological connexion between them. It was not yet known what was the cause of the pain. He was in the habit of administering atropine, since he regarded angina as a variety of vagal inhibition.

Dr. SEYMOUR TAYLOR suggested that angina may sometimes be concerned with the right side of the heart, and there might then be high blood pressure in the pulmonary circulation. He quite agreed that nitrite of amyl should not always be used, and agreed with the treatment advocated by Dr. de Havilland Hall in cases of angina with low blood pressure. He had also seen genuine tincture of musk give great relief.

Mr. RICKARD LLOYD spoke of two cases in which the attacks had been very numerous. In one there had been 55 attacks in three months. At first these were accompanied by high blood pressure, but later by low readings (120–130 mm. Hg) and by Cheyne-Stokes respiration. In his experience, physical and psychical treatment had been more valuable than drugs. Nitrites might do harm, especially if ordered for continuous treatment, in cases where the blood pressure became low between the attacks. The patient should be placed in the position of greatest physical comfort and his attention diverted, and no drug should be administered without good reason.

Reviews and Notices of Books.

Text-book of Embryology. Vol. II: *Vertebrata, with the Exception of Mammalia.* By J. GRAHAM KERR, Regius Professor of Zoology in the University of Glasgow. London: Macmillan and Co., Ltd. 1919. Pp. 591. 31*s.*6*d.*

THE first volume of this text-book dealt with the Invertebrata, by Professor E. W. MacBride, and was reviewed in THE LANCET, vol. i., 1915, p. 377. This, the second volume, dedicated to the memory of three Cambridge naturalists—Charles Darwin, Francis Balfour, and Adam Sedgwick—gives a sketch in its main outlines of the science of vertebrate embryology as disclosed by the study of the non-mammalian vertebrata—the facts are dealt with as illustrating general principles, and the book itself is not a work of reference as regards details. As the author remarks, the special charm and the chief importance of the study of embryology reside in the fact that it is one of the main branches of evolutionary science. Behind the dull facts of anatomical structure there lies a very charming and living philosophy, which is clearly revealed by the author's exposition. There is not, in fact, a dull or sterile page in the whole treatise. As he points out, the fundamental principles of this philosophy are to be elicited by inquiry into the more archaic types of existing animal life—a subject which the author himself has largely illuminated.

The segmentation, gastrulation, and the formation of the germ layers in each class from the lowest vertebrate to birds are discussed in turn, the origin of the mesoderm being very fully dealt with. Considerable attention is given to the "pineal organ" as it occurs in different animals. Nerve development is fully considered, and the three views—the outgrowth theory of His, the cell-chain theory of Balfour, and the primitive continuity theory of Hensen—are discussed and criticised. The discussion is largely illuminated by the recent knowledge acquired as to the development of peripheral nerve-trunks in lepidosiren. The unrivalled advantage of the olfactory nerve for the investigation of sensory nerves is insisted on and well illustrated. The story of the evolution of the branchial respiratory organs makes interesting reading, especially the discussion on the lungs of birds and the lung of fishes and the evolution of the air-bladder.

A short but intensely suggestive chapter is that on the External Features of the Body, with admirable illustrations. Doubt is cast on the view that the leg type of limb has been evolved out of the fin. The reader is advised to keep an open mind on this dogma, as there exists the possibility that the pentadactyle limb and fin are not in the relation of lineal descent at all, but that they are derived from a common ancestral type of limb differing from either. The author enters very fully into the evidence supporting the external gill hypothesis. This hypothesis fits in well with other facts—e.g., in the breeding male lepidosiren the hind limb regularly, and the pectoral limb occasionally, take contemporarily the characters of any external gill both in structure and in function—a reversion towards an ancestral condition. Equally interesting is the author's account of the evolutionary origin of the tail region.

In the chapter on Adaptation to Environment, the protective envelopes of the egg and the developmental membranes are described, and interesting details are given of the quaint situations selected by some frogs for depositing their eggs; e.g., in the leaves of plants—a kind of nesting, implying attempts on the part of isolated members of a particular group of vertebrates (Anura) to lessen the degree of their dependence upon the ancestral aquatic habit. The work is brought to a close by a chapter on Some Considerations Relative to the Embryology of the Vertebrata, and one on the practical study of the embryology of the common fowl, in which is described the successive changes day by day during incubation of the egg. An appendix deals with the general methods of embryological research.

We must not close this review without a reference to the illustrations—254 in all—which in their clearness of outline, as well as in their scientific accuracy, reflect the greatest credit upon the artist and publishers alike.

Fractured Femurs: Their Treatment by Calliper Extension. By MAURICE G. PEARSON, O.B.E., M.B., F.R.C.S., B.Sc. Lond.; Brevet Lieutenant-Colonel S.A.M.C.; and J. DRUMMOND, M.D., M.R.C.P. Edin., Captain S.A.M.C. With 51 illustrations. London: Oxford University Press. 1919. Pp. 92. 10*s.* 6*d.*

THIS book is the outcome of a wide practical experience in the treatment of fractured femurs, and should be universally welcomed. It is an extraordinary fact that it is still possible to go round most general civil hospitals and find fractured femurs treated in old-fashioned Liston's splints, or badly applied Hodgen's. Colonel Pearson and Captain Drummond tell us in clear language how to get the best possible results in all cases of fractured femurs. They lay emphasis on several important lessons learnt during the war, especially the necessity of team-work, and of concentrating special cases in special hospitals or wards. For it is only by so doing that results can be compared and progress made. We cannot quite agree that the calliper extension is a simple method of treatment, and one that can be adopted by anybody. In our opinion it is essentially a method that requires more than ordinary skill and knowledge. But there can be no doubt that it is the ideal method, and should be used in every case to which its application is practicable.

The chapters on the surgical anatomy, the mechanics of fractured femurs, and the treatment of special varieties, are particularly good. Rather too much space has been given to the early operative treatment of compound fractures, which are rare in civil practice and in time of war do not demand any very specialised early treatment. The chapter on late treatment is rather short and unsatisfying, especially in its reference to bone-grafting. A really good chapter on the subject of non-union would have greatly enhanced the value of the book.

The illustrations are excellent, and the authors are to be congratulated on the production of a book which so clearly and simply describes what is the best and, indeed, only satisfactory method of treating fracture of the femur.

Le Lait Condensé. Par le Dr. P. LASSABLIÈRE, Chef de Laboratoire à la Faculté de Médecine, Paris. Paris: A. Maloine et Fils. 1919. Pp. 110.

THIS little brochure gives an account of the history, preparation, and composition of condensed milk. This occupies about one-half of the text. The remainder is taken up with a description of the value of condensed milk from a hygienic and physiological point of view. Its clinical and alimentary value in children and adults as well as its therapeutical applications in the gastro-intestinal troubles of infants are discussed; and the diarrhœa of the trenches, dysentery, the diarrhœa of tuberculous adults, and what the author calls "suralimentation lactée" of neuropaths, come under notice.

Sterility in Women. By ARTHUR E. GILES, M.D., B.Sc. Lond., M.R.C.P., F.R.C.S. Edin., Senior Surgeon to the Chelsea Hospital for Women, &c. With 11 illustrations. London: Oxford University Press. 1919. Pp. 227. 10*s.*

IN this little book Dr. Giles has summarised our present knowledge of sterility in women, a subject of much importance, especially, and as the author points out in his preface, at the present time when hundreds of thousands of young men have laid down their lives to save their country. In attempting to determine the percentage of cases in which in sterile marriage the fault lies with the male partner, the author shows how difficult it is to arrive at any certain conclusion, but believes that the husband may be at fault in between 10 to 50 per cent. of the cases. The proportion of sterile marriages in this country he estimates to be in the neighbourhood of 10 per cent. for the working population to some 16 per cent. for the leisured classes.

The causes of sterility are considered under a pathological and clinical classification, and a separate chapter is devoted to functional sterility. The main subject is considered very fully under the headings of Primary Sterility, Congenital and Acquired, and Secondary Sterility. In further chapters the author deals with the diagnosis, the prognosis, and treatment of the various conditions. In an appendix is a general bibliography of the subject arranged in chronological order.

The monograph contains a number of original observations and is a contribution, on which Dr. Giles is to be congratulated, to the literature of an important subject.

An Introduction to the Theory of Statistics. By G. UDNY YULE, C.B.E., M.A., University Lecturer in Statistics, Cambridge. London: Charles Griffin and Co. 1919. Pp. 398. 12*s.* 6*d.*

WE give a cordial welcome to the fifth edition of this work. The first edition was published in 1910, so that it must have a wide circle of readers, although we fear that few doctors have as yet joined that circle. It is extraordinary what erroneous deductions have been drawn from the statistical tables so frequently given in the medical papers. Statistics can be wielded effectively only by those who have taken the trouble to learn how to use them. In order to draw a conclusion about the association of two attributes A and B it is necessary to compare the percentage or the proportion of the B's among the A's with that of the B's among the not A's or a's—i.e., $\frac{(AB)}{(A)} : \frac{(aB)}{(a)}$; yet how often we hear that some disease must be due to syphilis, because 90 per cent. of the cases have had syphilis. Such a statement is not even presumptive evidence that there is any association between the disease and syphilis, unless the percentage of cases among the non-syphilitics in the assemblage considered has been also given. It might be found that an even greater percentage occurs among those who have not contracted syphilis. The first 30 pages of this book will guard the reader against these and other common pitfalls.

The present edition differs from the last mainly in the increased number of references to important papers on the subject, and in the addition of two notes on the law of small chances and on the test of goodness of fit. The chapters on correlation and the theory of sampling are excellent, but they are too technical for any further reference to them in this notice. The author has conscientiously dealt with all the difficulties the student will meet in this perplexing subject.

The Whole Truth about Alcohol. By GEORGE ELIOT FLINT. With an Introduction by Dr. ABRAHAM JACOBI. New York: Macmillan Company. 1919. Pp. 294. $1.50.

Mr. Flint has been studying the propagandist literature of the American prohibitionists, and has been so much shocked by the travesties of fact and argument which he has found in their writings that he has been moved to confound them and to undeceive their dupes by setting out, in the present volume, the whole truth about alcohol. The aim is a laudable one, but it is to be feared that Mr. Flint has not adopted the best method of achieving it. Thus, for instance, having rebuked the teetotaller for his assertion that alcohol is a "poison," Mr. Flint proceeds gravely to announce, as an established "truth" of physiology, that "every particle of sugar taken into the human stomach is changed into alcohol, carbonic acid, and water by the digestive ferments" (p. 85). And again, when confronted with the fact that all the belligerent Governments found it necessary to take measures against alcoholism during the war the author explains that their motive was not to improve efficiency but to increase national pugnacity, inasmuch as alcohol, being a nerve sedative, "agrees better with the comfort of the individual than with the ambitious doings of the Government which intends to use him to promote its cause" (p. 88). It will be seen from these specimens of his methods that Mr. Flint is a believer in the policy of driving out the devil by Beelzebub. Indeed, the whole of his text reads like the caricature of a teetotal handbook.

Mr. Flint has a liveliness of style and a sense of humour that, if used with more restraint, might have been admirably effective on such a subject. It is to be regretted that so good an opportunity should not have been dealt with more successfully.

THE LANCET.

LONDON: SATURDAY, OCTOBER 18, 1919.

The Practice of Preventive Medicine.[1]

A MEMORANDUM has been addressed to the Minister of Health by Sir GEORGE NEWMAN, the Chief Medical Officer to the Ministry, which is entitled, "An Outline of the Practice of Preventive Medicine," and forms an extremely valuable piece of contemporary social history. The outline is at the same time so large in scope and in so many directions elaborated in detail that no attempt to epitomise its contents can possibly be successful. Fortunately there is no necessity to make any such attempt, for the book is published by His Majesty's Stationery Office at the price of 6*d*., and it should be, in our opinion, immediately purchased and read, not only by all of us, but also by that larger public who take an administrative as well as a theoretical interest in the progress of national health.

The text of the Memorandum is found at the right place, in the opening sentences, which run: "The first duty of medicine is not to cure disease, but to prevent it. In its simplest terms, therefore, the purpose of the science and art of Preventive Medicine is to apply human knowledge to the prevention of disease." And the author proceeds to discuss how preventive medicine may develop and fortify the physique of the individual and increase his powers of resistance and those of the community; how it may prevent or remove the causes, conditions, and propagation of disease; and how it may prolong the span of man's life. The questions are attacked in an orderly manner, under the subheadings: eugenics, the protection of the function of motherhood and of the health and physique of the infant, school child, and adolescent; personal and domestic sanitation; industrial hygiene; and prevention and treatment of infectious and non-infectious disease. But the broad view of the Memorandum is expressed when the author points out that these subjects, though placed in ordered sequence, overlap and overflow each other. The interrelation of the circumstances accordingly makes it necessary that the preventive methods should be carried out on terms of mutual understanding between the different actors, and it is obvious that the link between the various expert and special services of medicine must always remain the general practitioner. "The foundation," says Sir GEORGE NEWMAN, thoroughly recognising the position, "of a medical service is the medical practitioner. He is its pivot, its anchor, its instrument. If he is competent it has the first surety of success; if he is ineffective or ill-equipped, it must fail. His competency is not only his learning and knowledge, but his practical capacity, his clinical skill and experience, above all his resourcefulness, adaptability, common sense, tact and imagination, firmly established and set in integrity and high character. These are individual virtues, and the medical practitioner is individualistic in upbringing and in genius." That is so, and accordingly what is the prime necessity for the medical practitioner if his qualities are to be placed to their best advantage at the service of the public? The public coöperation—that general sympathy of the population to which he administers, which will allow proper play for his necessary individualism, while recognising that his mission is the most general and generous one on earth. The Memorandum, therefore, rightly takes note of the necessity for the education of the people in hygiene, as well as of the endless call that there is for research, inquiry, investigation—for the extension, in short, of the boundaries of knowledge in all directions ancillary to medicine. The general practitioner, almost more directly than the specialised workers, needs, on the threshhold of a new sanitary era, the good will and the practical assistance of the public, from whom first-hand information concerning the sanitary needs of the population can be obtained, and many of whom can assist in providing the right methods to meet these needs. That such a union of forces has not prevailed more in the past has been due somewhat to the ultra-professional attitude of the less progressive of our calling, but mainly to the unfamiliarity of the public with the alphabet of hygiene or the purport of scientific research. With the general practitioner recognised as the foundation of all medical service, placed in proper relation to the various specialist branches of his calling, and supported in his work by the practical help of a public which understands his ideals, an adequate medical service will certainly be obtained.

The first meeting of the Medical Advisory Committee of the Ministry of Health will be held this week, and it is understood that among the principal subjects to come up for early discussion at these meetings will be the reorganisation of panel practice, which cannot at the present time be said to be in a satisfactory condition. Panel practice represents to a very large extent the care of the health of the people which can be rendered by the general practitioner, and in its working he is at grips with the essential problems of preventive medicine, while ministering to the immediate needs of his charges. The conditions of such work should be freed from uncertainties as to the date and rate of payments, and above all from the temptation to accept too heavy responsibility as the obvious method of increasing remuneration. Additions to the income of the medical practitioner may well be expected to accrue from duties discharged as part of the State organisation of a national medical service, when preventive and curative medicine are brought together and practised in harmony.

---

[1] An Outline of the Practice of Preventive Medicine: A Memorandum by Sir George Newman, K.C.B., M.D., D.C.L., F.R.C.S. London: 1919. **His Majesty's** Stationery Office. 6*d*. net.

The Topographical Distribution of Serological Differences.

Among the many exceptional opportunities for scientific research afforded by the war must be counted the remarkable assembly of different races in certain of the areas of war. The most motley collection of all was to be found in Macedonia, with its centre at the Salonika base, and the opportunity here was taken by Dr. Ludwik Hirschfeld and Dr. Hanka Hirschfeld, whose paper appears in our present issue, for carrying out a very interesting and suggestive research upon certain serological characteristics of the various races. The "iso-agglutination" of the red cells of one individual by the blood serum of another, a property hitherto investigated mainly in connexion with the theory of immunity or with an eye to the practical aspect of blood transfusion, has been applied by these workers to the study of the biochemical characters of the blood of human races, and hence of racial origins and affinities. Accepting "Landsteiner's Law" that there exist two agglutinable substances ("properties" is the less committal term used by the translator) in human blood, and that an individual may possess one, both, or neither of these; and, moreover, that there are two varieties of agglutinin in human serum, each of which can only react with its corresponding member of the pair of agglutinable substances; and that an agglutinin is only present when the corresponding agglutinable substance is absent, and vice versa,—the authors have drawn some interesting general conclusions from their extensive series of observations. They find that the two properties (A and B) are present with variable frequency in the bloods of different races, and that these frequencies present a regular gradation from the peoples of North-Western Europe, through those of the south-easterly parts of the continent, down to the races of Asia and Africa. English and French appear at one end of the list, with a preponderance of property A, and the Annamese and Indians, with a preponderance of B, bring up the opposite end. The order of the list appears to agree with a topographical rather than an ethnological principle. The two properties are independent of one another, and are inherited in accordance with Mendelian theory. On the basis of these results an hypothesis of a double origin of the human race is tentatively propounded.

It is impossible to deny the great value and significance of this line of inquiry, or to disagree with the author's recommendation of more extended research upon these and similar lines. But in this connexion a few observations upon the dominant place of technique in scientific research will not be out of place. It must be admitted that serology is still in its perambulator, though there are many indications that its growth into a rational science will be rapid. Hitherto the methods employed have been largely qualitative and of a rough-and-ready order, and though these have served well for the discovery of the main basic facts, yet it is only by the use of thorough quantitative methods by researchers trained to a truly scientific outlook that rapid and sure progress in the future can be secured. Only thus will it be possible for the infant science to escape from the jungle of imperfect or erroneous observations which make it so hard to see the lamp of Truth. Without casting any doubt upon the general validity of the work of the Drs. Hirschfeld, we feel that they have hardly given due attention to this all-important question of technique. It is dismissed in their paper in a few lines, and they appear to reck little of the serious errors into which most experienced workers on agglutination know that it is easy to fall unless the utmost precision in measurement, time, temperature, and other technical factors be practised. It is a truism that a relatively small number of highly organised observations will yield a greater measure of truth than a much larger number of lightly undertaken experiments. To multiply imperfect experiments is to multiply errors. It follows that a very thorough study of all the factors that influence the agglutination of human red cells by human sera is a highly desirable preliminary to any further extension of such researches as those under discussion. For magnificent mansions are dangerous if there be even a single sandy patch in the foundations.

The Aerial Combatant.

The informative articles by the late Captain H. G. F. Spurrell, R.A.M.C., on the psychology and nervous physiology of the aerial combatant, published in The Lancet of Sept. 27th and Oct. 4th, have a bearing on wider problems than those of the flying fighter, or, rather, raise questions on the inter-relation of conscious and subconscious activity of which the flying man supplies but one, though perhaps the most notable, instance. It is a matter of everyday experience that for volition to interfere deliberately in an automatic performance is to court disaster. A pianist who has learned a composition by rote will play it perfectly as he simultaneously conducts a conversation with the youthful admirer by his side, but any attempt to read it from the music in front of him is fatal since visual impressions and kinæsthetic memories may come into conflict; the less skilled amateur who has laboriously learned a simple piece may not even be able to begin it volitionally anywhere but at the commencement. There used to be an old guide at St. Andrews Castle who showed the recesses of the famous bottle dungeon to the accompaniment of a long historica rigmarole, interruption of which by an indiscreet question on the part of the visitor invariably led to its reiteration from the beginning.

In the acquisition of any motor-complex volition, as Captain Spurrell says, takes a pro gressively diminishing part and, finally, the performance is automatic and not merely requires no thought but does not interrupt thought. It is always a question, however, whether the elimination of volition is as complete as is usually supposed, and whether the "instinctive" response to a stimulus bearing on the acquired motor-complex does not rather consist in a volitional act characterised by an increasingly short reaction-time. We know that much more elaborate reflexes can be elicited under pathological conditions from the mesencephalon and spinal cord than was formerly understood; that the isolated spinal cord, indeed, can be made to respond to suitable stimuli by the production of automatic walking movements; that the "decerebrate" human organism (as seen, relatively speaking, in some microcephalics, diplegics, hydrocephalics, and in other states with diminished cortical control) can be shown to possess complex motor mechanisms whose activity is none the less purposeful because non-cortical. But the movements requisite for correct flying are obviously characterised by much greater elaborateness and delicacy than any of the reflex mechanisms just specified, and for their initiation, at least, demand the highest type of cortical supervision. Whether, therefore, they can at a later stage be delegated to lower centres is debateable. The successful execution of a pianoforte composition entails no attention to extrinsic stimuli; it implies nothing more than the ordered repetition of a series of similar movements based on the awakening of a store of kinæsthetic images, which can be done most easily, as a fact, when the performer's attention is not specially concentrated on it. Though automatic, however, it is surely none the less cortical. But the act of flying entails continuous response to a whole group of changing extrinsic stimuli via several sensory avenues, and Captain SPURRELL himself admits that "general orders from the presiding intelligence" are necessary.

The truth probably lies in recognition of the fact that some reactions to stimuli are so frequent as to become inevitable, with a minimum reaction-time and a minimum of conscious interference, and that the trained cortex acts so nimbly, so quickly, that the accomplished flyer can attend to other matters with confidence that his "automatic" self will not fail him. It is as though the cortex were a physiological mosaic illuminated by the stream of conscious attention playing on one pattern, while others are not so strongly in the light; but mere consideration of the extraordinary anatomical complexity of the cortex as compared with the relative simplicity of structure of the true "lower motor centres" entails hesitation in ascribing to any other part than the cerebral hemispheres the faculty of delicate response to multiple and perhaps conflicting stimuli. The scratch-reflex of the spinal dog is a four-per-second automatism unmodifiable by alteration of cutaneous stimulus and crude in comparison with the responses of the flying fighter to the calls of flying, fighting, and observing. It might be suggested, therefore, that many acquired automatisms of a highly complicated nature are cortical groupings trained to all but independent activity, and that attention rather than volition may on occasion act as a disturbing element in their execution.

Annotations.

"Ne quid nimis."

PHYSIOLOGICAL DRINK CONTROL.

THE Society for the Study of Inebriety gave its members and associates a strenuous day last Tuesday, when the autumn conference in London opened with a reception and breakfast at 8.30 A.M., given by the National Temperance League, and closed with the delivery of the Norman Kerr lecture at 5.30 P.M. by Mrs. Scharlieb. The lecture was entitled "The Relation of Alcohol and Alcoholism to Maternity and Child Welfare," but this did not prevent the lecturer from covering the whole question of alcoholism in its relation to social problems. At the morning session Lord D'Abernon introduced a discussion on the Scientific Basis of Drink Control, and in the afternoon Sir Thomas Whittaker dealt with Alcohol in Relation to Recreation and Refreshment. It is quite evident that a great impression has been made on all those interested in orderliness and sobriety, whatever their particular doctrines, by the clear results which accompanied the measures elaborated in 1915 by the Central Control Board of Liquor Traffic and the restrictions imposed by the Food Controller which followed hard upon them. Many are now coming to realise that, as Mrs. Scharlieb puts it, to insist on universal abstinence is to lose the desired result by the deification of the means. The measures of the Board were based primarily on general physiological principles, although at first no trustworthy data were available in regard to the precise effects of these principles. The omission has now been made good partially by the work of Dr. H. M. Vernon, Dr. E. Mellanby, Dr. W. McDougall, Miss May Smith, and others, and Lord D'Abernon has a substantial basis both of experiment and experience in insisting upon the governing principles of physiological control as dilution, including the specially important sort of dilution effected by food, and discontinuity in the hours of drinking. With dilute solutions the maximum level of alcohol in the blood is lower and more slowly reached than is the case when the drug is taken in more concentrated form, and there is recent evidence for the belief that the same amount of alcohol is decidedly less intoxicating when taken in the form of beer than when taken in the form of spirits. Physiological regulation aims at promoting temperance by qualitative rather than quantitative methods. There is some little doubt as to the relative share taken by the Food Controller and the Liquor Control Board in the results achieved during the war, especially as it has been alleged that the effects were as manifest in those parts of the country which were controlled by the former alone as in those where both factors came into play. But if we agree with Mrs. Scharlieb that during the past four years there has been no real change in the national conscience, it may be well, without inquiring too closely into their relative value, to continue with the qualitative methods, which are still open to us in normal times, when the quantitative methods, tolerated during a grave period of external emergency, can no longer be put in practice without too drastic an interference with personal taste and established custom. *How* the nation drinks may, in Lord D'Abernon's phrase, prove more significant than *how much* the nation drinks.

URINARY HÆMOLYSIS.

Professor Alfredo Amati, of the University of Naples, has lately published a brochure[1] with the object of clearing up the fragmentary and often contradictory contributions hitherto available on a subject which he considers may prove of extreme practical importance. The questions which he set himself to answer are as follows: (1) the behaviour of red blood corpuscles when immersed in the urine of healthy persons and what influence was exercised by the specific gravity, reaction, amount of chlorides and urea, and the molecular concentration; (2) whether the hæmolytic power of pathological urine depended on any of these factors. These researches giving negative results, he investigated the relation between hæmolytic urine and blood serum and between hæmolytic serum and the urine. Having found that the urine of patients was sometimes hæmolytic and at other times not so, he instituted a series of experiments to determine what degree of dilution with distilled water was necessary in a healthy subject's urine to produce hæmolysis, and finding that the relation was the same for all healthy urines he investigated the same relation in the hæmolytic urine of nephritic and cancerous patients. The more important results he deduced from his experiments were that physiological urines are not hæmolytic whatever may be the specific gravity, saline content, quantity of urea, and cryoscopic reaction; they have, however, a hypertonic action on the corpuscles, causing them to appear shrunken under the microscope. This hypertonic action is more manifest with urines of high specific gravity, while those of low specific gravity, and therefore poor in chlorides, do not cause this shrinking of the corpuscles, which preserve their normal appearance, even when the quantities of chlorides and salts are in amounts so low as to render the urine hypotonic in comparison with blood serum. In some pathological conditions, especially in renal disease and malignant tumours, the urine may become hæmolytic. The hæmolytic power in this case also is independent of specific gravity, quantity of chlorides and salts, and cryoscopic reaction. The hæmolytic power of the urine is, in the majority of cases, independent of the hæmolytic power of the blood serum—i.e., a hæmolytic serum does not give rise to a hæmolytic urine, and vice versa; thus, while a nephritic urine may be hæmolytic while the serum is not, the possibility of a lysine of renal development must be considered. The substances which give the hæmolytic power to urine are probably different from the hæmolysins of the Ehrlich and Bordet type. Physiological urines from healthy individuals, whatever their specific gravity, reaction, &c., require a marked dilution with distilled water to become hæmolytic, which usually amounts to five-sixths water to one-sixth urine. An important point is that this degree of dilution is almost constant in all urines; it requires a urine of very low specific gravity, and hence very deficient in salts, to displace this index of dilution to two-thirds and one-third, and, vice versa, urines rich in solids, in order to produce hæmolysis, require a dilution of one-half urine to five and a half water. In no instance can hæmolysis be obtained with physiological urines with a dilution less than two parts urine and four parts water, nor more than one-half urine to five and a half parts water. If the least indispensable dilution is called the *uro-hæmolytic coefficient*, this coefficient is almost constant in physiological urines—it is usually equivalent to five-sixths, but may oscillate between two-thirds and ten-elevenths. In pathological urines, on the other hand, using the same system of dilution in patients suffering from nephritis or malignant tumours, the uro-hæmolytic coefficient is considerably displaced, so that it becomes inverted and reaches the figures of one-eleventh to one-third. It is seen, therefore, that while the urine in these diseases is rarely and not constantly hæmolytic, it always presents an alteration in the uro-hæmolytic coefficient, and it may be confidently stated as an axiom that physiological urines have an almost constant uro-hæmolytic coefficient, whereas those of nephritis and malignant tumours, although not in themselves hæmolytic, have this coefficient markedly and invariably altered.

DENTAL CARIES IN THE PRE-SCHOOL CHILD.

A PAPER by C. Doswell Wallis in the *Dental Record* for September, on the work of the Infant Welfare Centres of the Duchess of Norfolk, contains some interesting statistics on the condition of the teeth of children under school age. Inspections were carried out at two centres, the teeth being classified into sound, saveable, and unsaveable. Seventy-five children were examined, and in these were 1208 teeth classed as sound, 107 as saveable, 95 as unsaveable. The figures are most instructive and show that there is a large amount of caries at the age-period 4 to 5 years, for in 15 children there were 101 diseased teeth, and of these 54 were unsaveable. Unfortunately, the records do not state the individual teeth attacked, but as clinical experience shows that the molars are more liable to disease than the incisors, it is fair to assume that about half the molars were carious. In dealing with dental diseases in the young, the tendency is to concentrate on those of school age, but we have pointed out before in these columns that treatment must start at an earlier period if the best results are to be obtained, for by the time the child reaches school age there is often irretrievable damage—a fact eloquently demonstrated in the figures given by Mr. Wallis.

INCREASE OF PAYMENT OF PENSIONS BOARDS.

WE understand that the Minister of Pensions has given further consideration to the question, raised by a deputation from the British Medical Association, of the remuneration of members of the boards. It is stated that the Ministry fully appreciates the services rendered by the medical profession, both during and since the war, in serving on these boards at some personal sacrifice, as this duty involves frequent absence from the work of their private practice. The Minister agrees that the present fee of one guinea per session for ordinary members of boards is inadequate since the emergency arising from the war has disappeared, and has obtained authority to raise the fee to £1 11*s.* 6*d.* per session after Oct. 6th. The additional fee payable to a doctor acting as chairman of a Board has also been raised to 5*s.* 3*d.* per session, or 10*s.* 6*d.* per day, but there is to be no increase in the fees payable to specialists. The intentions of the Ministry as to duration of session and its policy in regard to the appointment of medical referees is as indicated in THE LANCET of Sept. 13th, p. 498. The deputation had also directed the Minister's attention to complaints of delay in settling accounts of fees due for service on medical boards. It is stated, in reply, that every effort is made to secure prompt payment and that the Minister believes that in general these claims are expeditiously settled. He is willing, however, to make special inquiry into any individual case brought to his notice in which delay is alleged and to take steps to secure its immediate settlement.

---

[1] G. Borrelli and Son, Via Tribunali, Naples, 1919.

PREGNANCY AND INFLUENZA.

THE fatality of influenza among young married women was a matter of common remark in the second wave of the great epidemic in this country. Figures are now available bearing on the subject in Paris. In his thesis on influenza complicated by pregnancy Malartic (*Thèses de Paris*, 1918–19, No. 286) states that the mortality during the recent epidemic among pregnant women at the Paris Maternité Hospital was 46 per cent. Pulmonary complications were extremely frequent, being observed in 73 per cent., and the mortality among cases with these complications was 58 4 per cent. as compared with a recovery rate of 95 per cent. among women in whom the lungs were not affected. Premature delivery, which occurred in 17 per cent. of the cases with pulmonary complications, proved fatal in six out of 11 cases, or about 50 per cent.; miscarriage, which occurred at an earlier stage of pregnancy in 6 per cent. of the cases with pulmonary complications, proved fatal in three out of four cases, or 75 per cent. "Woe unto them that are with child," might have been written of this influenza epidemic.

CHIP FRACTURES OF THE TERMINAL PHALANGES.

IN the *Journal of Industrial Hygiene*, a new Anglo-American periodical which we have recently welcomed,[1] Dr. W. R. Hurley, chief surgeon at Fore River Plant, Bethlehem Corporation, has described a fracture of the terminal phalanges which does not appear to be recognised in this country, and in his experience is frequently overlooked even by the "industrial surgeon." This is due to absence of signs of fracture. As a rule the history is of slight injury, and simple contusion is diagnosed. In a series of 27 cases, 10 were due to getting a finger caught between two small pieces of steel, and 3 to it being jammed in the door of an elevator. In practically all the cases the signs were slight, usually consisting of a little hæmorrhage under the finger-nail and some tenderness and swelling. The importance of the injury is due to the length of the resulting disability. In 17 cases this averaged 60 days. This period is the more impressive when it is remembered that rarely does a transverse fracture of a phalanx cause more than five weeks' disability, and, when apposition is good, the period may be much less. The long disability is due to persistent tenderness and infection. The infection is not connected with any wound which may be present at the time of the injury. As a matter of fact, infection occurs as frequently in cases without wounds as with wounds. Kanavel has shown that the diaphyses of the terminal phalanges receive their blood-supply after the artery enters the connective tissue of the pads of the finger-tips. Moorhead has suggested that this fact explains the frequent affection of bone in neglected or improperly treated cases of inflammatory conditions of the finger-tip. Similarly, Dr. Hurley suggests that in chip fracture the blood-supply is cut off partially, and the chip, which is often well separated from the rest of the bone, does not obtain nourishment, and acts as a foreign body. The surrounding tissues break down and a low grade of infection occurs. The second cause of lost time, persistent tenderness, is probably due to non-union of the fracture, the movement of the fragment causing pain. The following is an example. A man, aged 21 years, was injured by a swinging chain striking the middle finger. On June 28th, 1918, examination showed a slight abrasion. The finger-tip was much swollen. There was no crepitus or deformity, but some limitation of movement in the distal joint was noticeable. The X rays showed a chip fracture. Hot fomentations, an alcohol dressing, and a splint were applied. Excepting the persistent tenderness there was nothing to note until July 17th, when the tenderness became more severe and throbbing pain was felt. Meanwhile the abrasion had healed. Suppuration took place under the nail, which was removed. On the 26th the X rays showed thinning of the phalanx, which was amputated. Convalescence was slow in consequence of a slight ascending infection. The patient did not return to work until Jan. 10th, 1919. In a later case it was found that the period of disability was much reduced by removing the chip. Dr. Hurley recommends the following routine. All contusions of the fingers and toes, especially those accompanied by swelling, should be examined with the X rays. The treatment at first should be expectant. If after the first few days the swelling or tenderness increases, or if there is persistent tenderness after the fourth week, the chip should be removed. The sooner the chip is removed after the fourth week the better the chance of healing by first intention.

THE MUSEUM OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

WE are glad to announce that the Museum of the Royal College of Surgeons of England is now itself again. During the war its staff and its chief rooms were placed by the Council of the College at the disposal of the War Office for the purpose of building up and exhibiting a national collection of specimens to represent the nature and sequelæ of wounds and of diseases to which soldiers are exposed under modern conditions of warfare. Until the future destination of this "National" or "Imperial" Collection is finally determined on, the Council of the College has set aside one of the larger rooms of the Museum for the public exhibition of the collection. The other rooms have had their former contents restored to them, for during the greater period of the war it was found necessary to store all spirit specimens in the vaults of the College. The restoration of the contents to the Museum provided an opportunity for effecting certain desirable changes in the arrangement and display of specimens. The largest room in the Museum is now entirely devoted to the exhibition of pathological specimens, the series illustrating general pathology—the most complete of its kind now in existence—occupying the floor space of this room or hall. Medical men and students will now find every section available for study.

Museum Demonstrations.—A series of demonstrations is to be given by Professor Arthur Keith at the College of specimens illustrating the various forms of disordered growth which follow disease or functional derangement of the glands of internal secretion. The first of the series will be given in the Theatre of the College, Lincoln's Inn-fields, on Friday next, Oct. 24th, at 5 P.M., when specimens showing the bodily changes in acromegaly will be demonstrated. The subsequent demonstrations will be duly noted in our Medical Diary for the week. The demonstrations are open to all medical men and students of medicine.

---

[1] THE LANCET, Sept. 27th, p. 587.

TREATMENT OF SEA-SICKNESS.

Major A. E. Lemon,[1] of the United States Army, remarks that it has long been believed that sea-sickness is the result of the motion of the ship affecting the semi-circular canals, the organ of equilibrium in the internal ear. In a voyage from Brest to New York in which the ship, although she pitched and rolled very little, had a very pronounced plunging motion, he unexpectedly became very sea-sick. Feeling an indefinite sense of change of pressure on the ear drums he packed each external meatus with sterile gauze, with immediate relief as soon as the gauze had been packed tightly enough to cause a decided sense of pressure in the ear canal. In the course of inquiry from a large number of sea-sick soldiers on board whom he was able to treat successfully by this method he learnt that those who had been exposed to shell-fire were almost without exception much more affected with sea-sickness on their return journey than on their voyage to Europe. Major Lemon himself, who had previously been a good sailor, attributes his own severe attack to the fact that his ear drums had been injured by shells exploding within a few yards of him. Many of the cases in whom the symptoms had been arrested for several hours had a return of their sea-sickness as soon as the packing was removed, but were again relieved when it was reinserted. This is a resuscitation of an old theory, and we doubt if experience will confirm its value.

THE CAUSE OF DEATH IN DIFFERENT COMMUNITIES.

NO medical officer of health has the right to complain that his views on his work and on the health of the community under his charge are pressed into a stereotyped mould. The reports of the county and borough medical officers which we receive at intervals during the year are of all shapes, sizes, and colours as regards their exterior, while their contents are equally various; so much so that it is by no means easy to find a common message in any of them. We have reduced certain figures taken from two recent reports to a common basis, as they illustrate in rather a striking manner the thoughts expressed by Dr. E. S. Reynolds in an interesting Bradshaw lecture, published in our columns two years ago, on the causes of disease. Dr. Reynolds pictures a community of 1000 healthy men and 1000 healthy women segregated on a healthy island for the remainder of their lives, and he endeavours to imagine from what diseases they and their descendants would suffer and from what they would die. The conditions are obviously never likely to be fulfilled, but the returns for 1918 from the Island of Guernsey and from the City of Liverpool bid fair to afford the greatest available contrast. No island in the British archipelago was ever more cut off and no British city ever more congested than Guernsey and Liverpool under war conditions. The most frequent conditions giving rise to death during the year 1918, stated per 1000 of population estimated at mid-year, are as follows:—

Principal Causes of Death during 1918: Figures given per 1000 of Population estimated at Mid-year.

CITY OF LIVERPOOL.		ISLAND OF GUERNSEY.	
Pneumonia	1·84	Influenza	2·47
Bronchitis	1·80	Senile decay	1·82
Phthisis	1·79	Heart disease	1·61
Influenza	1·78	Phthisis	1·27
Broncho-pneumonia	1·50	Pneumonia	1·17
Heart disease	1·10	Cancer	1·14
Cancer	0·97	Apoplexy	1·01
Congenital debility	0·84	Tuberculosis (other than phthisis)	0·31
Senile decay	0·77	Broncho-pneumonia	0·23
Diarrhœa and enteritis	0·55	Epidemic enteritis	0·08
Cerebral hæmorrhage	0·54	Measles	0·00
Measles	0·52		

In regard to microbial infections it may be noted at once that broncho-pneumonia, epidemic enteritis, and measles occupy an insignificant position as deadly diseases in the island community. In the urban community they slay widely. One scourge, influenza, spares neither; it was, in fact, more rife in Guernsey than in Liverpool. Phthisis is not greatly behind on the island, and this incidence illustrates once more the fact that the tubercle bacillus cannot be dealt with on the lines of other bacterial agents. It is noteworthy that in the island community so large a number as 1·82 per thousand should live long enough to die of senile decay, while apoplexy, another disease of age, has twice the urban incidence. The town-dweller's risks are other than these. Further deductions might be drawn; our remarks are based on a hasty survey of the figures.

THE MIDWIFE'S CHARTER.

NOT long ago the Ministry of Health and the Board of Education simultaneously issued documents ostensibly defining the conditions under which public money was to be used in the training of health visitors, but really in effect drawing up a magna charta of infant welfare. The same bodies have now issued [1] a smaller charter relating to the midwife. Grants-in-aid have for several years been available to assist a local sanitary authority to obtain the services of a midwife in any area where they were urgently needed. And the Board of Education now offers substantial grants for the training of midwives. We say advisedly a smaller charter—the Ministry of Health may justify its size as proportional to the unborn child—yet all who have the best interests of the midwife at heart will regret the attitude taken up in the memorandum, that any sort of entrance examination is impracticable for the career of the midwife. The Board only goes so far as to express the pious hope that students admitted should be likely, from character and previous education, to profit by the training and instruction given. Every student who accepts the grant has to sign an agreement or declaration of "bona fide" intention to practise as a midwife. This, by the way, reintroduces the term "bona fide" in connexion with midwives in a new and less ominous sense. The declaration will disqualify from obtaining the grant the hundreds of women who annually take the C.M.B. certificate as an added diploma to general or maternity nursing and without any intention of practising as midwives. In rural areas it may be impossible in the nature of the things for the midwife to devote her whole time to this work, and an exception is admitted in this respect. The grant payable will be at a rate not exceeding £10 for each student, who completes the approved course of the Central Midwives Board, a further grant of £6 being available for further work at institutions giving post-praduate instruction. So for the first time justice is being done to the Cinderella of the Public Health Service.

---

[1] Journal of the American Medical Association, 1919, lxxiii, 104.

[1] Board of Education. Draft Regulations for the Training of Midwives. Prefatory Memorandum. [Cmd. 353.] Price 1d.—Ministry of Health. Circular to Supervising Authorities under the Midwives Acts. No. 10.

RICKETS AND THE MANDIBLE.

THE effect of rickets on the jaws forms the theme of a thoughtful paper by Dr. H. K. Hatfield, of Boston, in *Dental Items of Interest* for September. The material for study was obtained from the Massachusetts Hospital School for Crippled Children, the cases selected for investigation being those in which there was a clear diagnosis of the disease. Fifteen children were examined and plaster models of the mouths were taken, and these were reproduced in the illustrations accompanying the paper. A theory has been held that rickets tends to produce malformation of the jaws, but a careful study of these cases gave no support whatever to this view; indeed, several of the children were possessed of remarkably well-formed arches. Softening of the bones is a characteristic of the disease, but the form which the bone takes on as the result of rickets is not typical of the disease, but rather expresses the mechanical forces acting upon it. "The mandible," he says, "is a plastic structure in health and under the stress of mastication preserves its form; hence in softening of the bone and with uniform muscular weakness, no change in the bone necessarily occurs." On the other hand, the introduction of an artificial force or a change in muscular action will alter the equilibrium determined by function and produce deformity; this is well seen in the effect of mouth-breathing and the use of the "dummy" in children suffering from rickets.

Sir Berkeley Moynihan will open the session of the Harveian Society of London on Thursday, Oct. 23rd, at 8.45 P.M., with an address on the Diagnosis and Treatment of Gastric Ulcer. All members of the medical profession are invited to attend.

THE PROFITEERING ACT, 1919.—The proceedings for complaints against wholesalers under the Profiteering Act, 1919, are simple of comprehension. The whole of the machinery contemplated by the Act for the investigation of costs or profits, the investigation into the operations of trusts and combines, and the hearing of complaints of profiteering made against both wholesalers and retailers is now in being. Retailers who consider that a wholesaler is making or seeking an excessive charge in respect of any article in common use to which the Act applies should bring the facts to the notice of the Secretary to the Complaints Committee, Profiteering Act Department, 54, Victoria-street, London, S.W. 1. There is no official form on which complaints have to be made. All that is necessary is that the facts should be put in writing and delivered to the Committee within seven days of the date of the transaction in question. The following information should be given: (1) Date of transaction; (2) the conditions under which it was entered into; (3) the names and addresses of the parties; (4) the precise nature of the goods; (5) the price paid or demanded. If the Committee considers that the facts supplied disclose a prima facie case of profiteering they will appoint a tribunal to hear the case. A complainant must be prepared to attend before such a tribunal and give evidence on oath; he may conduct his own case or appoint some other person for the purpose.

CONTROL OF VENEREAL DISEASES.

THE VENEREAL PREVENTION COMMITTEE.

A COMMITTEE has been formed with the view of impressing on the public the great importance of immediate disinfection in the prevention of venereal contamination. In a communication to the press it is stated that the committee cannot accept the conclusions in regard to the "packet" system arrived at by Major Astor's Inter-Departmental Committee or by the National Council for Combating Venereal Disease, whose policy "appears to be based on moral rather than medical considerations." The communication proceeds:—

"In view of the White Paper recently presented to the Ministry of Health containing the decision that the official recognition of self-disinfection in civilian venereal disease is 'neither desirable or practicable,' we think it urgently necessary, in the interests of the national and racial health, to ask our fellow-citizens for the action which the official forces of the nation find themselves unable and unwilling to take.

"There are evidently only three possible courses: (1) To take no action against venereal infection, apart from moral teaching; (2) *delayed* disinfection (early treatment centres); (3) to teach and provide *immediate* self-disinfection. We all agree in rejecting the first course. The White Paper recommends the second; but the provision of centres for delayed disinfection is not, and never can be, adequate. The London County Council, the greatest urban authority in the country, has rejected the scheme. No method is even suggested that could be worked in rural districts. The practical difficulties in town and country alike are insuperable. Time, the vital factor, is necessarily lost in every case.

"There remains only the third course—namely, immediate self-disinfection. We maintain that venereal disease is thus preventable, that authoritative teaching on the subject is urgently required, and that the means, together with approved instructions for their use, should be readily accessible to the public. We fail to recognise any moral distinction between the provision of delayed disinfection at centres, and the provision of immediate self-disinfection, and we decline the grave moral responsibility of attempting to conceal the knowledge which is capable of saving myriads of the innocent, living and unborn, from the most hideous disease of body and mind."

The signatories to this communication have provisionally formed themselves into a Venereal Prevention Committee, to whom inquiries may be sent at 143, Harley-street, London, W. 1. The names are as follows: Lord Willoughby de Broke (chairman), Principal J. G. Adami, Mr. G. L. Cheatle, Sir Bryan Donkin, Sir Alfred Fripp, Sir W. Arbuthnot Lane, Dr. R. Murray Leslie, Professor Harvey Littlejohn, Dr. R. A. Lyster, Sir John Macalister, Sir James Mackenzie, Dr. Otto May, Sir Frederick Mott, Sir William Osler, Dr. William Pasteur, Sir D'Arcy Power, Sir Archdall Reid, Sir Humphry Rolleston, Dr. C. W. Saleeby, Dr. J. H. Sequeira, Dr. David Watson, Dr. R. M. Wilson, with Mr. H. Wansey Bayly (honorary secretary).

The Two Parties and their Tenets.

The formation of such a committee is to be welcomed, especially if it applies itself in a scientific and judicial manner to the task which awaits it. For a long time past thoughtful minds both within and without the medical profession have been exercised as to what form of protective procedure should be advocated with regard to those persons exposing themselves to the risk of venereal infection. The resultant controversy has been marked by intensity rather than by a really judicial spirit. Speaking broadly, the majority of the combatants have ranged themselves into two camps. The one is composed of those who believe (for various reasons) that the solution of the difficulty is to be found in the advocacy of "early treatment" or "delayed disinfection," to be carried out at "early treatment centres" or elsewhere; the other side is represented by the advocates of "prophylaxis," or "immediate self-disinfection," to be carried out at the time of exposure to risk.

Such being the two main parties engaged in the controversy, it must be admitted that up to the present there has been an insufficiency of definite and convincing information advanced by either side. Owing to the absence of sufficient data, qualitative and quantitative, it is at present premature to initiate any extensive organisation to promulgate or carry out the tenets of either party. We believe that it is possible for the necessary data to be obtained, and are only temporarily agnostic in Huxley's sense of the word. The new committee should help to crystallise a problem which has hitherto been presented in too nebulous a form, and we look to it and to its fellow protagonist, the National Council for Combating Venereal Disease, to educe and substantiate in a definite and scientific manner the reasons for the faith which they respectively hold.

Some Insufficiently Recognised Considerations.

There are certain cogent aspects which have not received the consideration which they merit.

(1) Those who condemn the prophylactic treatment on ethical grounds argue that persons who are restrained by fear from indulging in venery may, by the removal of their fear, be tempted to immorality, for which the advocates of prophylaxis should be held responsible. Putting to one side the fact that fear does not connote any ethical or religious quality, and on the other hand that the majority of individuals are not restrained by fear, the moral and physical outcome of condemning the policy of auto-prophylaxis must be boldly faced. It is certain that many individuals (who are not restrained by fear) will take risks, and in ignorance of prophylactic measures thereby contract disease. This they will pass on to others, particularly women and children. If it can be proven that in all probability the adoption of prophylactic measures would have prevented the primary agent from contracting and handing on the disease, then the advocates of the non-adoption of prophylactic measures will be ethically responsible for the suffering entailed. In other words, in order to bolster up the so-called moral responsibility of an individual (the burden of which he might well assume himself) the well-being of many is to be sacrificed. The inadvisability of advocating "auto-prophylaxis" may conceivably be proved on medical grounds, but the ethical argument demands its own answer. Upon what grounds is the belief based that many individuals are deterred by fear? A thorough investigation of the ethical and scientific fundamentals involved might point to the adoption of a procedure in which these factors are coincident and not antagonistic, whether it be in the form of prophylaxis, early treatment, or some other method.

(2) We believe that if certain of the controversialists would reason more deeply and so reduce their suggestions to the lowest possible terms they would do much to clarify their vision and recognise their prejudices. For if the advocates of washing with soap and water as a protective measure at the time of exposure believe that such steps will make for safety it is manifestly their duty to publicly promulgate their view. If, however, it is proclaimed that safety lies this way, would not such an advocacy prove equally conducive to moral delinquency as the recommendation of "packets" or the utilisation of potassium permanganate and mercurial ointment? Similarly, granted the utility of early treatment, would not the proclaiming of its virtues by its sponsors also prove to be an incentive to immorality? Reducing the matter to its lowest terms, what difference is there, except that of the time factor between measures undertaken at the time of exposure or within a limited number of hours later? It is alleged that a difference does exist; in some instances it may rest on a purely sophistical basis, whilst in others it is one which may be conscientiously recognised. It is the duty of those who are in the latter category to make this difference clearer than they have hitherto succeeded in doing.

(3) Many of the data in favour of prophylaxis have been obtained from military sources. We are now called upon to cater for a civil population, and it is at least doubtful whether army statistics have been used in such a way that would satisfy a professional statistician.

(4) Neither the advocates of, nor the opponents of, auto-prophylaxis have sufficiently considered what is likely to result from such a procedure. In many cases the women concerned object to such measures, and men will therefore discard their use. This contingency would be met by the adoption of early treatment.

(5) In the communication which we publish above from the new committee three alternatives are mentioned: (i) the purely educational; (ii) delayed disinfection or early treatment; (iii) immediate self-disinfection. No mention is made of a modified form of compulsory notification such as is in use in the United States and some of our Dominions. No notice appears to have been taken of the influence which such a measure might have in reducing the number of people exposing themselves to the risk of infection.

A Combined Programme.

It may be hoped that both the Venereal Prevention Committee, the National Council, and all other interested bodies will consider the above points in a deeper, more comprehensive and judicial manner than has hitherto obtained. There may well be other cognate and crucial factors involved in the problem which have hitherto been unexplored. Time is undoubtedly of importance, but we must recollect that even the delay of a few months may result in the discovery of some new or the modification of some known method, which when materialised will more than compensate for the apparent loss of time at the moment. The points at issue between the Venereal Prevention Committee and the National Council are not of such a fundamental nature as to preclude some conjoined working between these two bodies. It would be a disaster if the work which the National Council has carried on, educationally and otherwise, should be hindered by needless antagonism on the part of the new committee. In the national interest these two bodies should meet to clear up possible misunderstanding and to discover such a common basis as will enable them to work together in a complementary manner without loss of individual consistency or of corporate efficiency.

IRISH PUBLIC HEALTH COUNCIL:

THE FIRST MEETING.

THE first meeting of the Irish Public Health Council was held at 33, St. Stephen's Green, Dublin, on Thursday, Oct. 2nd, Dr. E. COEY BIGGER, presiding.

Presidential Address.

After expressing the Chief Secretary's regret for his unavoidable absence and thanking the members for their willingness to act on the Council, Dr. Bigger went on to indicate the Minister's intentions. The Public Health Council as now constituted was a temporary body formed to advise him as Minister of Health as to the steps to be taken for the improvement of the public health. For this purpose representatives had been selected from the different existing authorities charged with public health functions throughout the country, and with their advice and assistance a comprehensive scheme of public health was to be formulated in a Bill to be submitted with all possible expedition to Parliament.

Public health legislation in England, Dr. Bigger went on, differed greatly from that enacted for Ireland, and recent debates in Parliament had made it quite clear why it was necessary to establish a Public Health Council. The more important and pressing problems with which the Council would have to deal were as follows.

The Council had been entrusted with the requisite authority for making inquiry into the present system of health administration, with a view to advising the Minister of Health for Ireland as to the steps to be taken to secure the preparation, effective carrying out, and coördination of measures conducive to health, including measures for the prevention and cure of diseases, the treatment and care of the blind, the initiation and direction of research, the collection, preparation, publication, and dissemination of information and statistics relating thereto, and the training of persons for health services.

Public Health in its Larger Aspect.

The Public Health Act of 1878 and the subsequent Acts had been chiefly concerned with the correction of sanitary defects, the isolation and treatment of infectious disease, provision of water-supplies and sewerage systems, rather than the correction of individual physical defects which lead to impaired health. During the last few years, however, attempts had been made to rectify those defects, and at least seven Acts of Parliament have been passed with the primary object of preventing rather than treating sickness. The most important of these Acts were: Notification of

Births (Extension) Act. 1915; Provision of Meals Acts, 1914–17; Midwives (Ireland) Act, 1918; Housing (Ireland) Act, 1919; Medical Inspection and Treatment of School Children Act, 1919. All these Acts had been initiated by the Local Government Board for Ireland. In addition, the Insurance Commission have never lost an opportunity of endeavouring to secure amendments in their original Act, with a view to securing more efficient working of the insurance system.

Despite the fact that no country could boast of more highly skilled physicians and surgeons, better equipped hospitals, or a more comprehensive system for the medical treatment of sickness of the poor, it had to be confessed that everything possible had not been done to prevent and treat disease. The cities were provided with well-equipped and well-staffed hospitals which gave to the poor specialist and operative treatment in no respect inferior to that available to the wealthy. An extension of the system of pay-patients would help immensely that very large class of persons who, while better off than the working class, could still not afford specialists and private hospitals. The same excellent conditions did not, unfortunately, hold in the smaller towns and in the country; often the only hospital accommodation was in the union infirmary with its so-called pauper taint or in the county infirmary, too often handicapped by lack of funds, and subject to conditions and limitations imposed by an Act of Parliament passed in 1765. To improve matters the former should be completely divorced from the workhouse and the latter given sufficient public money to modernise its equipment. Both, however, were useless without efficient staffs, and it was hopeless to expect to obtain and to keep these unless the conditions of service were improved.

Improvement in Sanitary Administration.

The fact that county councils, although entrusted with health and medical administration, are not sanitary authorities within the meaning of the Public Health Acts, had proved to be inconvenient. For instance, although a county council might undertake the management of sanatoriums and dispensaries for the treatment of tuberculosis, and appoint a medical staff for certain specific purposes, such as tuberculosis, medical treatment of school children, or a scheme under the Public Health Act, 1917, there was no power to appoint a county medical officer for the general superintendence of health matters. This defect could only be remedied by an Act of Parliament. The same so-called pauper taint was frequently applied to the dispensaries, which required to be better equipped and modernised. The obvious remedies by which these services might be improved would be by rewarding the skill and efficiency of the medical officers by a system of promotion to better positions, a more equable scale of salaries, increased facilities for better treatment and compulsory study leave every few years, which would enable every medical officer to keep abreast of the times by learning the most modern methods of diagnosis and treatment.

There must be a great extension in the providing of trained nurses to the sick. At present the only nurses available were those of such voluntary societies as the Queen Victoria Jubilee Nurses Association and the Lady Dudley Nursing Association. Properly qualified dental surgeons are urgently required, particularly in country districts, the inhabitants of which were often compelled to seek the assistance of unqualified persons. A system of itinerant dentists might partially meet the need.

Antituberculosis measures required consideration and enlargement. We could not hope to lessen the ravages of this disease to any great extent until every county had its medical officer, its dispensaries, its observation wards for suspicious cases, and arrangements for the isolation and treatment of open cases, whether these are early or advanced. In Ireland the facilities for laboratory diagnosis of disease were totally inadequate. Only a few counties had appointed a pathologist. A doctor who had no ready means of obtaining a report on pathological material was greatly handicapped in making a diagnosis. He should also be able to obtain when necessary such modern aids to treatment as vaccines and therapeutic sera.

The Care of Mothers and Young Children.

The field of preventive medicine in Ireland was as yet unexplored. The Notification of Births (Extension) Act, 1915, marked a new era, as this Act was designed for the purpose of ensuring that the health and physical welfare of the mother, both before and after the birth of her child, were looked after, as well as that of the child from the time of its birth onward till it reached the age of 5 years. In order to encourage the health authorities to undertake the care of mothers and children the State had come to their assistance and defrayed half the cost of maternity and child-welfare schemes. From the age of 5 years, which may be regarded as the school age, the child would come within the scope of the Medical Treatment of School Children Act, 1919. Under this Act county and county borough councils were compelled to provide for the medical inspection of school children and to make arrangements for attending to their health and physical condition. In the exercise of those duties the councils will act under regulations to be made by the Local Government Board, with the approval of the Treasury, and the Commissioners of National Education for Ireland. Parliament would provide one-half the cost of this service, and the remaining half would be borne by the rates. The examination for the detection of tuberculosis, adenoids, defects of vision, hearing, and dentition required extreme care if tendencies towards future serious defects were to be disclosed. There were many physical defects likely to interfere with the progress of the child's education which escaped the notice of parents until they passed a stage at which they could be easily remedied. The Regulations to be drawn up should ensure that this branch of health administration will be thoroughly and scientifically carried out. The Local Government Board had asked the Council to assist them in formulating regulations, and the Commissioners of National Education had also signified their willingness for the Public Health Council to coöperate. One of the first duties of the Council would be to endeavour to secure that the intentions of Parliament in regard to the medical treatment of school children are efficiently and economically carried into effect.

Other preventive measures, coming within the scope of the Council, were in relation to the milk-supply and the improvement of the housing conditions of the people. Government had already arranged to give liberal assistance to local authorities to enable them to provide commodious and healthy dwellings. Finally, the Council would have to deal with the initiation and direction of research on all subjects affecting or relating to health. The war has shown how much could be done by organised research in the investigation and treatment of disease, and even better results should be obtained in times of peace.

Discussion.

At the conclusion of the address an informal discussion took place regarding the conduct of business to be transacted at future meetings. These are to be convened by the Minister or Chairman when required, at intervals of about three or four weeks. It was not proposed at present to call in witnesses or outside assistance in the framing of new legislation. The coördination under one department of the various health activities came up for discussion and the various phases of health administration that might be brought into the purview of the Medical Services Bill. The immediate appointment of consultative councils was not contemplated.

Mr. J. EWING JOHNSTON, on behalf of the veterinary services in Ireland, assured the Council of the assistance of the veterinary profession, and particularly of the North of Ireland Veterinary Medical Association, in obtaining data in regard to public health. Contagious and infectious disease spread from animal to animal, from animal to man, and from man to animal, and to deal with such matters he contended that a central authority was required, with uniform regulations to be enforced in a uniform manner.

Mr. Johnston was asked to prepare for a future meeting of the Council a memorandum embodying in detail his proposals.

HIS Majesty the King has been graciously pleased to accept a copy of the memoir of the late Captain William Howard Lister, D.S.O., M.C., R.A.M.C., written by Dr. Walter Seton. The memoir, which was reviewed in our issue of August 16th, has been privately printed by the Medici Society, and copies are obtainable from the Senior Clerk, University College, London.

THE COMING ELECTION TO THE GENERAL MEDICAL COUNCIL:

THE CANDIDATES SELECTED BY THE BRITISH MEDICAL ASSOCIATION.

THE British Medical Association decided at the annual Representative Meeting in July last to support the candidature, in the forthcoming election of four Direct Representatives for England and Wales on the General Medical Council, of Dr. R. A. Bolam, O.B.E., (Newcastle), Dr. J. A. Macdonald, LL.D. (Taunton), Mr. E. B. Turner, F.R.C.S. (London), and Sir T. Jenner Verrall, LL.D. (Bath).

The election address issued jointly by the candidates runs as follows:—

To the Registered Medical Practitioners of England and Wales.

LADIES AND GENTLEMEN,—Postponed from time to time on account of the war the election of four Direct Representatives for England and Wales to the General Medical Council will take place early in November, and we venture to ask for your support and votes.

When the election was last held, in 1911, the foremost place in medical politics was taken by the proposals for National Insurance which were on the point of being adopted. So now, and in still greater measure, the Ministry of Health will provide many and serious subjects for professional consideration.

Arising from this there will be, doubtless, aims, desires, and difficulties for the profession, of which the General Medical Council should be kept fully acquainted, and it is thought that knowledge acquired by experience in practice and by service on the Council and Committees of the British Medical Association should secure this most efficiently. Such training has been received by all of us who are making our joint candidature, and we therefore offer ourselves for election.

Of the dangers of unqualified practice the Council has always been fully cognisant, and loses no opportunity of bringing them to the notice of the Government. We should gladly lend this our earnest attention and support.

Though the Council is primarily concerned with the regulation of medical education, it will be recognised that the duty is bound up with the subsequent professional life of students and with all those matters which bear on the efficiency and interests of the medical practitioner. The establishment of a Ministry of Health makes this consideration still more urgent and important.

Should you do us the honour of electing us as your representatives it will be our great desire to do all in our power for the credit and welfare of the profession, and to justify your selection.

R. A. BOLAM,

Physician to Skin Department, Royal Victoria Infirmary, Newcastle-on-Tyne; Member Consultative Council of Ministry of Health on Medical and Allied Services; Member of Council, British Medical Association.

J. A. MACDONALD,

Representative Member General Medical Council; Member Consultative Council of the Ministry of Health on Medical and Allied Services; Chairman of Council, British Medical Association; formerly Chairman of Representative Meetings, British Medical Association.

E. B. TURNER,

Vice-Chairman, Central Medical War Committee; late Member of Advisory Board, Ministry of National Service; Member of Council, British Medical Association; late Chairman, Representative Meetings.

T. JENNER VERRALL,

Representative Member, General Medical Council; late Chairman, Central Medical War Committee for England and Wales; late Member Advisory Board, Ministry of National Service; Member of Council, and formerly Chairman of Representative Meetings, British Medical Association.

The following covering letter initialed by the candidates is also issued to the constituency:—

General Medical Council Election.

DEAR SIR (OR MADAM),—We are forwarding to you a copy of the "Election Address" issued by us jointly and request the honour of your support.

To two of us (Dr. Macdonald and Sir Jenner Verrall) the work of the General Medical Council is well known through several years of service as Direct Representatives, and we have all a full knowledge of professional duties and responsibilities gained in the course of general practice, and in public medical work. Dr. Bolam and Mr. Turner, who now seek your suffrages for the first time, have special claims arising from their experience in matters affecting the public health. They have also held, and still hold, important official positions in the British Medical Association.

At the last election, eight years ago, the Association thought well to put forward candidates who should receive its organised support, and these all secured the approval of the electors. It was believed that through the frequent discussions of medical politics by the Association the Direct Representatives might be given reliable information on the trend of medical opinion in the great problems of public health, and that the selection of those who were in constant touch with this source of information would be beneficial both to the public and the profession. It being determined that a similar selection of candidates should be made on the present occasion, we have been chosen by the Representative Meeting of the Association, an honour we greatly value.

It is our hope and desire that we may be entrusted with the duty of keeping the Council informed as to the mind of the profession generally in all the matters coming under the consideration of the Council; and this more particularly in those modifications of medical life and practice which are likely to follow the creation of a Ministry of Health.

On these grounds we ask not only for your vote, but for your assistance in securing the votes of your colleagues.

THE SYDENHAM AND THE ST. ALBAN'S MEDICAL DINING CLUBS.

A CONJOINT meeting of these two ancient dining clubs was held at the Grosvenor Hotel on Oct. 8th, under the chairmanship of Sir HENRY MORRIS, Bart., President of the St. Alban's Club, to celebrate the return to peace. It was their first meeting after an interval of 32 years, the previous one having been on the occasion of Queen Victoria's first Jubilee in 1887.

The Chairman's Address.

The CHAIRMAN, in proposing the toast of "The Clubs," said: "In spite of this apparent aloofness there is an inward bond of fellowship between them. They have one and the same object for their existence, and they are equally devoted to the memory of the great 'Father of English Medicine'—Sydenham. What used to be the 'Monday Club' is now known as the 'Sydenham,' and tradition has it that Sydenham was the first President of the St. Alban's Club. Both clubs have had the misfortune to lose their early minute books, so that the earliest extant written records date from 1775 in the case of the 'Sydenham,' and those of the St. Alban's from 1789.

Sydenham's Connexion with the St. Alban's Club.

Being desirous to find out, if possible, whether Sydenham's reputed connexion with the St. Alban's Club was consistent with known facts, and being aware that little or nothing is known of Sydenham's private life and personal history in London, I had recourse to the maps and plans of London made prior to and during his epoch. Bearing in mind that the St. Alban's Club is said to have derived its name from a street off Pall Mall in which the tavern was situated where the meetings of its members took place, and that Sydenham died on Dec. 29th, 1689, it was clear that if there was no St. Alban's-street in Sydenham's day either the tradition as to the origin of the name of the club or that of Sydenham's connexion with it as chairman must be rejected. I found that in no map or plan of London in the Tudor, the Commonwealth, or the Stuart periods—until towards the end of the reign of Charles the Second—was there anything more than a stray house in the open fields westward of the Haymarket and south of the line of Piccadilly which was then called the road to Redinge (Reading). But in a map published in 1680 by John Seller entitled 'A Map of the Cityes of London and Westminster, and the Burrough of Southwark, with their Suburbs, as it (sic) was rebuilt since the late dreadful fire,' as well as in the maps published throughout the eighteenth century down to Horwood's survey of London in 1792–1799, St. Alban's-street is shown as a broad and important thoroughfare exactly in the position now occupied by Waterloo-place at the lower end of Regent-street. It is quite possible, therefore, that the tradition that Sydenham was president of the St. Alban's Club at some time during the last eight or nine years of his life is correct.

Sydenham as the English Hippocrates.

It is interesting at the present juncture of medical history, when we are hearing a good deal said in disapproval of the rigid individualism of the profession, and a good deal more in favour of unremitting laboratory research work, to note that the sole object of these two clubs was to develop and maintain good fellowship between the three great branches of the profession by bringing physicians, surgeons, and general practitioners together in intimate social relations, and that the particular member of the profession with whose illustrious name and honoured memory each club has sought to associate itself is that of Sydenham—of Thomas Sydenham, the great bedside observer and pre-eminently *clinical* physician.

Sydenham has frequently been spoken of as the English Hippocrates, and many writers, for various reasons, have referred to him as the 'Emulator of Hippocrates.' Just as Hippocrates succeeded—at least during his own life time—in separating medicine from the wild, though erudite, philosophical doctrines of that time, and introduced an ennobling spirit and a high moral tone, together with great powers of intellectual observation and reasoning into the study and practice of medicine, so Sydenham, avoiding theological dogmas and vague philosophical speculations, made observation, experiment, verification, and the recognition of a 'plurality of causes,' the leading features of his practice and teaching. As he said of himself, the chief object of his life was 'to have the happiness of curing his patients and to reduce practice to a greater easiness and plainness,' and in the meanwhile not to rail at his enemies, opponents, and detractors.

Changes in the Corporate Body.

Gentlemen, in looking over the list of past and present members of any institution or corporate body with which we have long and closely been connected we cannot resist a sense of sadness at the losses in the personnel of membership; just as in passing along a street which has been familiar to us for a generation or more we cannot escape a twinge of melancholy when we think of the changes in the personnel of the inhabitants of the houses. These changes in the corporate body, like the changes which go on in our individual bodies as we advance from youth to manhood and from middle to old age, are so gradual and so intransient that we are prone to forget they take place. But there is this difference. In our own bodies, as we descend to old age, the impairment, though slow, is permanent, the loss of vigour is not made good, the depredations of time are not repaired, and deterioration goes on to actual decay; whereas in the corporate bodies the gaps are filled up, new blood takes the place of the old, and so vitality is maintained. In proposing the toast of the clubs I will therefore express the hope that it may be vouchsafed to every present member to enjoy good health, longevity, and happiness; and to the clubs, a vitality which will continue into the far, far distant future."

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

General Medical Council Election: The Candidature of Dr. Michael Dewar.

IN furtherance of his candidature as Direct Representative for Scotland on the General Medical Council, Dr. Michael Dewar, Edinburgh, addressed a largely attended meeting of the medical profession in the hall of the Aberdeen Medico-Chirurgical Society last week. He stated that he came forward as a general practitioner in actual practice. At present, he said, there were eight members from Scotland who were all consultants, specialists, or teachers, and there was an opportunity now of saying whether they wished to be represented by a specialist or by a general medical practitioner. In this connexion he referred to penal cases dealt with by the Council, where, he thought, if men knew that their cases were being considered and judged by a certain number of men who knew all the conditions of general practice, there would be less tendency on the part of these men brought up to feel that their cases were being dealt with harshly and unfairly. Dr. Dewar expressed himself as in favour of a fairly high standard of entrance examination for the medical curriculum and the compulsory inclusion of Latin. He felt that during the last few years there had been a tendency towards the lowering of the entrance examinations for the medical curriculum. He was strongly of opinion that there should be one improved system of admission, not only to the entrance examination to the medical curriculum, but also for registration; a minimum standard ought to be adopted and carried out by all examining boards. He also favoured total prohibition of unregistered dental practice, both in the interests of the profession and of the public. He was in favour of the maintenance and extension of the supervision over all professional examinations of the Council inspectors.

Scottish Mortality from Influenza, 1918-19.

In a supplement to the annual report of the Registrar-General for Scotland, Dr. J. C. Dunlop gives some interesting information regarding the extent of the influenza epidemic, and the mortality for which it was responsible. The period dealt with is from July, 1918, to April, 1919. The deaths reached their maximum in November, 1918, and during that month numbered 4272; the figure remained high until March, 1919, when there were 2529 fatal cases; in April, however, the deaths fell to 42, and as they thereafter remained low, the end of April may safely be used as an arbitrary date for the end of the epidemic. The total number of deaths ascribed to influenza was 17,575. The death-roll far exceeds that of all previous epidemics, not only of influenza but of any other infectious disease; only one, the scarlet fever epidemic of 1874-5, had a mortality amounting to more than one-quarter of that recently occasioned by influenza. The following comparative figures are of interest:—

Influenza, 1918-19...	17,575	Diphtheria (maximum epidemic mortality)	3,615
Measles (maximum epidemic mortality)	3,639	Enteric fever ,,	1,625
Typhus ,,	3,272	Small-pox, 1872	2,448
Whooping-cough ,,	3,212	Cholera, 1866	1,270

Another striking feature was the universality of the epidemic, there being only five small districts—the largest with a population of 1238—in which no deaths from the disease were recorded. The figure given is equivalent to an annual death-rate of 4·3 per 1000 of the estimated population. A comparison of the death-rate from all causes during the influenza period, with that of the corresponding period immediately preceding, shows an increase of 26,199; this figure suggests that the mortality attributed to the epidemic is probably understated. Apart from old age and infancy, the death-rate was highest between the ages of 25 and 35, while it was lowest between 5 and 15. By far the most important complication was pneumonia, which was certified as present in 63·93 per cent. of the fatal cases.

University of Aberdeen: Opening of Medical Classes.

The medical classes of the University of Aberdeen opened on Oct. 9th for the winter session. The exact numbers are not as yet known, but the enrolments for the various classes are very large; the class-rooms will all be crowded. Professor C. R. Marshall, of the department of materia medica and therapeutics, delivered his inaugural lecture to a large audience of students and others, and other opening lectures were given.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENT.)

Infant Life in India.

LECTURING before the Bombay Presidency Women's Council on "The Police and Women" Mr. F. C. Griffith, Commissioner of Police in Bombay, said that the three chief ways in which women could help the police were in regard to women criminals, infanticides, and the social evil. The lecturer declared that the present state of affairs regarding infanticide was a terrible blot on Indian social life. The extent of the evil was appalling, and the police were practically powerless in the matter. Many of the cases were impossible to detect. When a conviction was obtained the comparatively lenient punishment imposed was not an efficient deterrent. He affirmed that children were entitled to the same protection from the law as adults, but in India no one seemed to consider this point of view, and the matter remained in the hands of the unfortunate mother and her associates. Much of the infanticide so prominent in Bombay, he thought, was due to the social custom in India which forbade the remarriage of widows. He looked for the formation of a strong public opinion which alone could put a stop to the appalling loss of infant life, and hoped that social workers would devote their energies to the formation of such opinion and to the development of public conscience in the matter.

A paragraph in the health report of Bombay city calls for attention. It is as follows: "The number of live births registered (in the three months reported on) was 4546. It exceeded the average of the corresponding quarters of the preceding decennium (1909-18) by 87. The number of deaths among infants was 4213." Of course it does not mean that of 4546 born 4213 died and only 333 survived more than three months. But it does show an infant death-rate which is a disgrace to a big city which boasts of a very high standard of civilisation.

Influenza in Madras.—Peace Memorial.

Influenza has recently made itself sufficiently serious to lead to grave anxiety on the part of the medical authorities. The corporation propose spending Rs.15,000 on precautionary and relief measures. The opening of depôts for the supply of drugs and of gruel and other similar foods for those who have fallen victims are the main features of these measures. Provided Eastern prejudice against Western medical methods can be overcome—and to this end a publicity campaign is being inaugurated—there should be a good chance of keeping the epidemic within bounds. Recently a meeting was held of a number of the leading medical men of the city, under the chairmanship of Colonel C. Donovan, I.M.S., at which, after the municipal health officer had given a short history of the last two waves of influenza, ways and means were discussed for minimising the epidemic. The chairman expressed the opinion that financial help should be forthcoming from the Government. A strong committee was elected to carry out the objects of the meeting, including representatives of the medical profession from the ranks of the I.M.S. and Indian practitioners.

The Peace Memorial for the Madras Presidency will consist of a building which will afford a home for the Madras Health Association and for other societies working for the improvement of the general conditions of living in Southern India.

Bengal Jails.

The report by Sir Walter Buchanan for the year 1918 is his "seventeenth and last," as he is now in England with the Ministry of Health. It deals with a year when jails were handicapped by shortage of establishment, disorganised by increased demands on their factories owing to the war, upset by the influenza epidemic, and struggling with that most serious of all difficulties, an inadequate and inefficient warder staff. During his association with the Bengal Jail Department Inspector-General Buchanan has witnessed many changes and many improvements. From a yearly average of over 65 per mille mortality has decreased to 20, and the Bengal jails, despite the evil reputation of some of the malarious riparian districts, are now among the healthiest in India. In fact, the present death-rate is maintained largely, we are told, by "the number of prisoners under trial who come ill to jail and die," for whose health, of course, the jail authorities have no responsibility.

Medical Scholarships for Indian Women.

The Government of India has awarded the State scholarship tenable in Europe by Indian women medical graduates to Miss Gulzar Mahomed Ali, M.B., B.Sc. (Allahabad). A special similar scholarship has been awarded to Miss Gulbai P. Patel, M.B., B.Sc. (Bombay).

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The French Congress of Surgery.

THE twenty-eighth Congress of Surgery in France was opened in Paris on Oct. 6th in the buildings of the Faculty of Medicine, under the presidency of Dr. Walther, surgeon to the Hôpital de la Pitié, and supernumerary professor to the Faculty of Medicine. The gathering was most distinguished, and comprised an unusual number of provincial and Belgian surgeons, as well as some from Switzerland and Italy. The President in his opening address spoke of the progress in surgical technique due to the war, and paid a tribute to the memory of many fallen surgeons. In the absence of M. Mourier, Secretary of State to the Service de Santé, Surgeon Inspector-General Toubert took his place, and in the course of his address welcomed the continuance of that collaboration between civilian medicine and the military health department, which had proved so fertile during the war. After the annual report of the French Association of Surgery had been read by Professor J. L. Faure, the technical part of the session began by the reading of the papers by MM. Jeanne (of Rouen) and A. Mouchet (of Paris) on the first subject before the meeting—closed traumatic lesions of the wrist. The session on the next day was devoted to the study of diverse questions: anæsthesia, heliotherapy in the treatment of war wounds, grafts, and various forms of plastic surgery. The third day was reserved for the study of the second question on the agenda—the operative treatment of cancer of the tongue—after the paper by MM. Lebileau (of Paris) and Vallas (of Lyons) had been read. The mornings were devoted to operating demonstrations in the principal surgical departments of the Paris hospitals. Among the most original communications was one by Dr. Voronof, who has grafted bits of testes into old animals and observed the renewed vigour of their sexual functions. He hopes to be able to apply these experiments to man. A communication by M. Roederer dealt with misdeeds in the surgical practice of German surgeons on prisoners of war, while M. Barbarin described his experience of bone-grafting in Pott's disease. At the end of the congress there was established, on the initiative of Dr. Reynès (of Marseilles), a professional union of physicians and surgeons attached to Paris hospitals, with the object of upholding their rights against abuse by administrators of hospitals and of Friendly Societies.

Strikes and Hygiene.

At the beginning of October a strike broke out among municipal employees in the outskirts of Paris. All services connected with the town-halls, such as registration of births, deaths, and marriages, and the water-supply, were suspended for several days. In many parishes there was no water in the houses, and the inhabitants had to supply themselves from public fountains. As the weather was very hot at that time many people used the water of the Seine, of the Marne, or of small springs. The resulting typhoid epidemic which has just broken out in those parishes in which water was lacking furnishes a new proof of the danger of the deliberate neglect of public duty at a time when all the elements of modern city life are separately and jointly necessary for the work of the others.

Natural Prophylaxis as regards Malaria.

At the Academy of Science M. Roubaud showed that the reason why malaria is not more virulent in our country is that the anopheles tends to bite animals in preference to man. Wherever the ox, the horse, or, above all, the pig, are easily accessible man is relatively spared. Wherever the fauna is sparsely distributed, as in the marshy regions of the Vendée, the anopheles, if abundant and unable to find sufficient nourishment in domestic animals, attacks man. An experiment in this connexion was made in the Island of Anticosta, where malaria has disappeared in man since the introduction of animals in abundance, and especially pigs and Virginian stags.

Arsenobenzol as Abortive Treatment of Syphilis.

Continuing experiments performed in England on this subject, MM. Fournier and Guénot have just concluded a demonstration on the same lines, establishing the value of "606," not only as a cure, but as a means of preventing the development of syphilis. They administered a small dose to 40 women who some days before had been in contact with syphilitics at the infectious stage. Not one of the women thus treated showed the slightest sign of syphilis. On the other hand, five women who had been exposed to the infection under identically similar conditions and who had refused abortive injections, became infected with syphilis at the end of the normal incubation period of 20 to 30 days. These experiments may have consequences all the more important in that syphilis has unfortunately become much more prevalent since the war. They tend to prove that treatment by arsenobenzol, applied during the incubation period, is capable of preventing the eruption of syphilis.

ASSOCIATION OF INFANT WELFARE AND MATERNITY CENTRES, Tavistock-square, London, W.C.—A conference of medical officers of infant welfare and maternity centres will be held on Friday, Oct. 24th, at 6 P.M., at Bedford College for Women, Regent's Park, N.W., to discuss the feeding of infants and young children in view of the shortage and high price of cow's milk. Special reference will be made to the use of dried milk and patent foods.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

A quarterly meeting of the Council was held on Oct. 9th, Sir George Makins, the President, being in the chair.—The Secretary reported the death on Sept. 6th, at the age of 78, of Mr. Thomas Pickering Pick, past Vice-President and past member of the Council and of the Court of Examiners. The following resolution was passed :—

> "The Council hereby express their deep regret at the death of Mr. Thomas Pickering Pick, past Vice-President of the College, and their sincere sympathy with the members of his family in the loss which they have sustained. The Council do also record their grateful remembrance of the many services rendered by Mr. Pick to the College in the conscientious discharge of the several duties which devolved upon him as Vice-President, member of the Council, and of the Court of Examiners."

The thanks of the Council were given to Mr. Scoresby Routledge for presenting to the College a collection of skulls and skeletons from Easter Island.—Mr. F. F. Burghard, on behalf of the committee on the annual report of the Council, submitted a draft copy of the report to be presented to the Fellows and Members at the annual meeting on Thursday, Nov. 27th. The report was approved.—The President reported that the first Thomas Vicary lecture would be delivered by Sir John Tweedy on Wednesday, Dec. 3rd, at 5 P.M., when the Lord Mayor-elect, Sir Edward Cooper, Master of the Barbers' Company, proposed to be present, and that the Bradshaw lecture on the Surgery of the Heart would be delivered by Sir Charles A. Ballance on Thursday, Dec. 11th, at 5 P.M.—The chairman of the Court of Examiners called the attention of the Council to the necessity of discontinuing for the time being the examination in operative surgery for the Fellowship in view of the extreme shortage of bodies for dissection. It was referred to the Court of Examiners to arrange an examination to take the place of the examination in operative surgery during the continuation of the difficulty in obtaining bodies.—A letter was read from the Minister of Health thanking the College for assisting him in the exercise of his responsibility for appointing the Consultative Council in England on Medical and Allied Services and enclosing the list appointed.

URBAN VITAL STATISTICS.

(Week ended Oct. 11th. 1919.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at 16.500,000 persons, the annual rate of mortality, which had increased from 10·4 to 12·0 in the four preceding weeks, further rose to 12·2 per 1000. In London, with a population slightly exceeding 4,000,000 persons, the annual death-rate was 13·0, or 0·8 per 1000 above that recorded in the previous week, while among the remaining towns the rates ranged from 5·3 in Barrow-in-Furness, 5·9 in Edmonton, and 6·0 in Leyton, to 19·5 in Great Yarmouth, 21·0 in Stockton-on-Tees, and 22·0 in South Shields. The principal epidemic diseases caused 364 deaths, which corresponded to an annual rate of 1·1 per 1000, and comprised 222 from infantile diarrhœa, 53 from diphtheria, 31 from measles, 28 from whooping-cough, 22 from scarlet fever, and 8 from enteric fever. Measles caused a death-rate of 1·5 in South Shields and 1·8 in Tynemouth. The deaths from diarrhœa were 70 below the number in the previous week, and included 184 in London, 18 in Liverpool, 9 in Sunderland, and 7 in Leeds. There were 1968 cases of scarlet fever and 1290 of diphtheria under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, against 1796 and 1206 respectively at the end of the previous week. The causes of 25 deaths in the 96 towns were uncertified, of which 7 were registered in Birmingham and 3 each in Liverpool, South Shields, and Gateshead.

Scotch Towns.—In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2,500,000 persons, the annual rate of mortality, which had been 10·5, 11·9, and 10·8 in the three preceding weeks, further fell to 10·2 per 1000. The 216 deaths in Glasgow corresponded to an annual rate of 10·1 per 1000, and included 7 from infantile diarrhœa, 5 from diphtheria, 2 from measles, and 1 each from enteric fever and whooping-cough. The 71 deaths in Edinburgh were equal to a rate of 11·0 per 1000, and included 3 from diphtheria, and 1 each from measles and whooping cough.

Irish Towns.—The 112 deaths in Dublin corresponded to an annual rate of 14·4, or 1·3 per 1000 less than that in the previous week, and included 6 from infantile diarrhœa, and 1 each from scarlet fever and diphtheria. The 104 deaths in Belfast were equal to a rate of 13·5 per 1000, and included 3 from infantile diarrhœa, and 1 each from enteric fever, measles, scarlet fever, and whooping-cough.

A MONTHLY RECORD OF ATMOSPHERIC POLLUTION.

METEOROLOGICAL OFFICE: ADVISORY COMMITTEE ON ATMOSPHERIC POLLUTION: SUMMARY OF REPORTS FOR THE MONTHS ENDING

Dec. 31st, 1918.

Place.	Rainfall in millimetres.	Metric tons of deposit per square kilometre.								
		Insoluble matter.			Soluble matter.		Total solids.	Included in soluble matter.		
		Tar.	Carbonaceous other than tar	Ash.	Loss on ignition	Ash.		Sulphate as (SO_3).	Chlorine (Cl).	Ammonia (NH_3)
ENGLAND.										
London—										
Meteorological Office	41	0·10	1·83	3·27	1·14	3·45	9·79	0·82	0·40	0·04
Embankment Gardens	44	0·55	14·24	24·08	4·42	8·67	51·93	4·81	0·99	0·27
Finsbury Park ...	65	0·04	1·15	3·90	3·07	5·39	13·55	[illegible]	0·64	0·09
Ravenscourt Park	56	0·03	1·88	3·93	2·53	3·94	12·31	2·08	0·53	0·13
Southwark Park	28	0·22	0·96	2·82	1·79	2·27	8·05	3·19	1·15	0·13
Victoria Park ...	38	0·06	0·75	1·52	3·83	7·94	14·10	1·22	0·44	0·03
Wandsworth Com.*	—	—	—	—	—	—	—	—	—	—
Golden Lane ...	55	0·13	2·14	2·75	1·74	4·14	10·91	1·87	0·73	0·20
Malvern*	—	—	—	—	—	—	—	—	—	—
Manchester—										
Whitworth Street (garden)	118	—	—	—	—	—	16·80	—	—	—
,, (roof of College)	116	—	—	—	—	—	15·90	—	—	—
Newcastle-on-Tyne	71	0·14	3·16	6·23	2·57	2·57	14·67	1·71	0·48	0·24
Rochdale	—	—	—	—	—	—	23·16	—	—	—
St. Helens	109	0·31	2·27	4·87	2·46	8·19	18·10	4·91	1·96	0·08
Southport—										
Hesketh Park ...	168	0·04	0·35	0·62	2·51	6·23	9·75	2·85	1·26	0·01
Woodvale Moss...	128	—	—	—	—	—	9·86	—	—	—
SCOTLAND.										
Coatbridge	82	0·13	2·54	6·71	3·75	6·44	19·57	4·76	0·35	0·15
Glasgow—										
Alexandra Park...	87	0·10	2·07	3·73	2·64	5·45	13·99	2·43	0·39	0·22
Bellahouston Park*	—	—	—	—	—	—	—	—	—	—
Blythswood-sq. ...	105	0·16	1·63	4·04	2·94	4·92	13·69	2·26	0·37	0·27
Botanic Gardens	116	0·13	1·78	4·24	2·64	8·37	17·16	2·88	0·37	0·17
Richmond Park*	—	—	—	—	—	—	—	—	—	—
Ruchill Park ...	116	0·11	1·85	1·87	3·38	4·62	11·83	2·40	0·32	0·25
South Side Park.	94	0·08	1·01	1·56	1·79	4·82	9·26	2·30	0·38	0·28
Tollcross Park* ..	—	—	—	—	—	—	—	—	—	—
Victoria Park* ...	—	—	—	—	—	—	—	—	—	—

Jan. 31st, 1919.

Place.	Rainfall in millimetres.	Metric tons of deposit per square kilometre.								
		Insoluble matter.			Soluble matter.		Total solids.	Included in soluble matter.		
		Tar.	Carbonaceous other than tar	Ash.	Loss on ignition.	Ash.		Sulphate as (SO_3).	Chlorine (Cl).	Ammonia (NH_3).
ENGLAND.										
London—										
Meteorological Office*	—	—	—	—	—	—	—	—	—	—
Embankment Gardens	43	0·12	2·68	5·64	4·12	6·24	18·80	3·86	0·82	0·13
Finsbury Park ...	[illegible]	0·07	1·05	3·02	4·89	11·31	20·33	[illegible]	0·89	0·22
Ravenscourt Park	79	0·07	1·16	2·12	[illegible]	5·13	12·40	3·08	0·88	0·18
Southwark Park...	52	0·06	1·59	3·80	5·81	7·18	18·44	6·28	0·86	0·41
Victoria Park* ...	—	—	—	—	—	—	—	—	—	—
Wandsworth Com.	6	Nil	Nil	Nil.	0·33	0·55	0·88	0·35	0·13	0·01
Golden Lane ...	66	0·14	2·84	3·24	1·59	4·23	12·04	2·05	1·08	0·19
Malvern*..	—	—	—	—	—	—	—	—	—	—
Manchester—										
Whitworth Street (garden)*	—	—	—	—	—	—	—	—	—	—
,, (roof of College)*	—	—	—	—	—	—	—	—	—	—
Newcastle-on-Tyne	60	0·24	5·87	8·84	2·03	6·33	23·30	2·15	0·76	0·13
Rochdale†	—	—	—	—	—	—	—	—	—	—
St. Helens	96	0·34	2·11	1·96	6·96	13·66	25·03	7·10	3·26	0·07
Southport—										
Hesketh Park ...	104	0·03	0·48	1·05	1·30	5·42	8·29	1·19	1·25	0·01
Woodvale Moss..	70	—	—	—	—	—	6·44	—	—	—
SCOTLAND.										
Coatbridge*	—	—	—	—	—	—	—	—	—	—
Glasgow—										
Alexandra Park‡	75	0·11	1·87	2·95	2·76	5·60	13·29	3·22	0·44	0·15
Bellahouston Park*	—	—	—	—	—	—	—	—	—	—
Blythswood sq. ‡	82	0·16	5·35	4·28	2·03	5·42	17·24	3·33	0·34	0·19
Botanic Gardens	94	0·12	4·16	4·16	2·71	7·29	18·44	4·32	[illegible]	0·17
Richmond Park*	—	—	—	—	—	—	—	—	—	—
Ruchill Park‡ ...	91	0·13	1·71	2·29	1·72	5·13	10·98	2·89	0·27	0·13
South Side Park ‡	88	0·09	1·10	2·22	1·03	5·00	9·44	2·19	0·26	0·04
Tollcross Park* ...	—	—	—	—	—	—	—	—	—	—
Victoria Park* ...	—	—	—	—	—	—	—	—	—	—

* No returns. (The Meteorological Office sample was partly lost owing to frost.) † Gauge interfered with. ‡ Lead present.

"Tar" includes all matter insoluble in water but soluble in CS_2. "Carbonaceous" includes all combustible matter insoluble in water and in CS_2. "Insoluble ash" includes all earthy matter, fuel, ash, &c. One metric ton per sq. kilometre is equivalent to: (a) Approx. 9 lb. per acre; (b) 2·56 English tons per sq. mile; (c) 1 g. per sq. metre; (d) 1/1000 mm. of rainfall.

The personnel of public health authorities concerned in the supervision of these examinations and of the analytical work involved remains the same as published in previous tables. The analyses of the rain and deposit caught in the gauge at the Meteorological Office are made in THE LANCET Laboratory.

Correspondence.

"Audi alteram partem."

CONJUGAL TUBERCULOSIS.

To the Editor of THE LANCET.

SIR,—The statistical figures which Dr. E. Ward brings forward in his paper in THE LANCET of Oct. 4th to prove conjugal infection seems to me neither conclusive nor convincing. All such statistics ignore the possibilities of chance association and the difficulties of tracing and diagnosing early cases. Mere presence of tuberculosis among married people or among those living under the same roof no more proves that one has infected the other than cases of gout, rheumatism, or toothache occurring among members of the same family or in the same house prove that they are infectious. The universal prevalence of tuberculosis among civilised countries and its commencement in childhood render worthless all statistical conclusions that bear upon conjugal infection. For if practically every civilised being is tuberculous a very large number of cases of the disease must occur among husband and wives independent of any infection, and if tuberculosis begins in early childhood no one can say when and how infection took place. Before we can form an opinion as to whether the marital relationship influences the occurrence of tuberculosis we must prove that its observed frequency is greater than the expected frequency.

After a careful and exhaustive study of the question Dr. Charles Goring came to the conclusion that "the correlation of infection of tubercular disease from association in marriage is both negative and insignificant—that is to say, healthy individuals are not, upon the evidence of our data, infected by marriage with tubercular mates." In my 20 years of sanatorium records we cannot honestly find that even in one half per cent. of cases the husband or wife infected the other. In my book on Pulmonary Tuberculosis (1910) I give three remarkable cases of working men's wives who nursed their consumptive husbands all through their fatal illness, but who nevertheless did not contract the disease. Many such cases of negative evidence have since multiplied.

The term "infection" is so loosely applied in connexion with tuberculosis that what is meant in many instances is a mere incidence or disposition of the disease occurring among persons living under the same roof, under similar social, economic, or unhygienic surroundings. Keeping in mind the universality of tuberculosis and its childhood commencement, if the prevalence of the disease is a little more common among the married people than others, all we can reasonably infer is that at least in a large majority of such cases the disease that has been lying latent for a considerable time has been roused into activity by the stress and strain of married life. Tuberculosis is so widely prevalent among the civilised communities that the idea of its infectious character has lost much of its meaning and potency. If the time spent in hunting after house infection, contact infection, and marital infection, we could devote in investigating the living problems of the present day—viz., the food problems, the social, economic, and psychologic problems that daily concern the individual and the nation—I am sure we would be rewarded in finding a true solution as to the relative merits of the various factors that underlie the causation of tuberculosis.

I am, Sir, yours faithfully,

Mendip Hills Sanatorium, Oct. 11th, 1919. C. MUTHU.

NURSE ANÆSTHETISTS.

To the Editor of THE LANCET.

SIR,—There is an aspect of this subject which your leading article of Sept. 27th does not envisage. To give a nurse the charge of the anæsthetic is to commit the offence of "covering." The General Medical Council has on more than one occasion visited with exemplary punishment medical practitioners who have administered anæsthetics for operations undertaken by unregistered persons, whether these latter assumed the rôle of a surgeon or a dentist. Presumably the converse—i.e., for a qualified person to seek the aid of an unqualified one to act as anæsthetist—is equally reprehensible. Such a procedure is allowed in cases of emergency when no qualified man is accessible, but this exception does not invalidate the law's contention that an act of covering is an indictable offence. It may be urged that in the practice of obstetrics a nurse is commonly called upon to assist with the anæsthetic, but even here the act is illegal, although perhaps condoned by custom, since an element of emergency arises in such cases and the medical attendant usually anæsthetises the patient, although he may allow the nurse to "carry on."

In present circumstances, committing the anæsthetic to a nurse, however highly trained, is to admit the principle of unqualified practice This leads to a very wide door being opened to unqualified practice by not only highly trained nurses, but by unqualified men and women whose training is less complete and whose ideals are less desirable. It may be considered by some that the individual acting as an anæsthetist should be merely an adjunct to the operator, but since the latter has quite enough to worry him if he gives his undivided attention to the operation, his supervision of the anæsthesia is only perfunctory and so useless as a safeguard against mischance. Those who know anything about modern anæsthesia recognise that the mere handicraft aspect of the subject is the least important. To be an anæsthetist one must be a physiologist, a physician and a surgeon, since the physiological knowledge compels familiarity with the action and interaction of the agents employed; the possession of a physician's acumen enables the anæsthetist to gauge the condition and resistive power of the patient towards the anæsthetics employed, while only surgical experience can enable the anæsthetist to know the requirements of the operator, the necessities of the operation and to really assist, qua anæsthesia, the surgeon's manipulative skill. Can any training short of the full medical curriculum really give an honest basis to the person who sets forth to learn how to anæsthetise?

It is futile to suggest that because some nurses and V.A.D.'s have proved themselves clever as handicraft anæsthetists, while many medical men have revealed inefficiency in this department of practice. that therefore the former class should be entrusted with the care of patients who have to face the risks of anæsthesia. No medical man withou special training is a satisfactory or safe anæsthetist Theoretically every medically registered person is competen to perform any major operation, give any anæsthetic, o undertake an iridectomy. However, comparatively few can do any of these things properly. Indeed, some bone-setter are better at the manipulative work than many surgeons but they lack the foundation of training in pathology necessary for the superstructure of the application of knowledg to practice. This is equally true as regards anæsthetics and their uses if we are to consult the best interests of ou patients.

I am, Sir, yours faithfully,

Oct. 12th, 1919. DUDLEY W. BUXTON.

To the Editor of THE LANCET.

SIR,—I think there is a risk when anæsthetics are adminis tered by a nurse greater than when they are administered b a qualified man. I have had considerable experience o the administration of anæsthetics by nurses during labour They have not been trained to watch for the smal warnings which a doctor looks out for almost instinctively and, as a result, I have had in my own practice three case which caused me anxiety. If one is busily engaged on cannot at the same time keep a very close eye on the nurs administering the anæsthetic, and I have laid down fo myself the rule that if a doctor is by any means available do not allow the nurse to give the anæsthetic.

What is true of labour cases is of more importance i abdominal operations when a badly administered anæstheti adds greatly to the danger and subsequent discomfort of th patient, and where only a competent and thoroughly traine anæsthetist knows how to prevent the straining which add so much to the difficulty of the operation.

My view is that if we allow anæsthetics to be administere by one who is not a qualified medical practitioner we ar subjecting our patient to a risk which is unnecessary in th majority of cases. If, however, the case is one of emergenc and a doctor is unavailable, we are justified in allowing th nurse to administer the anæsthetic under our own supe vision. In any case when an anæsthetic is administered by an unqualified person the doctor present must be held solely responsible for what happens.

I am, Sir, yours faithfully,
HERBERT WILLIAMSON.
Queen Anne-street, W., Sept. 29th, 1919.

TRANSMISSION OF INFECTIVE DISEASE BY SUCKLING.

To the Editor of THE LANCET.

SIR,—The publication of Dr. H. Heiman's case in your issue of Oct. 11th (p. 653), has brought to my recollection a case of typhoid in a nursing mother with a four months' old infant I had some 12 years ago. A positive Widal was present and an enlarged spleen and rose spots. There was no history of an analogous previous attack. As the child had been breast-fed for the first 10 days of the illness, during which time the disease was unrecognised, I yielded to the importunities of the mother and consented to the breast feeding being continued. The mother's illness ran a mildish course and she continued nursing right through it, and the child escaped infection.

Three years ago I attended a lady in her second confinement, which was quite normal. Twenty-four hours after, her temperature ran up and she exhibited a large crop of typical varicella spots. She then stated that she had noticed two spots on the abdomen on the day previous to her confinement. These spots also were found to be typical in character. On the beginning of the seventh day the infant developed a typical rash.

As the experience of years has shown the incubation period of varicella to be about 21 days, it seems to me that this case proves that the virus was transmitted via the placenta.

I am, Sir, yours faithfully,
Chiswick, W., Oct. 13th, 1919. H. O. BUTLER.

WAS ST. LUKE A PHYSICIAN?

To the Editor of THE LANCET.

SIR,—With respect to Professor H. J. Cadbury's opinion, quoted in the review of "The Style and Literary Method of Luke" in THE LANCET of Oct. 11th, that the use of medical terms by St. Luke does not justify the opinion of many scholars that he was necessarily a medical man, it is surely right to state that Harnack, whom he refers to, was the foremost biblical scholar in Germany, and declared that the evidence in favour of his professional knowledge was overwhelming. I would ask, Need we go further in discussing this matter than accept St. Paul's reference to his companion, "ὁ ἰατρός ὁ ἀγαπητός"?—I am, Sir, yours faithfully,

DYCE DUCKWORTH,
Oct. 12th, 1919. Vice-Provost, Guild of St. Luke.

IONISATION FOR SEPSIS.

To the Editor of THE LANCET.

SIR,—I think the article by Captain F. W. Baker Young in your issue of Sept. 20th and the letter by Dr. A. R. Friel in that of Oct. 4th need a comment by one who has long been interested in the effects of the constant current upon bacteria in liquids. In view of Captain Young's failure to find any description of apparatus for such observations may I call his attention to an article contributed by me to THE LANCET of July 3rd, 1909, on the Electrical Reactions of Bacteria. In this article a figure was given showing a slide which was filled with a bacterial suspension through which a current could be passed and the effects watched through a microscope. I also gave my reasons for abandoning such a method. Observations of that sort are liable to serious fallacy owing to the currents set up by surface tension variations and vortex effects due to the bursting of gas bubbles generated by the electric current. A second figure showed a simpler and better apparatus subsequently demonstrated at meetings of the Royal Society of Medicine, the British Medical Association's annual meeting, and at the Dresden Hygiene Exhibition in 1911 by Mr. Armit on my behalf.

Captain Young's results in the treatment of suppurating wounds by the use of electrolysis in saline solution confirm those obtained by Mr. C. R. C. Lyster and myself at the Middlesex Hospital in 1913, and mentioned in THE LANCET of Feb. 14th, 1914.

In regard to Dr. Friel's letter, when reporting my findings of these bacterial movements to the Royal Society, B, vol. lxxxi., 1909, I advanced the theory of an affinity between the chlorine ion and the bacterial envelope to account for the manifest movement. This theory is fortified by the observation that the velocity of the bacterial movement corresponds fairly well with the known ionic velocity. For the germicidal effect which soon ensued at the anode—when using sodium chloride as the electrolyte—one need, I think, invoke no more than the lethal effect of chlorine upon bacteria.

I am, Sir, yours faithfully,
CHARLES RUSS, M.B., M.R.C.S.
Beaumont-street, W., Oct. 11th, 1919.

FALLACIES IN THE MEASUREMENT OF BODY-WEIGHT.

To the Editor of THE LANCET.

SIR,—To weigh the body more often than once a day would be waste of time; and it is, at least, doubtful whether daily weighings, even in fever, are worth their trouble. The following remarks are not concerned with that question, nor with the conclusions based upon daily weighings in Dr. MacNaught Scott's note on Diurnal Variation published in your last issue (Oct. 11th). They deal merely with the fallacies incidental to the customary weekly or fortnightly weighings as usually conducted. Bearing in mind that more than half of the weight of the body (and likewise of all solid food) is water, any variations in weight may be regarded as due, for the greater part, to variations in its water content. It is well known that the kidney is at times capable of abstracting water from the blood with great rapidity. Under the nervous influence of a variety of stresses —emotional, thermal, bowel-regulating, and others—it often happens that within 10 minutes after thoroughly emptying the bladder a large quantity of urine is again discharged. That source of error in our reckonings is less difficult to avoid than that which arises from the daily variations in the output from the bowel. The remaining source of error is completely avoidable; it goes without saying that in all comparative clinical weighings the weight of the clothing should not be merely estimated approximately, but should be kept strictly identical. These considerations have led me to utilise the only opportunity within the 24 hours when optimum conditions can be secured in respect of those gross factors of error —namely, on rising from bed in the morning, before any thermal or other stresses have come in, before taking any food or drink, before evacuating the bowel; but always *immediately after* a complete emptying of the bladder, and always whilst wearing *the same* dressing-gown. This seems to be the best, and as I think the only reliable method for keeping a true record of genuine variations in body-weight. Even in hospital wards it can be carried out with little trouble if the weighing machine is mounted on wheels.

I am, Sir, yours faithfully,
Upper Brook-street, W., Oct. 11th, 1919. WILLIAM EWART.

THE POSITION AND PAYMENT OF THE PENSIONS BOARDS.

To the Editor of THE LANCET.

SIR,—In reply to the letter signed "Member of Pension Board" in your issue of Sept. 6th, complaining of the unnecessary amount of writing to be done by members of boards, may I remark that the possibility of the clerical staff doing more of this work is under consideration, I am informed. A letter has recently been circulated to this effect. The duplicate cards certainly give some extra work now, because, in order to fulfil their object, the summaries of all past boards have to be made and entered thereon; but when once this initial stage is passed writing work for the future should be much curtailed. All boards then would require the completion of only *one* A 36/C (which previously had to be rendered in duplicate), together with such summary as the president may see fit to dictate for each card. The suggestion that cards should be filled up in a quiet room by a capable medical man some time after the board would entail, I am given to understand, the addition of at least two medical men for each area of six boards. The objection that at present one or two pensioners less (per session) can be examined by each board should be counterbalanced later by the saving of time when the card-index system gets into proper working order.

The examining doctor who wishes to look at the man's past documents could do so before examination of the patient; many members of pensions boards prefer to investigate each case with an unbiased mind, and only after examination do they wish to compare their independent conclusion with that arrived at by previous boards.

I am, Sir, yours faithfully,

Oct. 2nd, 1919. ANOTHER MEMBER OF PENSIONS BOARD.

JOHN HUNTER'S BEARD AND MASK.

To the Editor of THE LANCET.

SIR,—Most medical men are familiar with Reynolds's great picture of John Hunter. It was painted in 1785 when Hunter was in his fifty-eighth year. When giving the centenary lecture to the Hunterian Society in the Apothecaries' Hall last week I had an opportunity of examining Reynolds's less-known picture of Hunter, which hangs there. A comparison of this picture with the greater work in the Council Room of the Royal College of Surgeons of England leaves no doubt that the picture in the Apothecaries' Hall represents a preliminary picture or sketch of the final and triumphant effort at the College of Surgeons.

One feature of the Apothecaries' Hall picture has puzzled students of Hunter, for there he is represented with a thin beard made up of long straggling hairs. I infer that Reynolds felt that a successful portrait was impossible until this beard had been got rid of, and therefore proposed that a plaster mask of his sitter's face should be taken—a proposal which would certainly have appealed to Hunter. At least we know that a mask of Hunter's face—one which is usually described as a death-mask, but has all the marks on it of a life-mask—was taken then at Reynolds's suggestion. William Norris, in the Hunterian Oration of 1825 (p. 35) states: "Whilst, however, Sir Joshua was engaged on this portrait, he requested Mr. Hunter to let a caste be taken from his face." The orator goes on to describe how this mask was discovered at a later date in a lumber-room and used by Chantry in fashioning his bust of Hunter. Hunter himself mentions the taking of this mask (Palmer's edition, vol. iii., p. 88); it gave rise to "the cells of the skin of the nose being loaded with extravasated blood," which he remarked soon turned from a "florid red to a dark purple."

I had come to the conclusion from a study of the mask itself that it had been taken during life before I came across the above records. But it was not until I again examined the picture at the Apothecaries' Hall that I realised the relationship between the cast and the beard. We have here, I think, an example of the adroit skill with which Reynolds could deal with his sitters. The beard had to go before the mask could be taken! There is the traditional story of Reynolds being dissatisfied with his earlier efforts and of his turning his canvas round and beginning his picture again. I think the straggling beard represents the real difficulty which had to be overcome.

I am, Sir, yours faithfully,

ARTHUR KEITH.

Royal College of Surgeons of England, Oct. 13th, 1919.

VASELINED LINEN THREAD.

To the Editor of THE LANCET.

SIR,—Linen thread prepared in the following simple manner has proved very satisfactory in my work both with the Salonika Forces and, since my return, in the Richmond Hospital, Dublin. Barbour's linen thread with a hard or "satin" finish is employed. Nos. 30, 60, and 90 are the most convenient sizes. I use the thread undyed, but if distinctive colours are desired the same quality thread can be had iron-dyed. The thread is loosely wound on glass reels, using a separate size or colour of reel for a particular thickness of thread. The reels are now sterilised in vaseline, which is slowly raised to 140° C. and kept at this temperature for 20 minutes. No special apparatus is necessary for this purpose. To facilitate the removal of the reels out of the hot vaseline I usually knot the thread round the reels, leaving a loose end, and grip all the ends together in an artery forceps. To remove aseptically the excess of vaseline from the thread the reels are next wrapped in sterilised gauze and placed in a drum, which is treated with the ordinary dressings in the steam steriliser. The thread is stored in spirit or biniodide-spirit.

Linen thread so prepared has a distinct but extremely delicate coating of vaseline which is present round every filament of the thread. As a ligature and suture material it has many advantages. It is not an irritant, being soft and pliable it is easily drawn into a tight knot and having a smooth surface it does not traumatise the tissues when used as a suture. It is very strong and keeps indefinitely. The absence of capillarity prevents infection passing along the thread. It is easily prepared and very pleasant to work with. Vaselined linen thread has been in constant use now for almost two years. I have personally employed it as a general ligature and suture material in more than 200 operations and have never had cause to regret its employment.

I am, Sir, yours faithfully,

Richmond Hospital, Dublin. R. V. SLATTERY, F.R.C.S.Irel.

THE LESSONS OF FAILURE.

To the Editor of THE LANCET.

SIR,—I am glad to see in THE LANCET of Oct. 11th Dr. H. Warren Crowe's article on Some Causes of Failure in the Vaccine Treatment of Arthritis, Rheumatism, and Neuritis, for two reasons: first, because the writer's idea of bringing forward causes of failure in more or less novel forms of therapeutics is well advised; and second, because when I was more in touch with general vaccine treatment than now I saw much of failure and little of success. I cannot agree with his regret at the number of cases of failure he expresses, for assuredly if a mode of treatment has in it some lasting value one well-reported failure is worth a dozen successes. A well-known practitioner of vaccine treatment is a pioneer, and a pioneer will "get there" none the worse, to say nothing of those who follow him, if he marks publicly his own wanderings from the best path in the country through which he has passed. Nothing strikes one more in the recent memoir of a great pioneer than the scrupulous care and open statement of his failures that strewed the pathway of Lister to truth that will never perish. What he had omitted to do, what he had done wrong were exposed in lectures, addresses, and at the bedside; they were *his* omissions and *his* failures. It is hard enough to read aright one's own failures, when ostensibly all the facts are known to us, but harder indeed to read those of other workers whose knowledge, skill, and care are unknown to us. I am led to say this because the writer gives only one example, which I suppose was a case of his own, under the five headings as to causes of failure, and that one is not a failure properly so-called but an instance of an experiment with this modern method, as, indeed, vaccine treatment in general is at present. This precaution will need to be observed closely in the other numerous forms of treatment that have emerged through the years of war. Let us, then, have cases of failure as well as causes of failure.

I am, Sir, yours faithfully,

Oct. 11th, 1919. M.D.

THE MEDICO-LEGAL SOCIETY.—In issuing the report and list of members of this society the honorary secretary pleads for new members now that the war is over, and states that offers of papers to be read at the society's meetings will be welcomed. The annual dinner will be held at the Holborn Restaurant at 7 P.M. on Wednesday, Oct. 29th, when several guests of eminence, both in law and medicine, are expected to attend. Tickets, 14*s.* each, may be obtained from the honorary secretary, 3, South-square, Gray's Inn, London, W.C. 1.

THE LATE MR. EBENEZER SNELL.—Ebenezer Snell, M.R.C.S. Eng., L.S.A., who died at his residence in Brighton on Oct. 13th, aged 76, was a student at Middlesex Hospital and qualified in 1864. After holding a house appointment at the Isle of Man General Hospital and Dispensary he became medical officer to the House of Industry at Douglas. He afterwards resided at Ketton, near Reading, and in 1891 went to Brighton, where he was one of the original members of the Royal Naval Volunteer Reserve, and held the rank of surgeon-lieutenant-commander in the Sussex Division. He was also Admiralty surgeon and agent. His son, Mr. J. P. B. Snell, has followed his father's profession, and is on the West African Medical Staff.

The Services.

THE HONOURS LIST.

THE following appointments and promotions for services rendered in connexion with the War are announced :—

K.C.M.G.—Col. and Hon. Maj.-Gen. R. S. F. Henderson, C.B., ret. pay (late R.A.M.C.); Temp. Maj.-Gen. Sir B. E. Dawson, G.C.V.O., C.B., A.M.S.

K.B.E. (*Military Division*).—Capt. and Bt. Lt.-Col. (temp. Col.) Sir H. J. Stiles, Kt., R.A.M.C. (T.F.); Lt.-Col. W. Thorburn, C.B., C.M.G., R.A.M.C. (T.F.); Lt.-Col. E. N. Thornton, C.B.E., S. Afr. M.C.

To be Honorary Colonel.—Lt.-Col. A. E. Morris, ret. pay, late R.A.M.C.

The following statements of services for the awards recorded in THE LANCET of March 29th are announced :—

Bar to Distinguished Service Order.

Major ORVIL ARD ELLIOTT, D.S.O., Canad. A. Dental Corps, attd. 5th Fld. Amb., Canad. A.M.C.—For conspicuous gallantry and devotion to duty in the area forward of Iwuy, N.E. of Cambrai, on Oct. 11th, 1918. On hearing that there were two wounded men lying in a road in front of our lines he collected a party of bearers and led them forward under heavy fire. It was through his personal efforts and disregard of danger that the wounded, numbering eight, were successfully evacuated, and he was without doubt the means of saving their lives.

Capt. (acting Lieut.-Col.) WILLIAM ROSS GARDNER, D.S.O., attd. 138th Fld. Amb.—He was in charge of all forward medical arrangements of the division for the period Oct. 4th, 1918, to Oct. 26th, 1918, first in front of Gheluwe, and then both west and east of Courtrai. During the period in question, night and day, he visited the rear aid-posts, relay and forward collecting posts, often under heavy shell fire and gassing, in order to personally ascertain that the work of evacuation was proceeding satisfactorily. He showed great gallantry and ability, and his devotion to duty saved many lives.

Lieut.-Col. DANIEL PAUL KAPPELE, D.S.O., 5th Fld. Amb., Canad. A.M.C.—For conspicuous gallantry on Oct. 12th, 1918, in the vicinity of Iwuy, N.E. of Cambrai. He drove a car to the forward area through shell fire, which wounded him and others. He proceeded to dress the wounds of the others, directing and assisting in their removal to a place of safety. It was not until all were attended to and removed from danger that he allowed himself to be taken away and suffered his own wounds to be dressed. He showed great pluck and devotion to duty. (D.S.O. gazetted June 3rd, 1918.)

Lieut.-Col. THOMAS McCRAE LEASK, D.S.O., 10th Fld. Amb., Canad. A.M.C.—During recent operations in front of Cambrai he was given the task of clearing the wounded of a division. For five days on end he worked with untiring energy and absolute disregard for personal danger. On the night of Sept. 30th–Oct. 1st he, with the help of a near-by N.C.O. and one of the wounded drivers, succeeded in rescuing patients from a burning car, and had them immediately evacuated. His conduct throughout was admirable.

Distinguished Service Order.

Capt. (acting Lieut.-Col.) WILLIAM WALLACE BOYCE, No. 2 Fld. Amb., R.A.M.C.—For great gallantry, initiative, and resource in personally supervising the evacuation of casualties during the operations on Nov. 4th, 1918, near Petit Cambresis. He effected the rapid removal of wounded across the Sambre Canal under very difficult circumstances and considerable shell and machine-gun fire. On one occasion, when his advanced dressing station was blown in by shell fire, he personally reorganised his stetcher-bearers in a new site, inspired confidence in his officers and men, and undoubtedly saved many wounded under heavy fire.

Major ROBERT FULTON CRAIG, 15th Fld. Amb., Aust. A.M.C.—For conspicuous gallantry and devotion to duty in charge of the bearer division near Bellicourt, from Sept. 29th to Oct. 2nd, 1918. During the whole of this period he rendered valuable service, and by his coolness and initiative surmounted all difficulties under most trying conditions. He not only worked the evacuation of wounded from rear aid-posts of his own brigade, but he personally reorganised the evacuation from other brigades under very heavy shell and machine-gun fire.

Capt. (acting Lieut.-Col.) WILLIAM HILGROVE LESLIE McCARTHY, M.C., attd. 19th Fld. Amb.—During the operations connected with the crossing of the Sambre, Nov. 4th to 8th, 1918, he exhibited marked gallantry and devotion to duty. He was in command of the advanced dressing station and maintained the closest touch with the front-line troops, arranging for the immediate evacuation of casualties as they occurred. He worked continuously for three days and three nights, and his energy, able management, and devotion to duty saved many lives.

Temp. Capt. CLARENCE RANDOLPH YOUNG, M.C., attd. 1st Bn., Shrop. L.I.—On Sept. 18th, 1918, when the battalion had suffered very heavy casualties, he followed up and remained close behind the front line and in ground swept by the enemy's machine-gun fire, and exposed to artillery fire, spent the whole day tending and clearing the wounded; and on the following morning he went up, and, after spending some hours in No Man's Land, he got in several wounded men. By his gallantry and devotion to duty he undoubtedly saved many lives.

Second Bar to Military Cross.

Temp. Capt. (acting Major) GEORGE RANKINE, M.C., D.A.D.M.S., 9th Divn.—He was constantly with the fighting troops on Sept. 28th, 29th, and 30th, 1918, during the active operations, organising and assisting field ambulance bearers and regimental medical officers in establishing evacuation routes for the clearing of casualties out of the danger zone. He displayed great gallantry and devotion to duty near Deerlyck in this occupation, and his initiative and zeal saved many lives.

Bar to Military Cross.

Capt. JAMES EVERETT BARRY, M.C., Canad. A.M.C., attd. 2nd Canad. Bn., E. Ontario Regt.—For great gallantry and devotion to duty during the successful operations north of Bourlon Wood on Sept. 27th, 1918. Throughout he worked unceasingly under heavy fire from machine-guns and artillery. He made three trips to the outpost line to attend to wounded men. All wounded within the area fought over by this unit on Sept. 27th were cleared shortly after the objective had been gained.

Temp. Capt. MICHAEL CHARLES BURKE, M.C., attd. 2nd Bn., Dur. L.I.—In the operations in the vicinity of Holnon on Sept. 18th/24th, 1918, he displayed conspicuous gallantry and devotion to duty. Having dealt with all cases at his aid-post, he led out stretcher-bearers, and, under machine-gun and shell fire, collected more wounded. His search led him into an enemy-held trench, where he only desisted when bombed out. His efforts and his fine example were instrumental in saving many lives.

Temp. Capt. GEORGE MILNE CAMERON, M.C., attd. 65th (W. Lancs.) Fld. Amb.—From Oct. 23rd to 25th, 1918, during the heavy fighting about Oviliers and Poix du Nord, he, as bearer officer, showed the highest devotion to duty. He kept in constant touch with his R.A.P., and several times led bearer squads through intense shell fire to clear wounded. For 36 hours he worked without sleep and practically without food till the wounded were cleared. He saved many lives and showed great gallantry.

Capt. FREDERICK THOMAS CAMPBELL, M.C., Canad. A.M.C., attd. 8th Can. Bn., Manitoba R.—For great gallantry and devotion to duty. During the attack east of the Canal du Nord on Sept. 27th/28th, 1918, he continuously attended the wounded whilst exposed to severe enemy fire. On Sept. 29th, 1918, in an attack east of the Douai-Cambrai road, he worked coolly and fearlessly in the open for 14 hours. His fearless devotion to duty saved many lives.

Capt. HENRY CLARKE DAVIS, M.C., 10th Fld. Amb., Canad. A.M.C.—He was in charge of the evacuation of wounded from the forward area during the fighting in front of Cambrai, commencing Sept. 28th, 1918. He formed routes of evacuation under heavy machine-gun and shell fire. He guided parties of stretcher-bearers in front of the regimental aid-posts at St. Olle and Sailly, and collected many wounded men. Throughout he showed great gallantry and devotion to duty.

Lieut. (temp. Capt.) WILLIAM HAIG FERGUSON, M.C., attd. 8th Bn., R. Berks. R.—For marked gallantry and devotion to duty. On Oct. 23rd, 1918, during the attack in front of Le Cateau, he was wounded in the left leg whilst attending to casualties. In spite of the wound he carried on attending to the wounded under a heavy barrage. Later, when his temporary dressing station was blown in by a gas shell, he assisted to extricate the wounded, who were in danger of suffocation.

Lieut. (acting Major) JAMES LA FAYETTE LAUDER, D.S.O., M.C., 138th Fld. Amb.—For conspicuous gallantry and marked devotion to duty during the operations, Oct. 14th to 20th, 1918, as Officer in charge Forward Bearer Officers of Brigades. He worked continuously, personally directing the evacuation of wounded from the regimental aid-posts east of Courtrai, wherever the casualties were heaviest, encouraging the bearers and setting a splendid example, under heavy fire, to those under him.

Capt. (acting Major) HERBERT BRUCE LOW, M.C., 2/2nd (North'bn.) Fld. Amb.—For conspicuous gallantry and devotion to duty. During the attack, Oct. 3rd to 8th, 1918, on Gouy and Le Catelet, he was in charge of bearers and forward posts. Whilst under considerable shell and machine-gun fire he went forward, visiting regimental medical officers, reconnoitring for forward bearer posts, and supervising the evacuation of wounded from the forward area, keeping up a complete chain of evacuation.

Capt. HARRY CLARKE MOSES, M.C., 5th Fld. Amb., Canad. A.M.C.—During the operations north of Cambrai, Oct. 9th, 1918, he was in charge of the stretcher-bearers evacuating the wounded of an attacking infantry brigade He personally led his parties close behind the advancing infantry under severe shell and machine-gun fire. Owing to his fine example of cool courage and energy the evacuation of wounded from difficult and dangerous positions was rapidly accomplished.

Temp. Capt. JAMES CARTER OGILVIE, M.C., attd. 1st Bn., Bord. R.—For conspicuous gallantry and devotion to duty near Hoogemolen on Oct. 22nd, 1918. During an attack, when many regimental stretcher bearers had been knocked out by machine-gun fire, he organised a party of bearers and took them out himself, searched the ground for wounded, dressed them under very heavy fire, and evacuated them. He worked incessantly for a period of five hours, until every man had been dressed and evacuated.

Temp. Capt. JOHN RODGER, M.C., attd. 1st Bn., Bord. R.—For conspicuous gallantry and devotion to duty. During the attack, Oct. 3rd to 8th, 1918, on Gouy and Le Catelet, he was in charge of bearers and forward posts. Under considerable shell and machine-gun fire he went forward, visiting regimental medical officers, reconnoitring for forward posts, and supervising the evacuation of wounded from the forward area, keeping up a complete chain of evacuation. By his energy and zeal he saved many lives.

Capt. (acting Major) JAMES BETHUNE SCOTT, M.C., attd. 16th Fld Amb.—For conspicuous gallantry and untiring devotion to duty during operations near St. Quentin, between Sept. 18th/26th, 1918. He was bearer officer with the 16th Infantry Brigade. He personally kept touch with the R.A.P.'s in spite of heavy hostile machine-gun and rifle fire. It was mainly due to the skilful dispositions of his bearers that the wounded of this brigade were evacuated so speedily and satisfactorily.

Temp. Capt. DAVID CAMPBELL SUTTIE, M.C., attd. 1/2nd (N. Mid.) Fld. Amb.—Near Bohain he had charge of the bearers and bearer relay posts along the Bohain-Vaux-Andigny road during the attack on Oct. 17th, 1918. He used great skill and judgment in choosing his bearer posts, and also in keeping in touch with regimental medical officers in front. He set a fine example to his men by his fearless devotion to duty, and it was mainly through his efforts that the great majority of the wounded were brought in to the advanced dressing station.

Temp. Capt. GWELYM DAVID WATKINS, D.S.O., M.C., attd. 2nd Bn., W. Rid. R.—During the operations on Oct. 24th, 1918, on the high ground east of Verchain, he displayed great courage and devotion to duty in establishing his aid-post as close as possible behind the front-line troops. Very shortly after the first objective had been gained he proceeded to search for wounded with organised stretcher parties under continuous shell fire, and by his prompt attention and splendid organisation many lives were undoubtedly saved.

Temp. Capt. WILLIAM BROCKIE WILSON, M.C., attd. 1st Bn., Devon R.—For gallantry and devotion to duty during the operations near Braistre, Oct. 20th to 23rd, 1918. During this period his battalion came under very severe enemy shell fire and a very severe gas bombardment. He worked unceasing for 36 hours in his R.A.P., where the gas was strong, and it was absolutely due to his pluck and inexhaustible energy that the evacuation of the casualties of two battalions was carried out without hitch.

The Military Cross.

Capt. LESLIE THOMAS ALSOP, 10th Fld. Amb., Austr. A.M.C., attd. 39th Bn., Austr. Inf.—On Sept. 29th, 1918, east of Ronssoy, he established an R.A.P. close to Gillemont Ruins, then held by the enemy, and, under heavy fire, tended the wounded. For 48 hours he was continuously at work organising stretcher parties and dressing the wounded.

Capt. JOSEPH RINGLAND ANDERSON, Austr. A M.C., attd. 45th Bn., Austr. Inf.—For conspicuous gallantry and devotion to duty during the attack west of Bellenglise, north of St. Quentin, on Sept. 18th, 1918. During a protracted advance he established his R.A.P well forward in the open, and continued with cool courage to attend the wounded under heavy shell fire. His efforts saved many lives.

Capt. (acting Major) HENRY MERRIL BARRETT, No. 2 Fld. Amb., Canad. A.M.C.—During Sept. 27th, 28th, 29th, 1918, he was in charge of clearing and evacuating wounded during Bourlon Wood operations. During this period he displayed cool courage under fire and keen devotion to duty, establishing his advanced dressing station close to advancing infantry, and making reconnaissances of forward roads under shell fire, thus enabling ambulances to get forward and save life.

Temp. Capt. HAROLD JOHN BENSTED, 140th Fld. Amb. (attd. 138th Fld. Amb.).—For gallantry and untiring energy during the period Oct. 16th to Oct. 20th, 1918, and attacks delivered in the neighbourhood of Courtrai. He personally directed the collection and evacuation of wounded from regimental aid-posts of different units. On one occasion he worked continuously for 48 hours, maintaining touch with regimental medical officers and forming new lines of evacuation of wounded under most difficult conditions of open warfare and rifle and machine-gun fire.

Temp. Capt. GIDEON ALBERTYN BEYERS, S.Afr. M.C., attd. 1st Bn., S. African Infy.—During the operations from Oct. 8th to 19th, east of Beaurevoir, and at Le Cateau, he showed great energy and gallantry in attending the wounded under heavy shell and machine-gun fire. On Oct. 8th he worked incessantly for nearly 24 hours attending to a very large number of cases. On Oct. 17th–18th he again did splendid work, and did not spare himself in any way, and was the cause of saving a great number of lives.

Capt. WILLIAM JOHNSTONE BINNS, Austr. A.M.C., attd. 33rd Bn., Austr. Infy.—For conspicuous gallantry and devotion to duty during the operations near Bony, from Sept. 29th to Oct. 2nd, 1918. Throughout he was untiring in his efforts, and worked with the greatest zeal. Altogether he established four different aid-posts, all close to our leading troops. He attended wounded in the open under heavy fire, and by his fine devotion to duty saved many lives.

Temp. Capt. GAVIN STIELL BROWN, attd. 1/4th Bn. Leic. R., T.F.—For conspicuous gallantry and devotion to duty whilst tending wounded on the morning of the attack of Sept. 29th, 1918, near Bellenglise, under very heavy shell fire. He showed an absolute disregard for personal danger, both at that time and subsequently during the action.

Temp. Capt. (acting Maj.) SAMUEL BURNSIDE BOYD CAMPBELL, 108th Fld. Amb.—For conspicuous gallantry during the attack east of Ypres on Sept. 29th, 1918, and subsequent days. He was in command of all the stretcher-bearers of the divisional field ambulance for 12 days, and the fact that all wounded were rapidly collected and cleared was largely due to his energy and efficient organisation. Throughout he showed fine devotion to duty.

Temp. Capt. JOHN SAWERS CLARK, attd. 15th Bn., R.I. Rifles.—For conspicuous gallantry and devotion to duty. On Oct. 14th, 1918, near Dadizeele, his aid-post was partially blown in and the entrance blocked. He at once set to work under shell fire and cleared the entrance and removed the wounded who were there to a safer place. Throughout he behaved splendidly in attending and helping the wounded under the most trying conditions at all times.

Temp. Capt. GEORGE OLIVER CONNELL, attd. H.Q R.E., 41st Div.—For marked gallantry and devotion to duty at Courtrai on the night of Oct. 19th/20th, 1918, when he went forward with a field company of R.E.'s to the bank of the River Lys, remained with them throughout the bridging operations, and though in an exposed position and subjected to intense enemy shelling, dressed the wounded, and by his fine devotion to duty saved several lives.

Capt. LAMBERT DOUGLAS DENSMORE, Canad. A.M.C., attd. No. 1 Fld. Amb.—For conspicuous gallantry and devotion to duty during the Bourlon Wood operations, Sept. 30th, 1918. He went forward to collect and evacuate considerable numbers of wounded who were lying in the vicinity of the Douai-Cambrai road, east of Heynecourt, and succeeded in evacuating them to the advanced dressing station.

Temp. Capt. CEDRIC LEWIS DOLD, attd. 1st Bn. S. Wales Bord.—Throughout the operations near Pontruet and Thorigny on Sept. 29th/30th, 1918, he carried out his work with great gallantry and devotion to duty. He constantly visited the front line under heavy machine-gun and shell fire to personally superintend the evacuation of the wounded, and never spared himself for a moment in anything that could promote the welfare of the battalion.

Temp. Capt. (acting Major) JAMES ANGUS DOULL, 103rd Fld. Amb., R.A.M.C.—For conspicuous gallantry and devotion to duty on Oct 14th, 1918, as divisional bearer officer. He personally directed the clearing operations, and, by his powers of organisation, successfully cleared over 400 casualties. He kept in close touch with all regimental aid-posts situated in the vicinity of Gheluwe and the area east of the village, conducted bearer reinforcements, and encouraged his detachment to further efforts under constant heavy shell fire.

Temp. Capt. (acting Major) STANLEY FENWICK, 16th Fld. Amb.—For conspicuous gallantry and devotion to duty during the operations near St. Quentin, Sept. 17th/26th, 1918. He was in command of a field ambulance which was evacuating from a divisional front. Under heavy shell fire he supervised the removal of patients to a place of safety, thereby saving many lives. He also visited all posts of the line by day and night, controlling and directing the bearers in their duties of evacuation.

Capt. ALBERT GRANT FLEMING, Canad. A.M.C., attd. 4th. Canad. Inf. Bn.—During the attack of Sept. 27th, 1918, he displayed great gallantry and devotion to duty. He established his aid-post for the attack in the extreme eastern portion of Inchy within 400 yards of the enemy outpost line, and occupied this position during the night, despite a heavy high-explosive and gas bombardment, in order to be as close as possible to the attack.

Capt. (acting Major) WILLIAM DOUGLAS FREW, attd. 131st Fld. Amb.—For conspicuous gallantry and devotion to duty near Ramboulieux Farm on Oct. 20th, 1918. He was in charge of the bearer subdivision of his ambulance. Although his ambulance-car post was heavily shelled he kept it going during the day, supervising the bearing and loading of wounded. He also led parties of bearers through heavy fire along the ravine leading to Montay, getting wounded men through this way to the car post.

Temp. Capt. CODANDA MADIEH GANAPATHY, I.M.S., attd. Gren. I.A.—On Sept. 20th, 1918, north-east of Selfit, he showed great gallantry in attending to the wounded under heavy artillery and machine-gun fire throughout the day, showing a complete disregard of personal danger. To his untiring efforts many men owe their lives.

Temp. Capt. GEORGE ALEXANDER CONNER GORDON, attd. Lond. R.—For conspicuous gallantry and devotion to duty during operations on Sept. 19th, 1918, near Sivri Tepe. As regimental medical officer he attended the wounded throughout the day, often under heavy fire. Though wounded, he continued to carry on until relieved on the morning of Sept. 20th, having covered a distance of over five miles on very rough ground. He set a fine example to those with him.

Temp. Capt. EDWARD HAROLD HERTSLET GRANGER, attd. 1st Bn. Leicester R.—Throughout the operations, Sept. 18th/26th, 1918, near Holnon, he was conspicuous for his gallantry and devotion to duty. On Sept. 18th, for an hour, during a heavy enemy artillery barrage, he attended to the wounded and assisted them to a place of safety. On Sept. 19th he established an advanced aid-post and attended to the severe and urgent cases throughout the day under heavy shell fire.

Temp. Capt. ZACHARIAH ALBERT GREEN, attd. 7th Bn., Wilts. R.—For great gallantry and devotion to duty during operations south of Le Cateau on Oct. 18th/19th, 1918. He continuously attended to wounded with the greatest skill and devotion to duty, and on several occasions under very heavy shell fire. His untiring energy, coolness, and total disregard of danger were admirable throughout.

Temp. Capt. ALFRED PURVIS HART, No. 2 Fld. Amb.—For great initiative, gallantry, and devotion to duty at the advanced dressing station, east of the church at Rejet-de-Beaulieu, during the exceptionally heavy bombardment on Nov. 4th, 1918. He repeatedly dressed wounded men and superintended the evacuation of casualties even when his dressing station was blown in by shell fire. He undoubtedly saved many lives.

Temp. Lieut. WILLIAM HICKEY, attd. 8th Bn., E. Surr. R.—For conspicuous gallantry and devotion to duty as battalion medical officer on Sept. 18th, 1918, near Ronssoy. Early in the attack he established his aid-post at a main cross-roads and remained there for several hours under heavy shelling. He then went forward and attended to the wounded in the open wherever he could find them. His devotion to duty saved many lives.

Temp. Capt. ST. GEORGE MARRIOTT LESLIE HOMAN, attd. 1/8th Bn., Notts. and Derby R., T.F.—On Sept. 29th, 1918, during the attack on Bellenglise, he worked in an indefatigable manner, tending wounded in open trenches under heavy shell fire, showing disregard for personal danger, and moving his aid-post from time to time to be on the spot. Again, at the attack on Ramicourt and Montbrehain, on Oct. 23rd, he worked incessantly for 24 hours, tending to casualties from every battalion in the division. and, although badly gassed, he refused to relinquish his excellent work.

Temp. Capt. GEORGE JACKSON, attd. 15th Bn. Notts. and Derby R.—During operations on Oct. 14th, 1918, east of Terhand, he displayed great courage and devotion to duty in attending the wounded under close artillery and machine-gun fire. Throughout the whole day he was with the foremost wave of the battalion, and several times traversed the front line and dressed the wounded. Later, in Sweveghem, he again performed invaluable service in attending the wounded, and thereby saved many lives.

Capt. FREDERICK McNAB JOHNSON, Canad. A.M.C., attd. No. 2 Fld. Amb.—For conspicuous gallantry and devotion to duty. During the attack by the division on the Sept. 27th, 28th, and 29th, 1918, in front of the Canal du Nord, he was unremitting in his attention to wounded. Especially on Sept. 29th, he worked continuously under fire, locating and dressing wounded who were lying out, and superintending carrying parties.

Capt. ARTHUR POOLE LAWRENCE, 6th Fld. Amb., Austr. A.M.C.—He displayed great gallantry and able leadership on Oct. 3rd, 4th, and 5th, 1918, during the fighting in the Hindenburgh Line, North of St. Quentin, particularly during the assault on Montbrehain, as bearer Captain. He maintained touch with R.A.P.'s in spite of heavy shell fire, and his genius for selecting routes and loading posts resulted in a very rapid evacuation of wounded.

Temp. Capt. **HENRY RUTHVEN LAWRENCE**, 1st Fld. Amb., S.Afr. M.C.—For conspicuous gallantry and devotion during operations before Beaurevoir and Le Cateau, between Oct. 7th and 15th, 1918, whilst in charge of the collection and evacuation of wounded. On the 7th his organisation and energy were admirable, and from early morning on 8th to the evening of Oct. 9th he worked without rest, and the successful and expeditious evacuation of the wounded was due in a large measure to his tireless energy, resource, and disregard of danger.

Capt. **GLADSTONE WILFRED LOUGHEED**, 4th Fld. Amb., Canad. A.M.C.—In charge of stretcher-bearers during the operations north and east of Cambrai, Oct. 9th/12th, 1918, he displayed great energy and fearless devotion to duty. Particularly on Oct. 10th–11th, he worked continuously for 48 hours without rest. He time after time led his bearers to forward positions under severe severe shell fire, and was responsible for the rapid evacuation of the wounded from the field.

Temp. Capt. **MALCOLM MANSON**, attd. 10th Bn., R. W. Surrey R.—For conspicuous gallantry and devotion to duty near Menin on Oct. 14th, 1918. He went forward in the fog under heavy shell and rifle fire and established an aid-post, and continued dressing wounded under heavy shell fire at 1000 yards' range, quite regardless of his own personal safety. He showed marked coolness and courage throughout the whole operations.

Temp. Capt. **ROBERT CHICHESTER McMILLAN**, attd. 38th Bn., M.G. Corps.—For conspicuous gallantry and devotion to duty. On Nov. 8th, 1918, at A.D.S. Pot de Vin, he dressed and evacuated a large number of wounded continuously for 20 hours. For four hours of this period the enemy heavily shelled the A.D.S., one shell entering the building where he was attending the wounded, blowing out one of the walls.

Capt. **ALLAN YOUNG McNAIR**, Canad. A.M.C., attd. 10th Inf. Bn., Alberta R.—For conspicuous gallantry and devotion to duty east of Hayneecourt on Sept. 27th/29th, 1918. He worked unceasingly for 48 hours in very exposed positions and under heavy fire. At one time he went forward and brought back a wounded officer who was lying out in front. His energy and fine behaviour throughout saved many lives.

Lieut. **WILL GEORGE FREDERICK OWEN-MORRIS**, attd. 2nd Bn., Leins. R.—For conspicuous gallantry and devotion to duty on Oct. 14th, 1918, near Ledeghem. Seeing a man fall wounded, he turned back, and for over half an hour remained working in a shell- and bullet-swept zone without any cover, attending to this man and others before himself moving to a pill-box a short distance away.

Capt. (acting Major) **HARRY PRIEST RUDOLF**.—At Fife Knoll, near Kh. Abu Felah, on Sept. 18th/19th, 1918, he remained out all night, under a heavy bombardment, attending the numerous wounded. Again, on Sept. 20th, he was indefatigable in his efforts, under shell and rifle fire, to collect the wounded. His gallant personal example cheered and encouraged not only the stretcher-bearers, but all ranks with whom he came in contact.

Temp. Capt. (acting Major) **ROBERT BRYSON RUTHERFORD**, 91st Fld. Amb., attd. 6th Div.—For conspicuous gallantry and devotion to duty during the night Oct. 8th/9th, 1918. On hearing that a congestion of stretcher cases had occurred at the regimental aid-post of the left brigade east of Montbrehain, he at once organised a party of bearers and dressers and proceeded in ambulance cars as far as the roads would allow. He then got in touch with the regimental medical officers, and under heavy shell fire organised the collection, dressing, and removal of the wounded to a place of safety.

Lieut. **SOHAN LALL BHATIA**, I.M.S., attd. Inf., I.A.—Near Sabieh, on Sept. 19th, 1918, for conspicuous gallantry under intense fire. The enemy put down a heavy barrage where he had established his aid-post. In the midst of this he carried out his work with an absolute disregard of his personal safety. The skilful way the wounded were dressed by him, in spite of the adverse conditions, afterwards elicited the admiration of the medical officers in the dressing stations.

Lieut. (temp. Capt. and acting Major) **GERALD EVAN SPICER**, 107th Fld. Amb.—He was in charge of a detachment of bearers during the operations around Moorseele from Oct. 14th/17th, 1918. He worked unremittingly throughout, establishing posts for the collection of wounded and going up to the regimental aid-posts, and on occasions forward of these posts, frequently under heavy shell and machine-gun fire. Owing to his gallantry and tireless devotion to duty the wounded were rapidly and successfully evacuated.

Temp. Capt. **FREDERICK REGINALD STURRIDGE**, attd. 2nd R. Sco. Fus.—From the commencement of the advance east of Ypres to Vichte he displayed great courage and devotion to duty. On the night of Oct. 13th/14th, 1918, at Slypscappelle, when the enemy put down a heavy barrage and caught two companies in the open, causing a large number of casualties, he immediately rushed his stretcher-bearers forward and established his aid-post where the casualties had occurred, in spite of the fact that it was in the open, and that the enemy was still shelling heavily. Throughout he behaved admirably.

Temp. Capt. (acting Major) **CHRISTOPHER SULLIVAN**, 75th Fd. Amb.—He was in charge of the advanced dressing station during the action at Beaurevoir on Oct. 5th, 1918, when over 300 cases were passed through his post. He was very short-handed, but by his personal courage and devotion to duty he animated all ranks and successfully evacuated the wounded under very heavy shell fire.

Temp. Capt. **EDWARD COWPER TAMPLIN**, attd. 9th Bn., Sco. Rif.—During continuous operations east of Ypres, from Sept. 28th to Oct. 26th, 1918, he has carried out his duties with conspicuous success as battalion medical officer. He has never failed to get all wounded expeditiously evacuated, frequently under heavy fire. His fearless devotion to duty has been an inspiring example to all who have worked with him.

Capt. **JAMES THOMPSON**, attd. 2nd Bn., Bedf. R.—During the operations near Preux-au-Bois, on Nov. 4th, 1918, he showed great coolness and devotion to duty in attending to wounded under heavy machine-gun and shell fire. Entirely disregarding his own personal safety, he moved about among the wounded, attending to men of all units, and by his untiring energy he was instrumental in saving many lives. He has always set a very fine example to stretcher-bearers and others working under him.

Temp. Capt. **WILLIAM TUDHOPE**, 17th Fld. Amb.—For conspicuous gallantry and devotion to duty near St. Quentin on Sept. 18th/19th, 1918. He was in charge of a section of bearers and brought them up under very heavy shell and machine-gun fire. He got in touch with the battalion and cleared their wounded soon after zero hour. He continued throughout the whole day and following night to supervise the evacuation of the wounded until this was accomplished.

Temp. Capt. (acting Major) **ALEXANDER WILMOT ULOTH**, 132nd Fld. Amb.—He showed great gallantry and untiring devotion to duty whilst in command of bearers during the operations from Sept. 29th to Oct. 1st, 1918, near Bellicourt. At a very critical period, and when casualties were heavy, he successfully organised relay posts and led a party of bearers during the night Sept. 29th/30th to a position in the line whence he was able to carry out an immediate evacuation of the wounded.

Temp. Capt. **ROBERT WILLIAM LESSEL WALLACE**, attd. 9th Bn., E. Surrey Regt.—For great gallantry as regimental medical officer. On the night Oct. 8th/9th, 1918, when the enemy counter-attacked at Niergnies during a relief, he remained out during the night in what had then become "No Man's Land," tending the wounded after most of his staff had become casualties. Again, on Oct. 16th, when his aid-post received several direct hits, he carried on his work where best he could in close proximity to the enemy. Thanks to his fine devotion to duty throughout, a large proportion of wounded were brought in.

Capt. **RENE EDWARD AMOS WESTON**, Canad. A.M.C., attd. 2nd Canad. Fld. Amb.—For conspicuous gallantry and devotion to duty. On the morning of Sept. 27th, 1918, near Bourlon Wood, he came into a heavy barrage in order to dress the wounded. This is only one of several examples of the manner in which he performed his duty. His absolute disregard of personal safety is admirable.

Capt. (acting Major) **MICHAEL WHITE**, No. 1 Fld. Amb.—For conspicuous gallantry and devotion to duty when in command of brigade stretcher-bearers on Oct. 17th/18th, 1918, near La Vallee Mulatre. Undeterred by enemy fire, he kept in close touch with the battalions, frequently visited their aid-posts, and maintained the steady and rapid evacuation of all casualties. His coolness and resource inspired his men and his skilful leading undoubtedly saved many lives.

Capt. **HENRY PARKS WHITWORTH**, attd. 6th Bn., K.O.S.B.—For marked gallantry and devotion to duty near Cuerne on Oct. 16th/17th, 1918. In spite of heavy shell fire he showed utter disregard of his personal safety in tending the wounded. Twice his aid-post was hit by a shell, but he carried on and performed most valuable work in dressing the wounded until he was seriously wounded.

Capt. **EDWARD ALBERT WOODWARD**, 8th Fld. Amb., Austr. A.M.C., attd. 29th Bn., Austr. Infy.—At Bellicourt during Sept. 29th/30th, 1918, with his R.A.P. in an open trench under heavy shell and machine-gun fire, he carried on day and night dressing and attending the wounded. He showed a total disregard of danger and untiring devotion to duty under the most trying conditions, working without rest for 48 hours.

ROYAL NAVAL MEDICAL SERVICE.

Surgeon Lieutenants to be Surgeon Lieutenant Commanders: A. R. Sharrod, J. S. Elliot, A. E. Panter, G. S. Harvey, W. H. Murray, G. H. Hayes, H. C. A. T. Cannon.

To be Surgeon Lieutenant: A. F. Grimbly.

ARMY MEDICAL SERVICE.

Temp. Col. Sir Ronald Ross, K.C.B., K.C.M.G., F.R.S. (Lieut.-Col., R.A.M.C. T.F.) (Major, ret. I.M.S.), relinquishes his temporary commission on re-posting.

ROYAL ARMY MEDICAL CORPS.

Lieut.-Col. C. Garner (retired) is granted the rank of Colonel on ceasing to be re-employed.

To be acting Lieutenant-Colonel whilst specially employed: Temp. Capt. (acting Major) W. N. Parker.

Major W. M. Power, from the Half Pay List, retires on retired pay.

Majors relinquishing the acting rank of Lieutenant-Colonel on ceasing to command a Medical Unit: G. F. Rudkin, T. H. Scott, W. K. Beaman.

The undermentioned relinquish the acting rank of Lieutenant-Colonel: Temp. Major E. F. Eliot, Capt. C. H. Stringer, Temp. Capt. F. G. W. Deano (to revert to the acting rank of Major).

Temp. Capt. G. Clarke to be acting Lieutenant-Colonel whilst specially employed.

Major (acting Lieutenant-Colonel) P. Dwyer relinquishes the acting rank of Lieutenant-Colonel.

Capt. P. Carney relinquishes the acting rank of Major on re-posting.

Capt. J. Sainsbury resigns his commission.

The undermentioned relinquish the acting rank of Major on ceasing to be specially employed: Capt. and Bt. Major J. D. Kidd, Temp. Capts. W. V. Robinson, A. L. Lockwood, D. J. Glenn, A. L. Krogh (on re-posting).

To be acting Majors whilst specially employed: Temp. Major H. D. Gillies, Capts. A. L. Foster, C. D. K. Seaver, Temp. Capts. G. Marshall, B. G. Brooke, E. F. Bashford.

Temp. Capt. and Bt. Major H. F. Marris and A. W. Rattrie relinquish the acting rank of Major.

Capt. L. B. Clarke, from T F., to be Captain.

The undermentioned Captains, from Spec. Res., to be Captains: R. R. G. Atkins, J. Stephenson, K. A. Maclean, C. L. Balkwill, C. W. Sparks, H. Alcock.

Capt. A. W. Raymond resigns his commission.

The undermentioned to be temporary Captains: H. W. Fox, late temporary Captain; A. H. Priestley, late temporary Captain: E. H. Jones, late temporary Captain; G. W. M. Smith, late Captain, Can. A.M.C.; J. J. Clarke, late temporary Captain.

Temporary Lieutenants to be temporary Captains: R. L. Wilcox, F. A. Stokes, E. L. Morgan, R. H. Wace, S. G. Platts, J. N. Turnbull A. J. Beattie, R. F. Higgin, B. G. Reynolds, G. H. Winch.

Temp. Hon. Lieut. B. D. Brooker to be temporary honorary Captain.

To be temporary Lieutenants: W. M. Bristow, W. A. Slack, W. F. Gardener.

Officers relinquishing their commissions: Temp. Lieut.-Col. S. C. Elgee (and retains the rank of Lieutenant-Colonel); Temp. Major (acting Lieut.-Col.) J. Russell (and is granted the rank of Lieutenant-Colonel); Temp. Capts. (acting Majors, granted the rank of Major) E. Tawse, W. G. Waugh, J. Donald; Temp. Capt. (acting Major) R. C. MacQueen (retains the rank of Captain); Temp. Capts. (granted rank of Major) R. T. Grant, J. L. A. Grout, T. E. Coulson; Temp. Capts. (retaining the rank of Captain) A. L. McCreery, K. M. Walker, G. James, R. H. Stevens, C. S. Dodson, F. W. Diamond, J. F. Hammond, R. S. Dobbin, J. J. Middleton, J. M; Young, W. Fraser, E. G. Howell, R. H. Adams, F. E. S. Willis, J. Dick, R. L. Kitching, G B. Archer, H. T. Lippiatt, H. G. M. Henry, J. W. Grice, G. I. Moriarty, G. S. Terry, B. W. Skinner, F. L. Thomas, W. N. Soden, W. MacKenzie, S. G. Askey, H. H. Mathias, T. Kelly, R. W. B Gibson, L. Crombie, A. T. McWhirter, C. J. Young; Temp. Lieuts. N. S. MacNaughton (retains the rank of Lieutenant), H. W. Hackett.

Canadian Army Medical Corps.

Temp. Capt. (acting Major) A. B. James relinquishes the acting rank of Major.

Temp. Majors J. R. McRae and D. A. Murray retire in the British Isles.

Canadian Army Dental Corps.

Temp. Capt. E. J. Kelly retires in the British Isles.

SPECIAL RESERVE OF OFFICERS.

Lieutenants to be Captains: W. A. Coutts, M. J. Cahalane, H. A. Cochrane, A. B. S. Drysdale, R. P. Jack, D. MacColl, R. J. Peters, F. L. Heap, F. A. Prosser, G. Gordon, T. B. Moyes, E. M. E. Cumming, W. R. D. Hamilton, J. Irving, W. R. McLinden, W. A. Jaques.

TERRITORIAL FORCE.

Majors (acting Lieutenant-Colonels) relinquishing the acting rank of Lieutenant-Colonel on ceasing to be specially employed: A. E. Hodder, G. Mackie, J. Bruce.

Capt. (acting Lieut.-Col.) D. C. L. Fitzwilliams relinquishes the acting rank of Lieutenant-Colonel on ceasing to be specially employed.

Captains (acting Majors) relinquishing the acting rank of Major on ceasing to be specially employed: R. G. Walker, E. L. Forward, O. K. Wright, A. P. Watson, A. M. Young, J. W. Scott, J. A. Morris, C. E. Whitehead.

Capt. (acting Major) H. H. B. Cunningham relinquishes the acting rank of Major on vacating appointment as Deputy Assistant Director of Medical Services.

To be acting Majors whilst specially employed: Capts. A. M. Young, A. P. Watson, and C. N. Kidston.

2nd Northern General Hospital: Capt. (acting Major) C. W. Vining relinquishes the acting rank of Major on ceasing to be specially employed.

2nd Scottish General Hospital: Lieut.-Col. C. W. Cathcart is restored to the establishment.

2nd Southern General Hospital: Capt. J. A. Nixon is restored to the establishment on ceasing to hold a temporary commission in the Army Medical Service.

3rd Western General Hospital: Capt. (acting Major) W. J. Greer relinquishes the acting rank of Major on ceasing to be specially employed.

2nd London Sanitary Company: Capt. (acting Major) A. G. G. Thompson relinquishes the acting rank of Major on ceasing to be specially employed. Lieut. P. G. MacGregor to be Captain.

ROYAL AIR FORCE.

Medical Branch: Lieutenants to be Captains: J. P. Hosford, G. W. J. Bousfield, A. St. J. Hennessy.

Major H. F. Horne relinquishes his commission on ceasing to be employed, and is granted the rank of Lieutenant-Colonel.

The undermentioned are transferred to unemployed list: Capt. J. C. Hall, Lieuts. D. Pennington, S. G. Smith.

INDIAN MEDICAL SERVICE.

Col. J. B. Smith is appointed an Honorary Physician to the King, vice Col. J. Crimmin, V.C.

Lieutenant-Colonel to be Colonel: P. J. Lumsden.

Major to be Temporary Lieutenant-Colonel: W. H. D. Stevenson.

Temporary Lieutenants to be temporary Captains: J. H. Barrett, Ratan Chand Sondhi, Kalidas Bagchee, Amolak Ram, Homi Edulji Variava, Mangalore Narsing Rao, Nallicherry Samasundara Nataraja Sastri, Bindiganavali Ramaswamy Iyengar, Padupurackal Thomas Zacharias, Naranammalpuram Sankaraaiyar Ramaswami, Jagadispada Dutta, Kisory Mohan Ghose, Kiyattle Kannan Nambyar, Ramapurath Thimman Thomas, Maneck Nusserwanji Dubash, Shankar Dhando Karve.

The King has approved the relinquishment of temporary rank in the Indian Medical Service and Indian Defence Force of Capt. C. E. R. Norman.

Indian Defence Force.—P. A. Hayne to be temporary Captain.

BOOKS, ETC., RECEIVED.

ARNOLD, EDWARD, London.
  A Text-book of Surgery for Dental Students. By G. P. Mills, B.S. Lond., and H. Humphreys, B.D.S. Birm. 2nd ed. Pp. 340. 14*s*.

BAILLIÈRE, TINDALL, AND COX, London.
  The Principles of Gynæcology. By W. Blair Bell, B.S., M.D. Lond. 3rd ed. Pp. 660. 38*s*.
  Aids to Materia Medica. By A. E. Collie, R.A.F. Medical Service. Pp. 116. 3*s*.

BALE, JOHN, SONS AND DANIELSSON, London.
  On Facial Neuralgia and its Treatment. By J. Hutchinson, F.R.C.S. Pp. 216. 15*s*.
  The Amœbæ Living in Man. By C. Dobell, F.R.S. Pp. 155. 7*s*. 6*d*.

HODDER AND STOUGHTON, London, New York, and Toronto.
  Reminiscences of Three Campaigns. By Sir A. Ogston, K.C.V.O. Pp. 336, 16*s*.

Medical News.

EXAMINING BOARD IN ENGLAND BY THE ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND.—At the quarterly examination in Practical Pharmacy, held on Oct. 9th, the following candidates were approved:—

Elizabeth Emma Arkwright, London Sch. of Med. for Women; E. J. Bilcliffe, St. George's Hosp.; J. L. M. Brown, St. Bart.'s Hosp.; I. J. Corbett, London Hosp.; F. P. de Caux, St. Bart.'s Hosp.; Helen Mary Du Buisson, Charing Cross Hosp.; P. Ellman, Manchester Univ.; J. C. Evans, London Hosp.; Blanche Sutton Gardner, Royal Free Hosp.; H. Geary, Manchester Univ.; Marion Greaves, Leeds Univ.; F. Gulver, London Hosp.; H. G. Hall, Univ. Coll. Hosp.; E. R. Hughes, London Hosp.; Sophie Elizabeth Hymans-de-Tiel, Royal Free Hosp.; F. J. Jauch, Middlesex Hosp.; M. Jayakar, Univ. Coll. Hosp.; R. Lee-Michell, Middlesex Hosp.; F. G. Lewtas, Cambridge Univ. and St. George's Hosp.; C. A. Lindup, Univ. Coll. Hosp.; Elizabeth McKerrow, Royal Free Hosp.; M. S. Mahmud, Liverpool Univ.; G. G. Newman and F. F. Petersen, London Hosp.; Violet Rapson Harding Rains and Mary Frances Roope, Charing Cross Hosp.; C. V. D. Rose, Univ. Coll. Hosp.; J. J. Rowlands and J. Solomonoff, London Hosp.; J. A. Stephens, Leeds Univ.; D. R. Thompson, London Hosp.; B N. Tonkin and T. W. Turner, Guy's Hosp.; H. S. Ward, Leeds Univ.; Effie Adela Wharton, St. George's Hosp.; and N. W. Wood, Middlesex Hosp.

UNIVERSITY COLLEGE HOSPITAL MEDICAL SCHOOL.—The two Goldsmid Entrance Exhibitions, offered annually for competition in September, were awarded this year to Mr. J. H. Porter and Miss E. M. Turner, both of Cambridge University.

OLD STUDENTS' DINNERS.—The University College Hospital old students' dinner, postponed from Oct. 3rd, is to be held on Friday, Oct. 31st, at the Imperial Restaurant, Regent-street, at 7 for 7.30 P.M.—The St. George's Hospital dinner is announced for Nov. 26th at Prince's Restaurant, Piccadilly, at 6.30 for 7 P.M., Dr. J. H. P. Fraser presiding.—The St. Thomas's Hospital dinner, postponed from Oct. 1st, will take place at the Connaught Rooms, Great Queen-street, W.C., on Wednesday, Jan. 14th, 1920, at 7 o'clock for 7.30. The chair will be taken by Sir George Makins.

LONDON ASSOCIATION OF THE MEDICAL WOMEN'S FEDERATION.—A meeting of this association was held on Oct. 7th at 11, Chandos-street, W.—The annual report was read.—Mrs. E. E. Flemming, M.D., who was elected President for the ensuing year, gave an address on the Future of the Association, in which she referred to some of the work done by the London Association in the past, and discussed the need for its continued existence. She said that inasmuch as in the near future the number of medical women would be largely increased, the need for association and union with regard to the interests of fellow workers might be even greater than now. Women were favourably placed for research in that their practice was, as a rule, narrowed to the care of diseases of women and children only, and the very fact of their observation being directed to one part of the community alone should enable women to achieve more eminence on their special lines. One great advantage of the London Association was that women were connected with those practising on different lines, whereas other medical societies were frequently either split up into sections or gatherings of specialists. The London Association had in the past done some work in the investigation of such subjects as menstruation and the menopause, and important results might be hoped for with increasing numbers. In this connexion Mrs. Flemming reminded the society that the cause and means of prevention of such a common pathological condition as uterine fibroids were still unknown. After a reference to the interaction of the various parts of the body and the influence of the endocrine glands, she concluded by the suggestion that association was not merely herd instinct, which was fellowship of an exclusive and "fearsome" kind; there could be a fellowship of those who had a common education for a common aim. All scientific discoveries took place by the pressing forwards of many units each with a little more vision, until one among them received that sudden illumination which enabled all to move forward with a great stride.

CENTRAL MIDWIVES BOARD.—A meeting of the Central Midwives Board was held at Queen Anne's Gate Buildings, Westminster, on Oct. 9th, with Sir Francis H. Champneys in the chair.—A letter was considered from the Ministry of Health stating (*a*) that the Ministry had taken steps to lay the representation as to the modification of the constitution of the Central Midwives Board before both Houses of Parliament; (*b*) that the Ministry approves the proposal of the Board to grant war bonuses to its secretary and assistant secretary. The Board directed that the letter be received.—A letter was considered from the clerk of the

London County Council enclosing for the Board's approval a draft letter which the County Council proposes to send to midwives practising in the County of London on the subject of midwives acting in coöperation with medical practitioners. The Board decided that the draft letter of the London County Council be approved.—A letter was considered from the Ministry of Health drawing the Board's attention to the number of deaths which have recently taken place at the nursing home conducted by a certified midwife and to the conditions under which she trains her pupils. The Board decided that the Minister of Health be informed that (1) the Board will consider any information which may be brought before it concerning the deaths of the children referred to, provided that such deaths occurred as a result of breaches of its rules; (2) the Board will take into consideration the condition of the premises in question at which pupils are trained and take any action in its power.

At a special meeting held on the same day three midwives were struck off the roll, the following charges, amongst others, having been brought forward:—

The midwife did not take and record the pulse and temperature of her patients at each visit, as required by Rule E. 14; she did not enter records of the pulse and temperature of her patients in a note book or on a chart, carefully preserved, as required by Rule E. 14; with intent to deceive the inspector of midwives she recorded pulses and temperatures purporting to be those of her patients, when in truth and in fact no such pulses or temperatures had been taken by her, and she did not keep her register of cases as required by Rule E. 24. Being in attendance at a confinement, and the patient suffering from illness, the midwife did not explain that the case was one in which the attendance of a registered medical practitioner was required, as provided by Rule E. 20; medical aid having been sought for the patient she neglected to notify the local supervising authority thereof, as required by Rule E. 22 (1) (*a*).

NATIONAL BABY WEEK COUNCIL.—A meeting of the Council will be held at the Armitage Hall, 224, Great Portland-street, London, W., on Tuesday, Oct. 21st, at 3 P.M. Addresses will be given by Captain Reiss on Housing as it Affects Infant Mortality, and Dr. C. W. Saleeby on Alcohol and Infancy.

Obituary.

ARTHUR NEVE, F.R.C.S. EDIN.

THE sudden death on Sept. 5th of Dr. Arthur Neve, of the C.M.S. Hospital in Kashmir, will be felt not only by the district in which, and the society for which, he worked, but by many friends in this country who were associated with him as an officer in the R.A.M.C.

Arthur Neve was born at Brighton in 1858 and educated at the grammar school there and at Edinburgh University, where he qualified in 1880, becoming F.R.C.S. Edin. four years later. In the year after qualification he entered the service of the Church Missionary Society, going to Kashmir, where five years later he was joined by his brother Ernest. The devotion and strenuous energy of these two resulted in the Kashmir Hospital becoming known throughout India as a model of efficient work. The younger medical missionaries who came into touch with Arthur Neve as the president of the Medical Missionary Society of India or as the secretary of the Medical Missions subcommittee of the C.M.S. in the Punjab, were encouraged to spend part of their annual vacation in hospital. In this way the surgical and administrative efficiency of the model institution were reflected in far distant mission hospitals.

Dr. Neve was one of the early recipients of the Kaisar-i-Hind gold medal for public service in India. He had himself a great love for that country; his non-technical publications include books on mountaineering in India and guides to Kashmir, which bear witness to the fact that he was a keen and fearless mountaineer, besides being a cultured artist and musician. Early in the war he returned to England, obtained a temporary commission as major in the R.A.M.C., and did valuable work—first at the hospital for Indian soldiers in Brighton and later as surgical divisional officer in the War Hospital at Dartford. During this period he found time to prepare an interesting communication on "Gunshot Wounds of the Knee-joint with Septic Arthritis."[1] He also commented upon a case resuscitated by heart massage recorded by Captain T. C. Bost.[2] He returned to resume his work in Kashmir only six months ago.

---

[1] THE LANCET, 1918, ii., 353.
[2] THE LANCET, 1918, ii., 553.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

ADRIAN, J., M.B., B.S. R.U.I., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Killough District of the county of Down.

FELDMAN, W., M.B., B.S. Lond., Senior House Physician at the Prince of Wales's General Hospital, Tottenham.

GORDON, M. H., M.D., Bacteriologist to St. Bartholomew's Hospital, and Lecturer on Bacteriology in the Medical School.

GUTHRIE, D., M.D., F.R.C.S., Surgeon to the Ear and Throat Department, Royal Hospital for Sick Children, Edinburgh.

LANCASTER, E. LE C., M.B., B.Ch. Oxon., Consulting Physician to the Swansea General and Eye Hospital.

Victoria Hospital for Children, Chelsea: WYARD, S., M.D., M.R.C.P. Lond., and INGLEBY, HELEN, M.B., B.S., M.R.C.P. Lond., Physicians to Out-patients.

Vacancies.

For further information refer to the advertisement columns.

All Saints' Hospital for Genito-Urinary Diseases, Vauxhall Bridge-road, S.W.—Hon. Asst. S. H.S. £100. Clin. Assts. Hon. Radiologist.

Beckenham Education Committee.—School Dent. £400.

Bedford County Hospital.—Res. M.O. £150.

Birkenhead Borough Hospital.—Hon. Gynæcologist.

Birkenhead and Wirral Children's Hospital, Woodchurch-road.—H.S. £150.

Birmingham General Hospital.—H.P. £100. H.S. £125.

Birmingham and Midland Ear and Throat Hospital.—Asst. S.

Bolingbroke Hospital, Wandsworth Common, S.W.—S. Also Res. M.O. and H.S. £200 and £150.

Bournemouth, Royal Victoria and West Hants Hospital.—Bact. Labor. Asst.

Bradford Royal Infirmary.—H.S. and H.P. Each £200.

Bridge of Weir, near Glasgow, Consumptive Sanatoria of Scotland.—Asst. R.M.O. £200.

Bristol Education Committee.—Asst. School M.O. £500.

Burnley, Victoria Hospital.—H.S. £250.

Burton-on-Trent Infirmary.—H.S. £200.

Cancer Hospital Free, Fulham-road, London, S.W.—Asst. S.

Canning Town Women's Settlement Hospital, Plaistow, E.—Female Hon. Asst. S.

Central London Ophthalmic Hospital, Judd-street, W.C.—Hon. P.

Charing Cross Hospital, Agar-street, W.C.—Dent. S.

Chelmsford. Essex Education Committee.—School Med. Inspcts. £400.

Croydon County Borough.—Clin. Tuberc. O. £550. Also Asst. M.O.H., Maternity and Child Welfare Work. £500.

Derby, Derbyshire County Council.—Tuberc. O. £500.

Dewsbury and District General Infirmary.—H.S. £250.

Didworthy, South Brent, Devon and Cornwall Sanatorium.—Asst. M.O. £200.

Dorchester. Dorset County Council Education Committee.—School Dentists. £400.

Dudley County Borough Education Committee.—Asst. School M.O. and M.O.H. £500.

Dumfries, Crichton Royal.—Asst. P. £350.

Dundee District Asylum.—Asst. M.O. £325.

Ealing Borough.—Asst. M.O.H. £500.

East London Hospital for Children and Dispensary for Women, Shadwell, E.—H.P. £125. Res. M.O. £200. Radiologist. £100.

East Riding Education Authority.—School Dent. £400.

East Suffolk and Ipswich Hospital.—P.'s, Asst. P.'s, S.'s, Asst. S.'s, Gynæcologist, M.O.'s in Charge of X Ray and Electro-Therapeutic Dept. and Anæs. Also H.P. £250.

Elizabeth Garrett Anderson Hospital, Euston-road, N.W.—Female Obstet. Asst. £50. Also R.M.O., House of Recovery, New Barnet. £60. Also Clin. Assts.

Evelina Hospital for Children, Southwark, S.E.—Hon. Phys. for Skin Dept. Also Hon. Dent. Surg.

Exeter City.—Asst. M.O.H. and Asst. Sch. M.O. £400.

Gibraltar.—Asst. Colonial S. £450.

Glasgow, Woodilee Mental Hospital, Lenzie.—Asst. M.O. £300.

Gloucester County Asylums.—Jun. Asst. M.O. £300.

Gloucester, Gloucestershire Royal Infirmary and Eye Institution.—Asst. S.

Great Northern Central Hospital, Holloway, N.—Obstet. P. Dent. S.

Hospital for Sick Children, Great Ormond-street, W.C.—Cas. M.O. £200. Also Two Anæs. £15 15s.

Huddersfield County Borough Education Authority.—Asst. School M.O. £400.

Huddersfield Royal Infirmary.—Asst. H.S. £100.

Hull, City and County of Kingston-upon-Hull.—Res. M.O. £450.

Ipswich, East Suffolk and Ipswich Hospital.—H.P. £250.

Leicester Royal Infirmary.—Asst. Ven. Dis. Dept. 6 guineas p.w.

Liverpool Education Committee.—Asst. Sch. M.O.'s. £350.

Liverpool Royal Southern Hospital.—Two H.S.'s. £100.

Manchester, Ancoats Hospital.—H.S. £100.

Manchester Ear Hospital, Grosvenor-square, All Saints'.—H.S.

Metropolitan Ear, Nose, and Throat Hospital, Fitzroy-square, W.—Asst. S. Also Clin. Assts.

Metropolitan Hospital, Kingsland-road, E.—Asst. S. Also Pathologist and Registrar. £120.

Mount Vernon Hospital for Consumption or Diseases of the Chest, Northwood, Middlesex.—Asst. R.M.O. £200.

National Hospital for Diseases of the Heart, Westmoreland-street, London, W.—Res. M.O. £100. Also Non-Res. M.O. £50.

Newport, Mon., Royal Gwent Hospital.—Three Res. M.O.'s £225, £200, and £160 respectively.
North Riding of Yorkshire County Council Education Committee.—Asst. Sch. M.O. £450.
Norwich, Norfolk Education Committee.—Asst. School M.O. £400.
Nottingham General Dispensary.—Res. S. £300.
Nottingham General Hospital.—H.S. £150.
Oldham Royal Infirmary.—Third H.S. £200.
Plymouth, South Devon and East Cornwall Hospital.—H S. £200.
Portsmouth Corporation Mental Hospital.—Asst. M.O. £300.
Rhondda Urban District Council.—Dent. S.'s £400.
Richmond, Surrey, Royal Hospital.—H S. £150.
Rochdale Infirmary and Dispensary.—Junior H.S. £125.
Royal Chest Hospital, City-road, E.C.—Asst. P.'s.
Royal Waterloo Hospital for Children and Women, S.E.—Hon. Ophth. S.
St. Bartholomew's Hospital.—Asst. Director of Surgical Unit. £750.
Sheffield Royal Hospital.—Res. Asst. Cas. O. £120.
South London Hospital for Women, South Side, Clapham Common, S.W.—H.P. £ 00.
Sunderland Royal Infirmary.—H.P. £200.
Swansea General and Eye Hospital.—H.S. £250. Also Female R.M.O. £200.
Wakefield, West Riding County Council.—Dist. Tuberc. O.'s. £600.
Warrington County Borough.—Asst. M.O.H. £450.
West Bromwich and District Hospital.—Res. H.S. £200.
Westminster Hospital, opposite Westminster Abbey.—Surg.
Winchester, Royal Hampshire County Hospital.—Hon. Pathologist.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of a vacancy for a Certifying Surgeon under the Factory and Workshop Acts at Wicklow.

Births, Marriages, and Deaths.

BIRTHS.

CALEY.—On Oct. 11th, at Ellerton-road, Wandsworth Common, the wife of F. G. Caley, M.A., M.B., of a son.

ELMSLIE.—On Oct. 8th, at Ventnor, I.W., the wife of R. C. Elmslie, M.S., F.R.C.S., Portland-place, W., of a son.

GRIFFITH.—On Oct. 7th, at Roydon, Torquay, the wife of Harold Griffith, F.R.C.S., of a son.

LOUGHNAN.—On Oct. 9th, at Ealing, the wife of Major W. F. M. Loughnan, M.C., R.A.M.C., of a son.

MORIARTY.—On Oct. 2nd, at Pembroke, the wife of Major T. B. Moriarty, D.S.O., R.A.M.C., of a daughter.

PLOWRIGHT.—On Oct. 10th, at King's Lynn, the wife of Charles T. MacL. Plowright, M.B., B.C., of a daughter.

MARRIAGES.

HODGSON—GILLAM.—On Oct. 8th, at St. Philip's Cathedral Church, Birmingham, by the Rev. G. B. Cole, B.A., Albert Ernest Hodgson, M.D., D.P.H., City Hospital, Fazakerley, Liverpool, son of John Hodgson and the late Mrs. Hodgson, of Glanaguile, Coatham, Redcar, to Nora Creina Gillam, daughter of the late John Gillam, of Penrhyn, Stourbridge, and of Mrs. Gillam, Stourbridge.

DEATHS.

MACKENZIE.—Died at Glenoran, Inverness, on Oct. 11th, Dr. Finlay Matheson Mackenzie, aged 77 years.

MESSER.—On Oct. 11th, at Eastbourne, Adam Bronton Messer, Inspector-General of Hospitals and Fleets, R.N., M.D., K.H.P., aged 81 years.

ORD.—On Oct. 14th, at Eastlands, Basingstoke, George William Ord, M.R.C.S., L.R.C.P., eldest son of the late George Rice Ord, M.R.C.S., L.R.C.P., and late of Richmond, Surrey, and Bexhill-on-Sea, in his 57th year.

SINCLAIR.—On Oct. 11th, at Mortonhall-road, Edinburgh, Surgeon-General David Sinclair, C.S.I., I.M.S., retired.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Medical Diary for the ensuing Week

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

Tuesday, Oct. 21st.

GENERAL MEETING OF FELLOWS: at 5 P.M.
Ballot for Election to the Fellowship. (Names already circulated.)

Thursday, Oct. 23rd.

OCCASIONAL LECTURE: at 5.30 P.M.
Dr. Frederick L. Hoffman (Newark, New Jersey): The Methods and Results of National Health Insurance.

MEETINGS OF SECTIONS.

Friday, Oct. 24th.

STUDY OF DISEASE IN CHILDREN (Hon. Secretaries—E. A. Cockayne, H. C. Cameron, C. P. Lapage): at 4.30 P.M.

Epidiascope Demonstration:
Dr. F. G. Crookshank: Hand Prints of Children, including Mongolian Imbeciles.

Cases will be shown.

EPIDEMIOLOGY AND STATE MEDICINE (Hon. Secretaries—William Butler, M. Greenwood): at 8.30 P.M.

Paper:
Major W. Byam, R.A.M.C.: Epidemiology of Trench Fever.

LONDON DERMATOLOGICAL SOCIETY, St. John's Hospital, 49, Leicester-square, W.C.

TUESDAY, Oct. 21st.—4.30 P.M., Demonstration of Pathological Specimens. Cases sent for Consultation. Exhibition of Clinical Cases by Dr. J. L. Bunch, Dr. S. Kapoor, Dr. E. J. D. Mitchell, Dr. W. Griffith, Dr. W. K. Sibley, and the President. 5 P.M., Paper:—Dr. F. H. Humphris: The Melted Paraffin Wax Bath with especial Reference to Chilblains.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

LONDON HOSPITAL MEDICAL COLLEGE, in the Clinical Theatre of the Hospital.

A Special Course of Instruction in the Surgical Dyspepsias will be given by Mr. A. J. Walton:—

MONDAY, Oct. 20th.—4.30 P.M., Lecture XXIII.:—Symptoms and Treatment of Acute and Chronic Pancreatitis.

FRIDAY.—4.30 P.M., Lecture XXIV.:—Visceroptosis and Appendix Dyspepsia.

ROYAL INSTITUTE OF PUBLIC HEALTH, in the Lecture Room of the Institute, 37, Russell-square, W.C.

Course of Instruction for Candidates as Tuberculosis Officers, General Practitioners and others. Bacteriological Demonstrations will be given in the Laboratories of the Institute, and visits arranged to Sanatoriums, Tuberculosis Dispensaries, &c.

THURSDAY, Oct. 23rd.—5 P.M., Lecture III.:—Dr. C. Wall: The Selection of Patients for Sanatorium Treatment.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.

WEDNESDAY, Oct. 22nd.—4.30 P.M., Lecture:—Dr. R. A. Young: Prognosis in Cases of Pulmonary Tuberculosis.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE CLINIC.

TUESDAY, Oct. 21st.—Lecture:—Dr. E. S. Reynolds: The Diagnosis of Affections of the Spinal Cord.

Communications, Letters, &c., to the Editor have been received from—

A.—Mr. M. T. Avashia, Junägad; Army Medical Service, Director-General of; Messrs. Arnold and Sons, Lond.

B.—Dr. H. O. Butler, Lond.; Dr. A. E. Barclay, Manchester; Mr. R. Blair, Lond.; British Hospital for Mental Disorders and Nervous Diseases, Lond.; Mr. G. Bethell, Lond.; British Anti-Tobacco and Anti Narcotic League, Manchester, Gen. Sec. of; Sir J. Bland-Sutton, Lond.; Surg.-Commdr. C. S. W. Bunton, R.N.; Mr. P. Barter, Lond.; Dr. J. P. Buckley, Manchester; Mr. R. Burges, Hartley Wintney.

C.—Mr. P. Cooper, Lond.; Mr. J. F. Colyer, Lond.; Dr. F. G. Cawston, Durban; Capt. J. P. Cullen, R.A.M.C.(T.); Dr. R. Crawfurd, Lond.; Messrs. Cassell and Co., Ltd., Lond.; Dr. H. Chambers, Lond.; Dr. R. Cruchet, Bordeaux.

D.—Sir D. Duckworth, Lond.; Dr. W. A. Daley, Bootle; Mr. H. Dickinson, Lond.; Dr. R. Dudfield, Lond.

E.—Dr. W. Ewart, Lond.; Messrs. Evans, Sons, Lescher, and Webb, Liverpool; Mr. G. S. Elliston, Lond.

F.—Factories, Chief Inspector of; Capt. H. J. B. Fry, R.A.M.C.(T.)

G.—Dr. A. D. Gardner, Rugeley; Great Northern Central Hospital, Lond., Sec. of; Mr. M. P. Gabe, Merthyr Tydvil.

H.—Harveian Society of London; Hospital for Women, Lond., Sec. of; Hazell, Lond., Editor of; Dr. C. T. W. Hirsch, Lond.; Mr. T. Hennessy, Dublin; Mr. S. Hastings, Lond.; Dr. F. de H. Hall, Lond.; Dr. C. O. Hawthorne, Lond.; Mr. T. D. Harries, Aberystwyth.

I.—India, Secretary of State for, Lond.

K.—Dr. H. C. Kidd, Bromsgrove; Dr. W. Kidd, Cheltenham; Prof. A. Keith, Lond.; King's College Hospital Medical School, Lond., Sec. of; Dr. T. N. Kelynack, Lond.

L.—Sir Henry S. Lunn, Lond.; Dr. E. Lowry, Lond.; Dr. H. Lankester, Lond.; Capt. N. S. R. Lorraine, R.A.M.C.; Dr. E. C. Lewis, Lond.; Mr. V. W. Low, C.B., Lond.; City of London, Town Clerk of; London Dermatological Society, Hon. Sec. of; Messrs. E. and S. Livingstone, Edinburgh; Prof. R. T. Leiper, Lond.; London School of Tropical Medicine.

M.—Dr. L. Minter, Brighton; Mr. J. W. McCarthy, Lond.; Ministry of Health, Lond.; Middlesex Hospital, Lond., Sec.-Supt. of; Mr. D. M. MacLeod, Evesham; Medical Officers of Schools Association, Lond.; Mr. A. E. Mahood, Bristol; Mr. W. A. Maas, Lond.

N.—National League for Health, Maternity, and Child Welfare, Lond., Sec. of; National Safety Council, Chicago; Dr. H. B. Newham, C.M.G., Lond.; Capt. F. J. Nattrass, R.A.M.C.(T.); National Association for the Prevention of Tuberculosis, Lond., Sec. of.

O.—Col. M. D. O'Connell; Capt. F. A. Osborn, R.A.M.C.

P.—Messrs. Pathé frères, Lond.; Profiteering Act Department, Lond.; Mr. N. Patterson, Lond.; Dr. J. J. Perkins, Lond.; Capt. F. D. Parbury, St. Helier's.

Q.—Queensland, Registrar-General of, Brisbane.

R.—Dr. J. D. Rolleston, Lond.; Dr. C. Russ, Lond.; Dr. W. C. Rivers, Worsboro' Dale; Mr. R. P. Ratnakar, Manchester; Royal College of Surgeons of England, Sec. of; Dr. H. W. B. Ruxton, Lond.

S.—Prof. W. Stirling, Manchester; Save the Children Fund, Lond., Sec. of; Dr. A. G. Shera, Eastbourne; St. Thomas's Hospital, Lond., Sec. of; Society of Medical Officers of Health, Lond.

T.—Dr. A. L. Taylor, Liberton; Mr. G. M. Trevelyan, Berkhamsted; Mrs. A. Tourtel, Lond.; Triplex Safety Glass Co., Lond.

U.—University of St. Andrews.

V.—Village Centres Council, Lond., Sec. of.

W.—Sir Bertram Windle, Cork; Dr. R. Worth, Lond.; War Office, Lond., Publicity Dept.; Mr. W. E. Wilson, Lond.

Communications relating to editorial business should be addressed exclusively to the Editor of THE LANCET, 423, Strand, London, W.C. 2.

Notes, Short Comments, and Answers to Correspondents.

THE OFFICER IN CHARGE OF A MEDICAL DIVISION.[1]

By Adolphe Abrahams, M.D., M.R.C.P.,
MAJOR, R.A.M.C.; OFFICER I/C. MEDICAL DIVISION, THE CONNAUGHT HOSPITAL, ALDERSHOT; ASSISTANT CONSULTING PHYSICIAN TO THE ALDERSHOT COMMAND.

Part I.

NOBODY can write of an official position he has occupied without identifying himself, to some degree at any rate, with his hero; but although I must necessarily draw upon my own experience, I wish at the outset to disclaim any personal applications of my observations.

Types of Divisional Officers.

The divisional officer may be everything or nothing in his hospital. He may be one of those relatively placid persons whose key-note in life is that blessed word administration, or that still more blessed word organisation; who sits in an office generously provided with clerks, decides to which of his subordinates are to be allocated certain duties, issues corresponding directions, signs his name on the necessary occasions—and that is all. Or he may be a restless, intense sort of creature, excessively active and energetic, and in a perpetual state of tension; himself so conscientious and aware of his own capabilities that he has little faith in the conscience or capacity of others, and most unwilling to delegate any duty of importance. Both types, it is almost unnecessary to point out, will make unsatisfactory divisional officers, and the ideal will be a man of balance occupying a position somewhere between the administrator or the performer, tending, as his instincts and abilities permit, in one or other direction. The officer in command of a medical division should also be the best general physician in the hospital, with a capacity both to recognise when a special opinion upon some feature is necessary and to criticise and use this opinion.

A Day's Work.

It is manifest that, were this all, the selection of a physician of sound experience would meet the case; but in a military hospital innumerable details go towards the efficient organisation of hospital routine. In order to give some impression of these I propose to follow the divisional officer through a rather strenuous, but still a reasonably typical, day's work.

He will arrive at the hospital shortly after 9 A.M., and at once find himself plunged into a maelstrom of responsibilities and anxieties. A variable number of cases admitted during the night by the orderly officer and kept under observation are swiftly transferred to appropriate permanent wards, for the guiding principle for an observation ward is that it should be almost always empty. In the vast majority of cases a broad distinction between serious and trivial cases is sufficient as a temporary "diagnosis," but ever before him is the fear of overlooking an early case of, for example, measles or scarlet fever, or that most insidious of all diseases, cerebro-spinal fever. The admission of one of these to a general ward means quarantine for perhaps a fortnight, with the delay of some five-and-twenty men fit for duty, and consequent inquiries and reprimands. A few minutes are then snatched for official correspondence—the ideal divisional officer must have no private cares, worries, affections, or responsibilities; his division must be father and mother, wife and child to him—and then in a sort of overwhelming flood come an indefinite number of urgent requests and appeals converging from every quarter of the command outside the hospital as well as from within.

Consultations.

The officers in charge of the different wards are anxious for a consultation upon their most serious cases. One has a man who is blanched to an alarming degree of anæmia from a gastric ulcer, a second is uncertain whether a case with violent headache has or has not the dreaded spotted fever. In a third ward is a patient with symptoms suspicious of some acute surgical condition, and the question of transference to a surgical colleague is urgent. A fourth officer is solicitous about the critical state of his pneumonia patients, whilst a fifth has his wards blocked with a bad batch of chronics or undiagnosed cases, and has sent out the S.O.S. to enable him to get clear. But in the meantime two officers have been sent in from a distance for a specialist's opinion; the president of the Standing Invaliding Board urgently requires the presence of an expert upon a difficult case; the matron has two sick nurses whom she particularly wishes to be seen at once; and clerks are waiting with the list of a hundred expeditionary force men who arrived in the small hours of the morning and who must be seen with the least possible delay, so that the diagnosis of their conditions, and to a considerable extent their prognosis, may be telegraphed to an impatient War Office. But, nevertheless, the commanding officer must receive attention first. He is fuming over some complaint—he receives querulous complaints every morning. It may be that Lady Bountiful's V.A.D. hospital is nearly empty, and she must receive five-and-twenty relatively convalescent patients to-morrow. She particularly desires that they must be nice men, and wishes to point out that of the last batch Pte. Smith did something or other and Gunner Jones something else, and so five-and-twenty eminently desirable blue-clad warriors must be found for her.

Complaints.

Something much more serious may be in the air; one of the inevitable complaints about the inhuman or inadequate treatment of some inmate has been sent to the War Office, and an explanation is demanded and must be produced at once; or the complaint may be a purely local one. The auditors point out that we are consuming more than our legitimate allowance of bread, or somebody else is appalled at the awful consumption of drugs. And by this time a neurotic staff officer has dropped in to see a doctor, and although there is no such thing officially as a medical specialist, still he must be accommodated with what passes unofficially as an expert, and only the tact and special capacity developed by the necessity of doing 60 minutes' work in every hour can put a stop to the recital of his symptoms and send him away silenced, if not satisfied. And, indeed, of this there is urgent need, for Lieutenant Robinson is sick this morning and has just telephoned that he is not coming, and his wards must be attended to. A unit some miles out must be instantly supplied with a medical officer. Captain Brown is going away on leave on account of urgent private affairs, and a substitute must be provided. (Incidentally, it may be noted that whenever an officer wants to get away he manages somehow to convey the impression that his duties can easily be performed by anybody handy who has an odd ten minutes a day to spare; when, however, it is suggested that he can add somebody else's duties to his own, one gathers that Hercules with all his labours enjoyed a very soft time in comparison.) Dovetailed into the more solid details of the morning's work are a large and interesting variety of classifiable and unclassifiable emergencies, all of which are submitted to the divisional Pooh-Bah. He is expected to have at his finger-tips Army Council Instructions, which undergo frequent—sometimes revolutionary—changes. Thus, quite apart from the broad details applying to British troops, colonial patients demand disposal upon lines laid down by their own authorities, and opportunities for giving offence by a disregard of special requirements are manifestly frequent. Furthermore, like most generalisations, A.C.I.'s seem to take a fiendish pleasure in applying to every sort of case except the one under consideration. Certain circumstances demand not merely all the official knowledge, but often all the ingenuity, casuistry, and eloquence which the divisional officer can command. "What disease am I to call a man sent back from France to have a new glass eye fitted?" will not be answered by an appeal to the Official Nomenclature of Diseases, nor will the same manual afford much assistance in the classifying of a patient sent home to have some alterations made to a surgical boot! He may even be called upon to decide to whom a corpse legally belongs!

Further, there are the perpetual grievances and complaints from all and sundry, who regard the divisional officer as an inexhaustible fount of sympathy and discretion as well as an intermediary to higher powers. And if he is fitted to survive, the divisional officer learns how he must mollify one and coax another, persuade a third and flatter a fourth, play on the vanity of some and the conceit of others, find a way to persuade both parties in a dispute that both are in the right, and if he should be so unfortunate as personally to be engaged in a difference of opinion, get his own way whilst letting the other believe that he is getting his.

And so the morning goes on, and the divisional officer is enjoying the mental experiences of a Cinquevalli juggling simultaneously with a cannon ball and a small pellet of paper; but by 1 o'clock the turmoil dies down, the rest of the hospital retires to its well-earned mid-day meal and subsequent leisure, and he is left to deal with the motley crowd who have been sent up to see the medical specialist, so that in lieu of other forms of recreation and refreshment he can turn now, with hope of being uninterrupted, to what may be termed his out-patient department.

---

[1] Abridged from a paper read before the Aldershot Command, Medico-Chirurgical Society.

THE NATION'S TOBACCO BILL.

THE compilation of the nation's consumption and expenditure on tobacco for the years 1917 and 1918, just published by the British Anti-Tobacco League, affords interesting reading. It shows, at all events, a remarkable increase in tobacco indulgence through a period when the shadows of war were darkest, and this in spite of a decided advance in the cost of the commodity. The total expenditure for the two years reached no less a sum than £242,490,000. The consumption of tobacco in 1918 increased over 1917 by 12,623,100 lb., or by 8·29 per cent., while the extra cost was £34,214,900, or 34·37 per cent. Of course, it is the League's business to insist upon the injurious effects of tobacco smoking and its pernicious influence on the national health and well-being, and they instance the cases of excessive tobacco smoking by the soldier, by the engine driver, and by women, in which impairment of health due to the habit is attributed. "Has the nation gone mad over tobacco?" it is asked. It is idle to deny, of course, that excessive tobacco smoking is mischievous, but the remedy rests with the individual. Smokers, generally speaking, are well aware when they are exceeding the bounds of endurance consistent with the preservation of health, and they must exercise a restraint over the habit, just as with many other habits capable of being pushed to a danger point. Juvenile smoking is much to be deprecated, and women seem to show less restraint than men in regard to tobacco indulgence. Smoking amongst women has been lately on the increase, and the custom is universally tolerated where years ago it was looked upon as a daring and offensive act upon the part of women. The popularity of the cigarette is largely responsible for this. It would be interesting to ascertain what proportion of the increase in the nation's indulgence in tobacco is due to women smokers. The war has undoubtedly been responsible for an increased appeal to the peculiar sedative effects of the cigarette, the pipe, and the cigar, and women during the war have felt as much as men the need of a sedative. Tobacco smoking is harmful in relation to the dose and the manner in which it is practised (inhalation is most reprehensible, for example); age, and perhaps sex, are factors concerned in its toxic possibilities, but over-smoking can be counteracted by voluntary restraint.

"WITH APOLOGIES TO MOORE."

IN view of the proposal to make the profession of medicine a trade-union society certain lines have been written by "Paddy" under the above title. The author reserves the right of publication, so that we must content ourselves with quoting five lines:—

> "Let medicine remember the days of old,
>
> . . . .
>
> When her leaders with standard of fame unfurl'd,
> Led her members along with honour,
> Ere the greed of pelf and party's self
> Brings her down to the rank of trader."

There is no doubt of "Paddy's" views upon the trade-union question, but some doubt if he has chosen a medium for the expression of those views which suits his pen.

DISABLED MEN AS PUBLIC VEHICLE DRIVERS.

THE Committee appointed by the Home Secretary last December to review the decisions regarding the licensing of partially disabled men as motor drivers has now issued its report, in which it has not varied its previous recommendations except as regards eyesight. It recommends that no man with only one eye should be allowed to drive a public vehicle, and that for all other men a regular standard of ocular efficiency should be introduced, a high one for all new entrants, and a lower one for all those who have been continually licensed for three years or more. It proposes also that the licensed man should in future be required to submit every five years a medical certificate as to eyesight.

Within the last three months there have been eight motor-bus accidents in the London district, resulting in two fatalities and many casualties. Recently at an inquest held in Southwark on a woman who was knocked down by a motor cab, it was given in evidence that the driver had probably been insane for two years. These facts all suggest the importance of the examination for mental and physical fitness of all drivers, as well as of disabled men, and, what is more, the advisability of periodical medical reinspection as to their continued fitness for the work. Whether it is a result of war worry, or want of correct judgment due to shell shock, or of recklessness acquired by driving military vehicles under war conditions, there is certainly an increase in the number of accidents. The addition in number of passengers and the insufficiency of bus room for them, do not, we trust, mean a too rigid time-table, causing the drivers to economise time at the expense of safety by taking risks. Motor drivers might with advantage take as their maxim that of Juvenal: "No delay can be too long, when a man's life is at stake."

MEDICAL MEN AS "COMMERCIAL USERS."

To the Editor of THE LANCET.

SIR,—In your issue of last week your correspondent "Inner Tube" suggests that tyre manufacturers should offer doctors and veterinary surgeons commercial users' rates, and gives very good reasons for such suggestions. He states that he is unaware of any firm who gives our profession this recognition.

I have, however, for the past 18 months obtained my tyres from a firm who make an allowance of 20 per cent. to medical men, and, apart from this reduction in price, have had great satisfaction from their tyres. The firm is the Stelastic Tyres, Ltd., 14 and 16, Garway-road, Westbourne-grove, London, W. 2.—I am, Sir, yours faithfully,

Brighton, Oct. 11th, 1919. LEONARD MINTER.

To the Editor of THE LANCET.

SIR,—May I say, in reply to "Inner Tube's" query of Oct. 11th, that the Kempshall Tyre Co. of Europe, Ltd., 97 and 98, Long Acre, W.C. 2, allow medical men the 15 per cent. discount granted to commercial users.

I am, Sir, yours faithfully,

Brentford, Oct. 11th, 1919. H. W. B. RUXTON, M.B.

*** Since the publication of "Inner Tube's" communication we learn that other firms have considered the matter favourably.—ED. L.

MYCOLOGICAL METHODS OF DETECTING SUGAR IN URINE.

REVERSIBLE reactions, common enough in bio-chemical tests, are too often used in practice in one direction only. In connexion with an annotation on Pentosuria (THE LANCET, July 19th, p. 117) our attention has been drawn to the interesting work of Dr. Aldo Castellani and Dr. F. E. Taylor on the mycological detection of certain carbohydrates in urine. When ordinary chemical methods fail or are not in place pentose or any other sugar can be detected by a delicate differential fermentation test. On the reliability of commercial yeast the authors throw some doubt. No exhaustive knowledge of bacteriology is required to carry out the tests, the authors giving a list (*Journal of Tropical Medicine and Hygiene*, July 1st, 1919) of the fungi and bacteria to be employed.

A SLEEPING CAP.

MR. A. C. Wilson, M.R.C.S., L.R.C.P., has sent us a specimen of a sleeping cap, which, he says, has been successful in inducing sleep in certain cases of insomnia that have come under his notice. From an elastic band, 2 in. wide, which passes round the head at the forehead level, four pads depend, two to cover the eyes and two to cover the ears. These pads are kept in place by a tape which connects all four of them, and fastens behind the head, and the whole device is steadied by a band attached to the forehead band and passing over the head from before backwards. Although the cutting off of external stimuli undoubtedly conduces to sleep, some patients may object to the pressure of the head band, while others may feel uncomfortable through the heat-holding properties of the device, which is covered with wash-leather. Personal idiosyncrasy with regard to the conditions most suitable to sleep vary, and while one may receive comfort from the old-fashioned night-cap another will obtain benefit by turning his pillow over, thus obtaining a cool surface upon which to lay his head. The makers are Messrs. Allen and Hanburys, and the price of the invention is from 15*s.* to 21*s.*

SUBSCRIPTION RATES.

INLAND	One Year	£1 16 0
	Six Months	0 18 0
	Three Months	0 9 0
ABROAD	One Year	£2 0 0
	Six Months	1 0 0
	Three Months	0 10 0

Subscriptions may commence at any time, and are payable in advance. Cheques and P.O.'s (crossed "London County Westminster and Parr's Bank, Covent Garden Branch") should be made payable to Mr. CHARLES GOOD, THE LANCET Offices, 423, Strand, London, W.C. 2.

ADVERTISEMENT RATES.

Books and Publications	Four lines and under ... ... 4*s.* 0*d.*
Official and General Announcements	
Trade and Miscellaneous Advertisements	

Every additional line, 9*d.*

Quarter Page, £2. Half a Page, £4. Entire Page, £8.

Special Terms for Position Pages.

Advertisements (to ensure insertion the same week) should be delivered at the Office not later than Wednesday, accompanied by a remittance.

An Address

ON

INTERNATIONAL STANDARDS OF PUBLIC HEALTH AND WELFARE WORK,

Delivered before the British National Association for the Prevention of Consumption, London, Oct. 16th, 1919,

BY WILLIAM CHARLES WHITE,
MEDICAL DIRECTOR OF THE TUBERCULOSIS LEAGUE OF PITTSBURGH.

MR. PRESIDENT AND GENTLEMEN.—Great Britain and America are both interested in establishing an international standard of public health and welfare work, and though their reasons for this interest differ, both must fully coöperate if it is to be established throughout the world. The British Empire is composed of greatly varying national groups. Its colonies are widely separated by land and sea. Its government has learned the great lesson of releasing power and establishing local autonomy with central supervision.

The United States, on the other hand, starting with individual states which possessed complete local autonomy, has adopted in the last half century a policy of highly centralised Federal power which exerts an ever-growing control over the enormous territory and wealth enclosed within its compact borders. This is the more striking, in that often in the smallest governmental unit, the industrial municipality, as many as 50 different nationalities are represented in segregated national groups. In other words, the problem for the British Empire and the United States is the same in that each, as a matter of government, must deal with many different races and nationalities, but in the former federation the units are scattered over the earth, separated by ocean and alien land, while in the latter, they are divided only by the imaginary line of state or county.

A comparison of these two great federations does not come within the scope of this paper, save as it throws light upon the solution of the enormous problem of human welfare, which forms the greatest business of any government.

THE BASIS FOR LAYING DOWN STANDARDS.

Leaving this phase of the question for the moment, let us attempt to fix a basis for international standards for public health and welfare work. We must first determine our essentials, their relative value, and, on the basis of the budget available, where the greatest returns from expenditure will be gained; secondly, we must establish our building stone, our working unit; finally, we must correlate these units into a composite whole.

Tuberculosis, as a problem, has taken a prominent place in the formulation of our programme of health. If we had a specific cure for this malady, much that is now necessary in the campaign would pass into history. It is because we have no specific cure and must rely upon organisation and coördinated effort that it holds its important position at the present time.

In the past each country has been guilty of putting an exaggerated value upon details which, from time to time, have been suggested and advertised as a means of controlling the malady. You all know them—sanatoria, hospitals for advanced cases, dispensaries, mountain colonies, farm colonies, and villages.

The great weakness in each one of these if over-emphasised is that it represents but one detail of a big scheme, and often is contrary to higher laws influencing the human family. For example, infection with the tubercle bacillus may at no period be taken as a just ground for a type of segregation which does not take account of social, educational, and financial distinctions. Infection with the tubercle bacillus will not make the lion and the lamb lie down together. If it could do so many of the problems of the world would be solved. If it could do so we need now only infect Italian and Jugo-Slav, infect President Wilson and his senate, infect the Bolsheviks, the Irish and the labour unions, in order to settle many difficulties between groups of the human family.

Every tuberculosis sanatorium provides for but one social group. If an attempt is made to inject another, the troubles within the institution multiply steadily. Such limitations restrict the use of most of the equipment which we at present have at our disposal to handle the tuberculosis problem. In proposing to you certain essentials of international standards, my object is to render effective the work of all our organisations against tuberculosis—in other words, to fit the equipment to the task to be done.

THE EQUIPMENT MUST BE FITTED TO THE TASK.

The equipment must be modified to meet the requirements of each locality. This obviously suggests that, in order to make a proper adjustment, it is first necessary to take careful stock of each region to be handled and to find out exactly the specific task to be performed. In mapping out a programme, I should put in the place of first importance this careful stock-taking, examination, and statistical record of the kingdom, district by district. On its completion I should determine, on the basis of the relative values of equipment, just what the budget for each district could stand in successive periods, and in what direction its funds could best be expended.

Let us look for the moment at the question of these relative values. Approximately 85 per cent. of our tuberculosis population will always be cared for in the home. The remaining 15 per cent. may for the moment be disregarded, while domiciliary care thus becomes the dominant factor in determining the relative values of equipment, 85 per cent. of which must be devoted to this large proportion of our population. What agency have we to meet this heavy demand?

Rating our entire equipment at 100 per cent., values varying from 25 per cent. to 60 per cent. have been placed upon the public health nurse or public health visitor. Personally I estimate her value at 60 per cent. or higher. The field of activity which she has finally appropriated is one which no other agent is able to cover, for it is educational in character. She educates the family to carry out the advice of physician, economist, and sanitary officer.

This leads us directly to the question of the working unit for public health work. For this I should choose a public health nurse and that amount of territory and number of people whom she can adequately handle.

With such units established for each group of population, the rest of the programme would require, in diminishing ratio, an equipment of dispensaries, laboratories, hospitals for advanced cases, and sanatoriums, with physicians and consultant nurses to correlate them properly and to bring them into harmony with each other in one composite whole.

EFFORT MUST BE COÖRDINATED.

Our second essential, then, which may be described as coördinated effort, depends upon the great principle in tuberculosis work which Sir Robert Philip has given to the world and which stands next in relative value to the implements which we have already described.

For example, in the fight against tuberculosis we might roughly estimate that for every 250,000 of population we should need, in our poorer districts, 20 visiting nurses, one dispensary with four or more sub-stations, hospital beds equal in number to the mortality rate, five physicians, five consultant nurses, and a sanitary administrative office to handle hospital admissions, open-air schools, statistics, an educational campaign, &c. It would also be the function of one section of this office to establish and maintain constant coöperation with those organisations dealing with related problems, such as child and maternity welfare, medical examination of school children, infectious and venereal diseases. Through its influence, for instance, a housing programme would be made to include suitable provision for that portion of the population suffering from tuberculosis which must be cared for at home. At least 5 per cent. of any housing programme should be so arranged as to isolate and care for tuberculous patients in a household.

Such factors of limited and very special use as farm and mountain colonies would be left to the various private groups, which would determine their position in the general programme. These institutions would be placed in such relation to the whole problem as to care for suitable cases for a given district. Naturally their scope is limited, but the extent of the region each would serve would be determined by the number of available cases.

No. 5017.

The Relation of Central to Local Government.

We come next to the problem of the relation of these units to central government. If I were to suggest to you in Great Britain that there was any relation between the loss of the American Colonies and your low death-rate from tuberculosis, you would probably laugh me out of court. Yet as I study the various speeches outlining your colonial policy which have been made in your Parliament since that loss, I see a different trend given to your statesmanship from that period. As I read also the story of Baron Stein's appreciation of your municipal and county autonomy which he carried back to Germany as the basis of its policy in forming its new empire after the Peace of Tilsit, I think I can see a definite relation between the thought generated by the loss of American territory and all that has since happened to the British Empire. It may be summed up thus: That your statesmen first learned to release power and have been the fathers in the world of local autonomy. This great principle, I believe, must be grasped by all those interested in every phase of the government of the world. Similarly, the release of power by the central authorities to local authorities, thereby enabling them to adjust equipment in health and welfare and educational matters to the task to be done in their respective localities, is the secret of control of most of our health and welfare problems.

The function, then, of central authority is to study, correlate, suggest, stimulate, and subsidise, and so secure equable and uniform establishment of standards throughout its kingdom.

It will not do, however, to stop at your kingdom or our republic. To set up uniform standards throughout the world is the great privilege and duty of Great Britain, America, France, and Italy. These standards have a special significance for you in your colonies and also for us in America, because we have opened our doors to all the nations under heaven. Had we taken steps to secure uniform methods of health and welfare education and coöperation 50 years ago, we should not now be dealing with the serious problem of foreign groups segregated within the borders of nearly all of our industrial communities.

Summary.

My chief suggestions, then, first, are a careful analysis of each region; second, the establishment of a building unit of public health nurse and her territory; third, the correlation of these on the basis of the Edinburgh principle, with the added superstructure of other equipment as budget and necessity permit, but always on the basis of adaptation to the region to be handled. To push these standards throughout the world will require constant modifications based upon a knowledge of language and of the origin and former condition of the people to be cared for.

As a step toward obtaining such knowledge, we have been able to begin in a small way a number of international scholarships in Public Health Nursing. In this we hope the British Empire will join us, so that we may have travelling back and forth between the peoples of the world who differ in language and custom those agents of public health and welfare who mean most in the education of a populace—by teaching them how to carry out the suggestions for their betterment made by physician or other officer.

I have purposely not gone into the other fields associated with tuberculosis, because I believe with a proper building unit once established the correlation and addition of the superstructure is comparatively easy. It should not be difficult, even for an international plan, which on its completion will make it as safe to live in one part of the world as in another, for then in each region the equipment will fit the task, and the task will be outlined according to the first-hand facts and data furnished by each public health nurse for her special district.

THE first meeting of the Lancashire and Westmorland Tuberculosis Society will be held on Thursday next, Oct. 30th, at 3 P.M., in the Houldsworth Hall, Deansgate, Manchester, when Dr. G. Lissant Cox, central tuberculosis officer to the Lancashire County Council, will deliver the presidential address. The attendance of medical men interested in tuberculosis is invited.

An Address

[ABRIDGED]

ON

IDEALS IN RADIOLOGY AND ELECTROLOGY.

Presidential Address delivered before the Section of Electro-Therapeutics of the Royal Society of Medicine on Oct. 17th, 1919,

By ALFRED E. BARCLAY, M.D. Camb.,
HON. MEDICAL OFFICER, RADIOLOGY AND ELECTRICAL DEPARTMENTS, ROYAL INFIRMARY, MANCHESTER.

Ladies and Gentlemen,—It is a time-honoured custom that the incoming President should address you on some subject of his choice, and it is with much diffidence that I undertake the task, for I feel very deeply the honour you have done me and the grave responsibilities that are implied.

The war has brought into prominence the wide fields that are open for the uses of electricity and other physical forces in medicine, particularly of X rays, with the result that many men are prospecting with a view to taking up the work represented by this section. For instance, in my own city five men are now established in X ray work where formerly there were but two, and I understand that this is more or less the same in all the large towns. I thought, therefore, that it might be of value if I addressed myself particularly to those men who, knowing only the military side of our arts, should know what the future holds if they are to become successful practitioners.

The Necessity for Technical Knowledge.

Whatever view we take of the future possibilities of our branch the present is with us, and one need hardly point out how vast are our opportunities—opening out in so many directions that no one worker can be a master of them all; what a change from 20 years ago, when in a few weeks a man could make himself as competent on the medical side of the subject as was possible. To-day it is a different story, and to take his place a man must be prepared to master a diversity of subjects such as are necessary in no other branch. Of course, it is essential that a man taking up this line of work should know his physics and electricity and all the technical work in radiography, radiotherapy, electro-therapy, &c., which are carried out for him by lay assistants. He will have to be responsible for the work of his department, and no man is fit to do this who does not know the general principles and the detail of every job that is carried out for him by his assistants. This argues that he should also know the construction of his apparatus and the theory on which it is constructed, for it is for him to say what is, and what is not, possible with the apparatus at his disposal. In short, he must be the master and must be able to talk to his radiographer, photographer, and any other assistant, and correct faults in their technique. And these things are outside and introductory to the science and art of medicine, of diagnosis and healing by physical means. The man who takes up this branch must be prepared to master these subjects if he is to approach his specialty from a scientific point of view. The man who by turning on a switch produces such and such a result is as empiric a physician as those of a hundred years ago who loaded a bottle with many different drugs in the hope that some one of the constituents would be of value. He did not know how or why he obtained his result, but at that time the knowledge was not available. To-day the man who fails to know the A B C of the science in which he deals is nothing less than a quack, and presumably a lazy one, for the knowledge is ready to hand to any man who cares to learn. I admit that, at the moment, the knowledge is scattered and has to be sought out, but the establishment of the Diploma at Cambridge, with its very sound syllabus, ensures courses of study where all may obtain the requisite training.

Specialised Teaching.

The importance of specialised teaching for our branch is patent, especially to those of us who had to find our own way into it, not knowing what we were in for, or the equipment of medical knowledge necessary;

before apparatus was standardised and each new "stunt" had to be tested. Nowadays, by comparison, the work is stereotyped, and we know fairly well what apparatus is necessary and the lines on which a department will be developed. No department that I know has, however, reached the place it should do, for in my view the X ray and electrical department is bound to become one of the most important branches in any hospital. As an illustration of the growth I will instance the fact that in the hospital with which I am connected, 10 years ago one in a hundred of all registered in- and out-patients found their way to my department for diagnosis or treatment. To-day more than one in eight passes through my hands, in spite of the fact that we do no skin work and that there is a special institute in the Hospital for Radium which deals with about the same number of cases as the London Radium Institute. I have no doubt that departments in other hospitals show much the same growth, and in every one of them it is spontaneous and necessary to the efficiency of the hospital. To take over the management of such a department is a grave responsibility, and no man can be too well equipped for his post. There is no appointment in the hospital which calls for better or more diverse training, for the head of this department must also be able to consult with the specialists in every other branch, and to do this he must be thoroughly conversant with their work and in what ways his branch can assist them.

THE CAMBRIDGE DIPLOMA.

In your hands you have the proposed syllabus for the Cambridge diploma. You will note that it is comprehensive, and there are few of us who would care to tackle an examination based on this syllabus without a good six months' work. Many of us feel the great disadvantage under which we labour in not having had such a course of training before we started on our work. To have had our elementary knowledge of electricity expanded in the directions indicated by the syllabus would often have stood us in good stead, and to have thoroughly understood the physics of our subjects would have added greatly to our efficiency and, incidentally, to our interest in the work.

Systematic courses of lectures and demonstrations in radiology, radiotherapy, electrotherapy, and the other medical aspects of our branch should give the novice a groundwork that is the envy of those of us who had to grope our way. Some of you may be surprised, shocked, and perhaps grieved to notice that in addition to all the various courses that are special to our branch, there are also courses on anatomy, physiology, and pathology; subjects that some of us thought we had buried with our botany and zoology when we took our first hospital appointments and became "practical" physicians. Those responsible for this diploma had one thought in mind—i.e., that those who carried this hallmark should be competent to be *consultants* in their art as far as it is possible to make them so by teaching and examination. There is, however, one factor that no examination and no board of examiners can ensure—the individuality of the man who presents himself for examination.

It has been very truly said that the consultant is not the man who wishes to consult but the man whom others would wish to consult; the ideal man for this work, therefore, is he who combines the keenness to master the whole of our arts with the personality which induces confidence in the opinions he expresses. One cannot labour the point too much that it is the opinion and theory which will count in the long run, no matter how showy and expensive the apparatus and how perfect the X ray plates. On the other hand, nobody will trust that consultant who is content to turn out second-rate technical work, whose apparatus is slipshod, and whose methods indicate carelessness and lack of thought.

INGENIOUS APPARATUS.

In no other branch is there room for such thought and ingenuity in the tools with which the work is done, and this factor has attracted some of our ablest workers. Nearly all our apparatus has been designed by, or built to the instructions of, medical men, and there are few among our number who have not done something in this line and who have not themselves actually made a certain amount. It is a delight to see the apparatus in some hospitals and private rooms—pure makeshift devices, made for a few coppers often, out of some pieces of scrap, and yet performing the work for which it was designed with perfect efficiency. The men who do such things must be a great worry to the instrument makers, for they save themselves and their hospitals hundreds of pounds.

THE WORK OF THE RADIOLOGIST.

What is the work of a radiologist in his hospital department, a department in which three-quarters of the work can, and should, be done by lay assistants? As I have already said, his post is essentially that of a consultant, the man who directs, and knows every detail of the work that is done for him. Like the head of a business, his work consists in the direction of others, and he must not omit to give credit where credit is due—the radiographer who works under an unappreciative radiologist soon ceases to take an interest in his work. It should be the aim of the radiologist, therefore, to make the radiographer feel the responsibility of his position. In one department that I know well, when visitors are present, the radiographer is invariably given the credit of all good plates and, of course, visitors never see bad plates in that department.

The radiologist's desk should be cleared of all routine work first thing and, so far as is possible, he should devolve on to others those things which it is not essential that he himself should do, in order that he may be free at any time to consult with his colleagues, either in the department, at the bedside, or in the theatre. In spite of organisation, however, it is not a "cushy" job, for he has many duties to perform; he sees and reports on all the X ray plates, sees all the treatment cases periodically, and each day he should inspect the work that is being done by his assistants. Personally, I think it an essential and most important part of his work that he should himself do all the screen examinations of intestinal and chest cases, and, so far as is possible, he should set himself free to be in the operating theatre and the post-mortem room to follow up all doubtful cases and see his failures.

Coöperation between the Radiologist and his Medical Colleagues.

The closest coöperation should exist between the radiologist and his medical and surgical colleagues, and his first aim should be that his personal services and those of his department are freely at the disposal of all his colleagues. His section is quite unlike all other special departments, unless it be that of the pathologist, for it is not self-contained but established as the auxiliary of all other branches of the hospital for the supply of the necessary information on which the surgeon and physician act. His opinion on an X ray examination should be sought by his colleagues because of its value, but no radiologist should take up the position that his opinion, and his only, is of any value; a surgeon or physician has a perfect right to draw his own deductions from work done in the X ray department, and it is "up to" the radiologist to supply them with all the material for this purpose; if the surgeon or physician trusts his own opinion he does so on his own responsibility if it runs contrary to that expressed by the radiologist. In most cases, however, one finds that more and more of the responsibility is thrown back on the radiologist, in some cases to a quite unwarrantable extent, for the radiologist seldom has time to examine a case clinically, and his opinion is usually a lop-sided one, for he does not know the clinical side of the picture. It is only fair that all requisitions for X ray examinations should either be accompanied by a clinical diagnosis or a brief outline of the symptoms and physical signs, and, personally, I have a rule that I will not examine abdominal cases without some indication in this direction; in other words, it is just as essential that the surgeon and physician should coöperate with the radiologist as that the radiologist should coöperate with them. For instance, the knowledge that a tumour has been detected at the clinical examination makes the radiologist take special pains in the palpation of this region. In some cases he so alters his routine opaque meal as to ensure that the bulk of it will be in such a position as to assist him in determining the relations of the tumour. Or in urinary work, if details are not given, my assistant is instructed to ask a set series of questions which will give sufficient data on the clinical side to avoid pitfalls in giving an opinion on the X ray examination.

Consultations.

The work of the radiologist as regards diagnosis should not be crowded into the minimum of time, for it is essential that he should hold himself at the disposal of his colleagues at *their* times if he is to work in close coöperation—i.e., if he is to keep in close touch with *their* work and act in the consultant capacity. A great deal can be done by reports, but there is hardly a day on which one or more of his colleagues, or of the resident staff, do not wish to discuss cases with him. And this coöperative work would be enormously increased, with mutual advantage, if the X ray department were suitably placed; almost all the departments in this country have just "happened" in any odd cellar or outlying spot that was available, quite irrespective of its proximity to the wards and operating theatres. It usually means a special journey, in an out-of-the-way direction, for a surgeon or physician to visit the X ray department.

The Whole-time Radiologist.

The underlying principle for a successful radiographic department is that it shall be organised and run as an auxiliary to the medical services of the hospital, helping in every possible way to promote efficiency; if the radiologist runs it half-heartedly, or to suit his own convenience, there is constant trouble and friction, especially where the staff of the hospital is young and progressive. There is a very strong case, so far as the efficiency of the hospital is concerned, for the employment of a whole-time radiologist. There is certainly quite enough work for him to do, even if he does none of the technical work himself. The difficulty, however, in existing conditions, is that it would be impossible on financial grounds to get the type of man necessary for such a post. From the point of view of private practice such an arrangement would be a calamity, for the men with the experience would not be available for private work and, as usual, we will probably continue with the compromise that has already become established.

The Abuse of X Rays.

How are X rays to be used in diagnosis? Automatically every case of injury or pain in the back comes down to the X ray department, and in most cases no attempt is made to arrive at an accurate diagnosis. The art of diagnosis by intelligent deduction, not far removed from guesswork perhaps, is no longer used in a very large number of cases. There is more than a tendency to laziness in the use of the clinical method, with the result that the student is not taught to think things out for himself. In a large number of cases X ray examination is quite unnecessary, and a careful clinical investigation would have revealed this, but it is a great deal easier to write a request for an X ray examination than to go into the case clinically. From the teaching point of view this is an abuse of the X ray department that must lead to most inefficient work when the students go out into practice and have not an X ray service ready to hand. From the patient's point of view it is not satisfactory except in the fracture cases, where a great deal of painful examination is obviated. In the indefinite backache cases, for instance, a negative renal examination accompanies the patient on his second visit to the surgical out-patient department, where he probably falls into the hands of an assistant who follows up the case in a desultory manner and with little interest, as it is not a first attendance, with the result that the patient is never systematically examined. The X ray department should not be used in this way; its resources should only be called on when the patient has been examined and a clinical diagnosis arrived at. If it were used in this manner for the supply of confirmatory evidence it would result in an increased accuracy of clinical diagnosis and the students would not scamp their clinical work. The way in which patients are referred to the X ray department at present indicates clearly that either the staffs are too busy to diagnose the cases by clinical means, or that they do not care to risk a diagnosis that may be upset by the X ray findings. Whatever the cause, however, one notices an ever-increasing tendency on the part of the junior staff to use the X ray department as a short cut to a diagnosis, and they will not trouble themselves with clinical methods if they can get what they want from the X ray department.

The Electro-therapeutic Department.

Turning now to the therapeutic side of the subject, the department conforms much more closely to that of the other special branches. Cases are referred from surgeons, physicians, and special departments, and become, or should become, patients under the care of the electro-therapeutist. In many hospitals the position of these patients is ill-defined—they do not know whether they are under the electro-therapeutist or the physician by whom they were referred. Personally, I have had to make a hard-and-fast rule both in private and in hospital practice, that I will only take responsibility for the patient in so far as he is under me for X ray or electrical treatment—I will not prescribe a placebo, a purgative, a narcotic, or any other drug, nor will I even give instructions as to the ordering of the patient's life if I can evade doing so—i.e., I will not touch the responsibilities of the physician in charge of the case. On the other hand, full responsibility for the work done in my department is accepted and insisted on. I will not take instructions from anyone as to what treatment I give or how I give it. The electro-therapeutist must himself see every case, and he must take the responsibility for the work done under his supervision; it is for him and him only to say whether the case is suitable for the treatment he controls and knows better than anyone else, and it is for him and him only to prescribe that treatment. It is also for him to see that what he has prescribed is carried out.

Unintelligible Instructions.

There are few radiologists who have not, in days gone by, fumed, both in hospital and private practice, at minute directions as to what is to be done with certain cases, instructions such as the radiologist should give to his assistant. Sometimes these instructions are quite intelligent, at others they are the most absurd and dangerous balderdash, obviously written with the intention of impressing the patient, and, as obviously, written by physicians who have picked up a few technical terms and do not know anything about the subject. I grieve to state that far and away the worst examples of this type of fooling I have met with have come from well-known consultants. More often, however, the general practitioner hands on instructions that So-and-so says that the patient is to be treated in such a manner and so often. (In all probability So-and-so never said anything of the kind, but knowing the usual routine practice adopted, has stated an indication of this as the probable number of treatments that will be required in order to guide the patient as to the cost.) These experiences have become less and less frequent in recent years.

In the early days it was often difficult to know what to do, for the relations of the consultant and practitioner to the electro-therapeutist had been completely prejudiced by the absence of medical electro-therapeutists, and particularly of medical men who took this work seriously. It has been a long uphill fight breaking down these prejudices, and even at the present time I do not think that there are more than half a dozen medical officers in charge of X ray and electrical departments of the large hospitals who are on the full staff; in many cases they are paid perhaps £100 a year, and are treated by their hospital committees and by the consultant staffs on this basis. Needless to say, the work in these hospitals is sometimes hopelessly inadequate, and is on the basis of £100 a year. Little wonder, then, if the average doctor treats the electro-therapeutist as if he were still doing the same work as his predecessor, the layman who operated switches and, doubtless, did his best for the patient.

Inefficient Departments.

An X ray and electrical department is the most vital of all the special departments, and on its efficiency the medical services are dependent. If those in authority are content with a department on the basis of £100 a year, it follows that the surgical and medical practice of that hospital will be on the same footing. To be efficient and progressive, the working costs must be fairly high and the man who controls this expenditure and who does work of such vital importance must sooner or later take his place on the consultant staff—if he is worth it. And that is another point. In the past there has been little competition for these posts because their importance was not realised and little or no status accrued to the man who took them, or status was granted so grudgingly that competent men would not take the posts. Those who could not become surgeons or physicians and yet were unwilling to take up general practice went to the X ray or other special departments. Now the position is altered; in the war many men who formerly knew nothing of these things have learned the rudiments of X ray and electrical work. They see the possibilities of our branch and are keen to start in practice. Very shortly there will not be a town of any size that has not one or more specialists—and they must be specialists, for if they are in general practice, their brother practitioners will not send them cases. In other words, there is now healthy competition which will ensure suitable candidates for any post that falls vacant. We have suffered in the past from men who have either taken their posts as a side line or because nothing else was available to keep them out of general practice.

Responsibility for Inefficient X Ray Work.

There is another factor also that has been a very strong deterrent to men taking up this work. I have said that their position, if granted at all, was granted grudgingly, and it is the consultant surgeons and physicians who have been to blame for this. They did not realise the importance of placing a first-rate man in the post and *making the post worth holding.* Personally, I have never suffered in the latter way, so that my remarks are based entirely on what I have seen and heard of in other towns, particularly in London, where the consultant staffs have often ignored the man whom they nominated and who spent a full half of every day in working for them at hospital. All their private work (except doctors' wives) they have sent to other men, or more often to laymen, leaving the man who, even if paid £100 a year, is their colleague, to pick up a living as best he could. The gross unfairness of this is manifest, for having only a half of the day left for private work, the radiologist cannot make a sufficient income to warrant the purchase of expensive apparatus, which must be kept up to date, unless he is loyally backed up by the men for whom he works in his hospital. I have often heard the other side of the question from surgeons who have told me they could not send their cases to their colleague because his technical work was so bad, or that they were bored by lengthy reports when they asked for radiographs. Even if this happened to be the case, as one has to admit it sometimes was, the fault lay in large measure, if not entirely, with the surgeons and physicians themselves on a two-fold charge. Firstly, by their lack of perception in appointing a second-rate man to the charge of a department that must inevitably grow to first-rate importance; secondly, by not backing up their nominee and placing his finances on a sound basis.

The Housing of the X Ray Department.

A few words as to the department itself, and then I am done. In almost every hospital in this country the X ray department has been housed in any place that happened to be available, often in a cellar, on the theory that a dark room was more easily made light-tight in a cellar than elsewhere, and that anything would do. In spite of this these X ray departments have grown as best they could, and many of them, including my own, are quite past praying for. To attempt to alter them is sheer waste of money—most of them cannot be altered to meet the necessities of present demands —to say nothing of the expansion of the work that must take place.

What are the requirements in a large hospital? In the first place the radiographic department should be either close to the wards and operating theatres or else on the way to them, so that surgeons and physicians may see things for themselves. We must get out of our hole-and-corner departments, out of our cellars or attics, for the importance of our work, to say nothing of our health, demands ample space and air in which to do our work—not just four hours a week, but a half of every day. For the radiograph work at least three rooms of ample size are needed: (1) for surgical X ray work; (2) for routine medical X ray work; (3) for demonstration purposes. There must also be an office with a thoroughly sound index and cataloguing system, a storeroom, which will become an X ray museum, and ample dark rooms and photographic rooms. In addition, a number of rooms are necessary for the therapeutic side of the work.

THE DEMONSTRATION-ROOM.

The demonstration-room is the only one of which I wish to speak in detail, because I do not know of such a room in any of our hospitals. The demonstration-room, as I picture it, should be the place where the radiologist spends most of his time. In it all the X ray plates are examined and reported on. The walls are covered with viewing boxes and stereoscopes filled with interesting cases for demonstration, and a card-index catalogue gives the location in lantern-slide cabinets in which will be found a series of pictures to illustrate any subject on which the radiologist, or any of his colleagues, wishes to lecture, either with the lantern that is installed or in one of the lecture theatres. The office where the clerk works, and the storeroom with its wealth of material, open into this room, so that everything is readily available for demonstrations.

A powerful X ray plant is provided with an upright screening stand and a couch to be used for demonstration and also for any special work that may be going on. Such a room would be a great attraction to his colleagues and to students, and would make available the enormous wealth of material that is at present wasted. His colleagues could bring the students to such a place without feeling that they were interfering with the routine work of the department. The radiologist, although maintaining his supervision, would depute more and more of his routine work to his medical assistant in the medical X ray room, and his radiographer and photographer would carry on their routine work in their rooms, unhampered by the intelligent but time-absorbing student.

A Social Centre.

There is another purpose that such a demonstration-room might well serve—i.e., as a social centre for the staff, where they could meet and perhaps have a cup of coffee while they discussed cases, football, or politics. The absence of social life which has resulted from the growth of hospitals, especially on the unit system, has been disastrous, and members of the staff may go from year's end to year's end without meeting their colleagues. I suggest that the radiologist has a great opportunity if he builds a room of this type and introduces such a tone into it that he can draw together the scattered forces and interests.

CONCLUSION.

In conclusion, ladies and gentlemen, the future, with its vast possibilities, is in our hands, and it is for us to rise to the great occasion the war has brought us in bringing our arts into the prominence that is their just due. Let us be worthy of it, and show that the confidence that is being timidly entrusted to us is not misplaced.

THE ADJUSTMENT OF THE REACTION OF BACTERIOLOGICAL MEDIA.

BY JAMES McINTOSH, M.D.,
WORKING ON BEHALF OF THE MEDICAL RESEARCH COMMITTEE;
AND
WILLIAM A. M. SMART, B.SC. LOND.,
DEMONSTRATOR IN PHYSIOLOGY, LONDON HOSPITAL MEDICAL COLLEGE.

(*From the Bacteriological Laboratory, London Hospital, E.*)

IT has been usual for some time now to adjust the reaction of bacteriological media by chemical titration. In this country Eyre's technique has generally been followed with considerable success, but every now and again one came across batches of media which gave poor bacterial growths. Subsequent investigations frequently showed that the reaction of the medium was at fault and mostly on the acid side, and accordingly an analysis of the whole process of the preparation and titration of media was made in order to determine on what this variability of the reaction depended. At the same time an attempt was made to overcome the objection that the chemical titration method does not indicate the true reaction—i.e., hydrogen-ion concentration. The procedure adopted below is the result of this investigation, and, if followed, will be found to overcome most of the difficulties. Full details of the experiments on which these recommendations are based will be published elsewhere.

(1) *Adoption of the Sörensen Logarithmic Method of Expressing the Reaction of Media.*

The adjustment of the reaction of bacteriological media by chemical titration does not indicate the true reaction of the medium. That the true reaction should be indicated is of the highest importance, as it is the ionic concentration that influences bacterial growth. Since the titration method was introduced great advances have been made in our knowledge of the reaction of fluids. Acidity means excess of H ions over OH ions, and alkalinity the converse. Neutrality is merely the presence of equal numbers of H and OH ions. Such a state exists in samples of pure re-distilled water. This water is found experimentally to have a hydrogen-ion concentration corresponding to a dilution of approximately 1/10,000,000. In order, however, to express the reaction of biological and other fluids it was recognised that a simpler means of expression was desirable. Sörensen suggested that the logarithm of the degree of dilution should be used (with the negative sign dropped). Thus an N/100 solution would be designated 2. Now 1/100 is 10^{-2}, and the logarithm is therefore -2. If we drop its sign and speak of its value as $P_H = 2$, then there is a definite fixed value to the reaction of the medium. So every medium has its own P_H value. On this scale pure water has a P_H value of 7·07. It has now become universal to use these values when speaking of the reaction of any medium, and for bacteriological media we have adopted a reaction of P_H 7·60, corresponding to that of plasma.

(2) *Titration of Media at Room Temperature.*

The ordinary routine practice has been to titrate media at the boiling point. The idea was that by this procedure the dissolved CO_2 was driven off and a more accurate estimation of the acidity obtained. But bacteriological media contain many complex organic compounds which are dissociated at the higher temperature, with a resultant increase of acidity. This increase is more than sufficient to counteract the loss of CO_2. This explains the deepening of the colour of the indicator when broth, titrated at the boiling point, cools down. There is less dissociation then, or may we say that some of the dissociated molecules at the boiling point have reunited to form un-ionised molecules? In the case of simple solutions of inorganic salts titration at the boiling point or at room temperature makes only a slight difference. It is therefore obvious that one should titrate at room temperature.

(3) *Adoption of Thymol-phthalein as Indicator in the Titration.*

We found that the most frequent cause of error in the reaction of media arose from an incorrect judging of the indicator "end-point" selected. This trouble exists with most indicators, but is much more apparent in some than in others. The selection of an arbitrary shade of colour, as is the usual practice, allows of considerable latitude. Out of a series of indicators tested in broth and controlled against the hydrogen electrode, phenol- and thymol-phthalein proved the most suitable for the titration of media. With both of these the change is from a colourless to a coloured solution, while more important still is the fact that the change takes place within a slight range of hydrogen-ion concentration. In the case of thymol-phthalein the reaction is well within a half P_H, and the blue tint developed is distinct.

A series of observations showed that with thymol-phthalein exceedingly accurate estimations can be obtained. This is due to the ease with which its "neutral point" can be judged. The "neutral point" is taken as the first perceptible darkening of the medium on the addition of N/10 soda. The titration is carried out at room temperature. The change in the medium occurs quite sharply. Two factors are probably at work—namely, the sensitivity of thymol-phthalein and the change from a yellow to a blue colour.

The titration we find is best carried out in the following way. Measure 10 c.cm. of broth into a porcelain evaporating dish. Add 25 c.cm. distilled water. Have a control dish alongside prepared in exactly the same manner. As is well known, dilution with pure distilled water to the above extent does not interfere with the estimation of the reaction (hydrogen-ion concentration). Add 5 drops of a ½ per cent. alcoholic solution of thymol-phthalein to the first dish. Then run in N/10 NaOH from a burette. Stir continuously and look for a slight but definite darkening of the liquid. This might be more aptly described as the disappearance of the yellow tint and the development of a faint blue tint.

The relative ease with which this end-point can be reached is well shown in the following results, obtained by different observers.

Sample A.

N/10 soda required.	E.M.F.*	P_H	Observer.
3·6 c.cm.	0·775	9·08	J. G.
3·5 ,,	0·771	9·00	J. G.
3·4 ,,	0·770	8·98	J. M.

Sample B.

N/10 soda required.	E.M.F.*	P_H	Observer.
4·2 ,,	0·776	9·08	J. G.
4·1 ,,	0·771	9·01	J. G.
4·1 ,,	0·768	8·96	J. M.
3·8 ,,	0·760	8 80	J. M.
3·9 ,,	0·762	8 85	M. H.
3·8 ,,	0·760	8·88	M. H.
4·1 ,,	0·778	9·12	L. G.
3·8 ,,	0·764	8·89	L. G.

* Saturated calomel—KCl half electrode.

This gives an average P_H of 8·95.

Objection may be raised to the use of thymol-phthalein as an indicator, in that it necessitates the addition of excess of alkali. In the preparation of bacteriological media, however, this degree of alkalinity is necessary, as it leads to a precipitation of phosphates. Thus, one is not troubled by a constant deposition of these phosphates in the finished media. Moreover, the degree of alkalinity is only slightly above that of phenol-phthalein, which has been much used in the titration of media. A series of experiments showed that the addition of 10–12 c.cm. of N/1 HCl per litre was sufficient to correct the excess of alkalinity and bring the final reaction to that of plasma P_H 7·60, a reaction which we have found to give maximal bacterial growths.

Phenol-phthalein may be used to titrate media at room temperature, but it is not so satisfactory. With our so-called neutral "end-point"—i.e., first perceptible darkening or rose tint with no actual pink colour—the reaction obtained is about P_H 7·8. No acid need be added, and the medium after sterilisation will have a reaction of about P_H 7·6. We have decided, however, not to use this procedure, as it did not lead to a sufficient precipitation of phosphates. The maximum precipitation of these occurs at about P_H 8·0. A higher degree of alkalinity is not desirable with this indicator, otherwise one has to deal with the indefinite pink of phenol-phthalein, the estimation of which has been such a fruitful source of error.

Preparation of Ordinary Broth.

In the preparation and standardisation of ordinary broth we use the following formulæ:—

1. Mince 1 lb. of meat, free from fat, and then macerated in cold water (1000 c.cm.) over night, or as an alternative the mixture may be macerated at 40° C. for half an hour.

2. Boil for ½ hour over a gas-ring, filter through muslin and then through paper. Add 10 g. peptone and 5 g. of salt; make, up to 1000 c.cm., dissolve, and steam for 45 minutes. The medium is now ready for standardisation.

3. Measure 10 c.cm. of the broth into a porcelain evaporating dish, add 25 c.cm. of pure distilled water. Have a control dish alongside prepared in exactly the same manner. Add 5 drops of a ½ per cent. alcoholic solution of thymol-phthalein to the first dish. Then run in N/10 NaOH from a burette, stirring continuously, and looking for a darkening of the colour as compared with that of the control dish. Just before this point a precipitate of phosphates occurs. The point may be more aptly described as the disappearance of the yellow tint and the development of a bluish. Note the quantity of N/10 soda required to produce this change. In practice it is best to make four estimations, and the first in which a distinct blue has been produced is rejected. With the average data a calculation is made as to the amount of N/1 soda necessary to produce the same reaction in the rest of the broth. This amount of soda is then added and the flask shaken.

4. The alkaline broth is now brought to the boil to deposit the phosphates, and then filtered free from them. The reaction is now adjusted by the addition of 10 c.cm. of N/1 HCl per litre of broth. This will give a final reaction corresponding to that of plasma, or P_H 7·60.

5. Control reaction with cresol-red and phenol-phthalein.

6. Lastly, place in tubes or flasks and sterilise in the autoclave for 20 minutes at 115° C.

Double-strength broth.—The double-strength broth indicated on the chart is prepared, except that all ingredients (meat, peptone, salt) are doubled, in a similar manner to that described above. Before use the medium is diluted with an equal volume of distilled water, tubed and sterilised.

Control of the Reaction of the Finished Media.

As already indicated, in the majority of instances one aims at producing an end-reaction which will correspond to that of the tissues. In our case we have adopted the reaction of plasma, P_H 7·60, as the most suitable. After the titration and adjustment of the reaction by the addition of N/1 acid it is advisable before sterilisation to control by some simple procedure the reaction of the medium in bulk.

To check the reaction it is not necessary to titrate out the broth again, but only to show that the reaction lies between two points. This can be done most conveniently by a suitable choice of indicators. Theoretically, the indicator points should lie as near as possible to P_H 7·60, but the lack of suitable indicators rather prevents this. Comparison against a known colour shade might be used, but the technical difficulties in preparing the necessary solutions and their non-permanence make them impracticable for ordinary routine practice. As a quick and reliable procedure one cannot do better than use two indicators with reaction points sufficiently near P_H 7·60. After a series of tests we have found that cresol-red and phenol-phthalein give satisfactory results.

In order to carry out this control two small samples (3 c.cm.) of the medium are diluted in test-tubes with an equal bulk of distilled water. To the first tube are added 2 drops of 0·5 per cent. alcohol solution of phenol-phthalein and to the second 2 drops of 0·02 per cent. solution of cresol-red. (Watery solution, to which 15 per cent. alcohol may be added as a preservative.) If the reaction is correct no colour change should occur in the first tube, while a rose to a pinkish colour should be noted in the second. Thus the reaction of the tested sample will not be as high as P_H 7·90, the point at which phenol-phthalein first shows a trace of pink, but will be over 7·6. Cresol-red developing a rose-pink (weak permanganate colour) at P_H 7·60. If this rose colour does not appear, but only a brown shade, the medium is on the acid side, while if a pink is obtained with phenol-phthalein the medium is too alkaline. The error in either direction can be adjusted by the addition of a few drops of N/1 NaOH or HCl to the medium in bulk and the reaction again controlled.

Before use it is, of course, necessary to sterilise the medium by heat (autoclaving or steaming), but the increase in acidity at this stage is slight (less than P_H 0·2), and is sufficiently allowed for. The above procedure we have found quite satisfactotory as an ordinary routine.

Quite recently it has been claimed that very exact evaluations of the reaction of media can be made without the use of the elaborate solutions of standard hydrogen-ion concentrations. This method was recently introduced by Barnett and Chapman,[1] and is based on the work of Salin. It consists in superimposing the extreme colours of a particular indicator. All that is necessary is weak acid and a weak alkaline solution. Barnett and Chapman advocated the use of phenol-red, which gives a range of reactions between P_H 7 and 8.

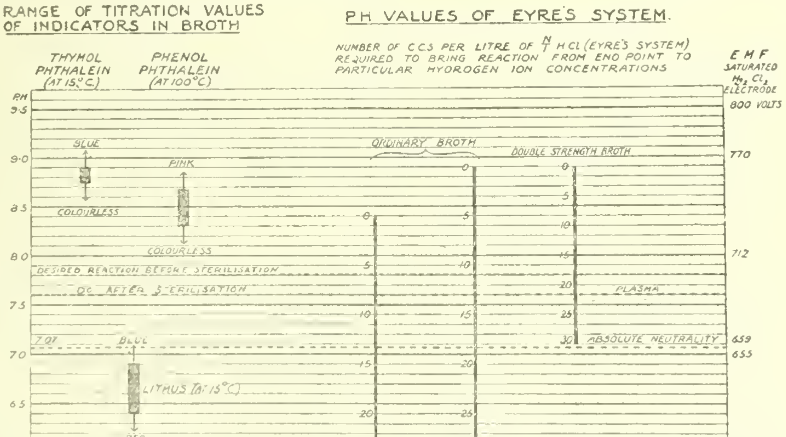
The test is carried out much as follows: Two rows of six test-tubes are placed in a double rack and into the tubes in the front row are measured 5 c.cm. of dilute acid (1 drop of concentrated HCl in 100 c.cm. of water) and into the other row 5 c.cm. of dilute alkaline (N/20 of NaOH). A solution of the indicator having been prepared (phenol-red 0·01 per cent. watery solution), drops of it are added to the various test-tubes in the amounts indicated below.

Series No.	Front row (acid series).	Back row (alkaline series).	P_H values.
1	9	1	6·9
2	8	2	7·2
3	7	3	7·5
4	6	4	7·7
5	5	5	7·9
6	4	6	8·1

To test media with this colour scale 1 c.cm. is placed in a tube and diluted with 4 c.cm. of distilled water. Then 10 drops of the indicator solution are added and the shade of colour compared with that of the above couples when viewed together. The reaction of the medium can be corrected by addition of weak acid or alkali, and a simple calculation will then give the amount necessary per litre. Although this procedure overcomes the difficulty of preparing complicated standard solutions, we have not found the method as accurate as has been stated. In the first place, there is the old difficulty of matching shades; secondly, the scale colours do not completely match those of the colours in broth; and thirdly, the scale is not permanent. The reaction obtained was never nearer than 0·2 P_H as found by the hydrogen electrode.

(5) *Relation of the Eyre Notation to the Hydrogen-Ion Concentration.*

The chief defect of the Eyre system is that it expresses the *chemical* titration values and not the ionic concentration. A series of observations, however, showed that the Eyre system could be made to indicate P_H values. These values are obtained by means of a graph, but the graph is only true when the medium is prepared in a constant manner and the neutralisation reaction known. The P_H values were obtained by adding increasing amounts of acid (0 to 30 c.cm. of N/1 acid per litre) to broth whose neutralisation reaction was known exactly. If the medium is prepared according to a different formula then a special graph has to be constructed.



The experiment given below shows the change, in the case of broth prepared according to our formula, in hydrogen-ion concentration on the addition of increasing quantities of acid. A parallel series was made, in which one sample had been titrated with phenol-phthalein as indicator and the other with thymol-phthalein.

A. *Ordinary Broth (Thymol-phthalein as indicator at 15° C.).*

N/1 acid per litre in c.cm.

	0.	5.	10.	15.	20.	25	30.
Reaction...	8·73	8·32	7·84	7·35	6·94	6·44	60·8

B. *Ditto (using Phenol-phthalein as indicator at 100° C.).*

Reaction...	8·48	8·00	7·60	7·13	6·65	6·15	5·70

It would therefore appear that with ordinary broth prepared in the manner already described there is a constant relation between the P_H values and the amount of acid added.

---

[1] Jour. Am. Med. Assoc., 1918, lxx., 1062.

In fact, the addition of 1 c.cm. of N/1 acid per litre produces a change of about 0·1 P_H in the reaction. In addition, by means of the graph here shown it is possible to prepare media of almost any desired reaction.

(6) *Other Media.*

Sugar containing media, owing to the great production of acid during sterilisation, cannot be prepared in the manner described. The sugars should be sterilised separately in water and then added to the sterile broth.

Agar media are best prepared by dissolving the agar in the neutralised broth. The error in this is small, as for all practical purposes agar can be regarded as neutral.

Gelatin media can be prepared and standardised in a manner similar to that described for broth.

Conclusion.

In conclusion, it may be said that failures to adjust the reaction of bacteriological media correctly arise chiefly from the use of unsuitable indicators, difficulty in judging the indicator "end-point," titration at the boiling point, and the hydrolysis which occurs during the process of sterilisation. The chemical titration method has been found to be quite a reliable means of adjusting the reaction in routine practice, and by the procedure described above it is quite easy to adjust with considerable accuracy the reaction of a batch of media to the desired point. By means of a specially prepared graph the Eyre system will, with certain precautions, indicate P_H values. In the colorimetric method the preparation of the accurate standard solutions required is much more difficult than is usually believed, and the error in the reaction is often quite appreciable when tested against the hydrogen electrode. The ideal method of adjusting the reaction would be by the hydrogen electrode, but the use of this apparatus requires a technical skill and knowledge which places it at present beyond ordinary laboratory application.

FOUR CASES OF

TRAUMATIC RUPTURE OF INTESTINE

WITHOUT EXTERNAL INJURY.

BY E. GERALD STANLEY, M.S. LOND., F.R.C.S. ENG.

THE interesting article by Mr. W. H. Battle in THE LANCET of July 19th induces me to record four further cases of traumatic rupture of the intestine without external lesion which came under my care during the war.

Account of Cases.

CASE 1.—A convalescent soldier of a native Indian regiment was missed from his cot, and was eventually discovered in a well some 15 ft. below the ground, his progress having been arrested by an iron strut. He was sitting on this iron bar complaining of pain and was withdrawn with difficulty. In all probability he was thrown into the well by a friend, but the whole story was a mystery and is irrelevant in any case. I only saw this patient a day after the accident (probably at least 14 hours after the infliction of the injury). He lay in his blanket quietly, and even when he could be induced to speak his replies were meaningless; he had vomited once. Pulse was 100, full, and of plus tension, and temperature 97° F.

My immediate impression was that he had fractured his skull and that there was much blood between the cortex and skull. (This was quite wrong, but first impressions are apt to bias the diagnosis.)

On examination I found no localising signs of cerebral compression, but abdominal examination revealed a picture I shall never forget. There was no external sign of injury whatever. The abdomen was bulging, did not move on respiration, and the black skin was stretched so tightly that it appeared ready to burst. The fullness was most marked on the left side of the abdomen. The abdomen was dull to percussion except for a small area in the right iliac and lumbar region and the dullness did not shift. The whole abdomen appeared to be occupied by a solid mass; the muscles were quite lax and the patient was lethargic; and whether his movements on palpation indicated pain or resentment at being disturbed I cannot tell. Nothing abnormal was discovered per rectum, and fæces were passed normally. A catheter drew off about 8 oz. of clear urine. There was a past history of malaria but no note of splenic enlargement. I hardly think this clinical picture would suggest rupture of the intestine, unless the patient was in the last stages of peritonitis, but even then dissolution is not preceded by a full-bounding pulse of 100. My impression was that the man had ruptured his liver or spleen, or both, probably the spleen only, and that the abdomen was full of blood; yet the pulse-rate and temperature puzzled me, as well as his curious lethargic condition and the solid mass that apparently occupied most of his abdomen. I opened the abdomen some two and a half hours later through a long incision to the left of the middle line. The patient showed but slight signs of shock. A very large quantity of dark red blood poured out and a truly enormous spleen occupying most of the abdomen was seen. The organ was ruptured in a stellate manner, and split into seven or eight pieces, one extending right into the hilus. Bleeding recommenced, and the vessels were found and clamped, a difficult manœuvre as the pedicle could be felt but not seen. The organ was removed piecemeal, and when the pedicle was now inspected it was seen that the clamp had seized a small part of the fundus of the stomach and a part of the extreme left edge of the great omentum.

To prevent sloughing of the stomach and perforation, a small portion of the greater omentum was removed and the stomach area enfolded by a purse-string suture. A small quantity of turbid fluid was now noticed in the left renal pouch and obvious commencing peritonitis in the upper left quadrant of the abdomen, this observation leading to the discovery of a tear 1 in. long in the anti-mesenteric border of the jejunum 6 in. from the flexure. This was closed by a single line Connel suture of thread. The left kidney pouch having been mopped dry, the abdomen was closed and drained. The operation lasted 43 minutes and the patient showed no undue amount of shock, but died from general peritonitis two days later.

CASE 2.—An Australian private, seen eight hours after the accident, stated that something struck him violently in the abdomen after a shell burst in a house close by. (The missile was probably a piece of masonry, as his clothes were full of brickdust and rubbish.) On admission to C.C.S. he had a good colour and was rapidly recovering from slight primary shock. Temperature 98° F., pulse 80. He vomited once immediately after admission, and complained of pain in the epigastrium. On examination there was slight tenderness and rigidity just above the umbilicus and across the abdomen, but no dullness in the flanks, and liver dullness was normal. I decided, after consultation with Colonel G. E. Gask, C.M.G., D.S.O., who happened to be in our operating theatre at the time, to do a laparotomy, Colonel Gask being so kind as to assist me. We found a tear three-quarter way across the jejunum about 18 in. from the flexure, and some turbid fluid round the intestine. There was no sign of peritonitis or other lesion. The rent was closed by a single layer Connel suture of thread, the surrounding peritoneum was gently cleansed, and the abdomen closed without drainage. The anæsthetic was gas and oxygen, most ably given by Capt. A. V. Maybury, R.A.M.C.(T.), and local infiltration with novocaine.

The patient made an uninterrupted recovery.

CASE 3.—The patient, a private in a British infantry regiment, convalescent in India from Mesopotamia, had attempted suicide by a 20 ft. leap from a window. I first saw him six hours after. He was shocked, pale, restless, and excited. Pulse 120 and of poor volume. Temperature 98·2° F., and he complained of much suprapubic pain. No external injury was found. Six ounces of quite clear urine were obtained by catheter, and the patient felt no desire to micturate. The lower abdomen moved little on respiration, was rigid, and markedly tender. A spot of cutaneous hyperæsthesia was marked in the mid-line just above the umbilicus; the patient had not vomited.

Here again I did not suspect the rupture of the intestine revealed at operation, and though I guessed the patient had an intraperitoneal rupture of the bladder, I unwisely delayed operation. The man's condition improved under morphia, but at mid-day his pulse-rate had risen to 130 and he complained of severe pain in the lower abdomen. By this time some bruising was visible above the pubes. On the basis that the bladder was ruptured I proceeded to open the abdomen in the middle line below the umbilicus. The bladder was collapsed and contained a few ounces of clear urine, and a tear 3 in. long was found on the postero-superior surface and extending into the peritoneal cavity. The tear was sutured and a large quantity of bloody urine mopped out of the pelvis. The urine was dirty and turbid and had a marked fæcal smell, caused by an oblique half-inch tear in the small intestine 3 ft. from the cæcum; this was sutured, while a small rent in the parietal peritoneum over the sacral promontory was not interfered with. A tube was left in bottom of the pelvis and another to drain the bladder. Dark fæcal fluid continued to come through the pelvic tube for six or seven days; this tube was removed on the tenth day and that in the bladder a few days later, after which the cystitis, which had necessitated frequent washing out of the bladder, subsided and the fistula closed. (Possibly immediate closure of the bladder without drainage would have been the best course.) Eventually the patient left en route for Egypt and England.

CASE 4.—A corporal of sappers of the French Army was clearing a wrecked bridge when a loosened iron girder struck him full in the chest and precipitated him into a trench 6 ft. deep in water. He must have been rendered unconscious as he made no effort to swim or get out of the trench, and his comrades, who saw the accident from a short distance away, found him in the process of drowning. The rescue party was seen by the enemy, and the unfortunate man received in addition a slight bullet wound of the scalp. I saw this patient within an hour. He was in the state of severe primary shock, but morphia, warmth, and rest improved his condition so rapidly that three hours later I was able to operate. This patient showed every evidence of rupture of the intestine and peritonism. The blow had fractured the seventh and eighth ribs on the left side, and bruising was evident across the abdominal wall in the left hypochondrium and epigastrium. On opening the peritoneal cavity much bright red blood at once escaped. The spleen and liver were uninjured. A complete transverse division of the jejunum was found about 3 in. from the flexure, the tear extending into the mesentery and involving two fair-sized arteries. The mesentery was so short at the place torn that the tear extended to the posterior abdominal wall, just beneath the termination of the duodenum. An end-to-end anastomosis was performed with some difficulty after the bleeding vessels had been tied and the little tear in the mesentery closed. Although turbid intestinal contents had escaped there was no sign of commencing peritonitis. The patient stood the operation well, and beyond great difficulty in getting the bowels to work and troublesome vomiting, which suddenly ceased on the third day, there is nothing of import to record in his convalescence.

The Relation of Cause to Site of Rupture.

The cause of traumatic rupture of the intestine must obviously be force applied to the abdomen or chest, as probably no traumatism from within, other than mechanical violence during operation or foreign bodies introduced per rectum would burst the intestine. Battle in the table in his article already referred to gives "other causes." Unfortunately I have not access to Berry and Guiseppi's paper or to the Transactions of the Royal Society of Medicine, II., 1909, but as far as my memory serves me no traumatic bursting effects from within are mentioned. The mechanics of the traumatism are the same when the actual cause is a fall, a kick, a blow, or even pressure, as in the case of a street accident.

More important than the nature of the blow is its velocity, on which depends length of time during which the force is applied, and thus the rapidity of compression of the abdomen. The size and shape of the instrument are also important, but to a lesser degree. If the rate of compression is rapid the abdominal muscles have no time to throw themselves on guard and protect the contents of the abdomen, and, moreover, the intestines are given no time to slip out of the way. If the abdominal wall is slowly compressed by the fist (as in the manœuvre described for compressing the abdominal aorta) the intestine can never be ruptured whatever force is applied. Conversely, the intestine has been ruptured from a blow of the fist in the epigastrium in boxing, the velocity of the moving body being the determining factor in each case.

In Cases 1 and 3 the moving body was the patient's own body and the velocity that due to gravity. In Cases 2 and 4 the patient was struck by a moving body, in each case with considerable velocity, but probably not so great as in Cases 1 and 3. As to the site of rupture, it used to be taught that the most fixed part of the intestine, being unable to escape the compressing force, was the part most frequently ruptured. In theory this seems probable, but in actual fact the reverse holds. The most fixed parts of the intestinal tracts are the duodenum and parts of the large intestine other than the cæcum, the transverse and pelvic colon, and the rectum. Experience shows, however, that the most movable parts of the large gut—the cæcum, the transverse colon, and pelvic colon—are the most frequently ruptured, in that order. The rectum is well protected by the bony pelvis from all but the most severe crushes. The duodenum is placed chiefly on the inner side of the watershed formed by the vertebral column and is protected by the latter in that a compressing body from before backwards will meet the vertebral column first; but this very protecting influence to the greater part of the duodenum renders the transverse part the more liable to injury as it crosses the watershed on its summit. The duodenum is further protected by the ribs laterally and anteriorly, by the liver, and by the air cushion of the colon which crosses it, and is thus fairly immune from injury, except in its third or transverse part. Far otherwise is it with the jejunum and ileum.

The coil of intestine nearest the abdominal wall at the point struck is usually the coil in which rupture takes place, and in so far as the first few feet of the jejunum and the last few feet of the ileum before the ileo-cæcal junction are usually in this position they will tend to be injured. The mechanism is simple. If the abdomen is struck above the umbilicus the force is transmitted to the first few feet of the jejunum. The mobility of this coil allows it to be pushed till it is checked ultimately by the vertebral column, and between the latter and the moving body it is crushed and ruptured. The frequency with which one finds a small tear in the posterior parietal peritoneum close to the summit of the vertebral column would suggest this mechanism, also the bruising and laceration at the tear. A parallel situation occurs at the ileo-cæcal junction.

In Case 3 a small tear was found over the sacral promontory, the crushing force having first ruptured the bladder and then crushed and ruptured the intestine against this bony prominence. In Case 4 the jejunum was torn unusually close to the duodeno-jejunal flexure. An unusual feature of the cases recorded above is that in two of them other organs were ruptured at the same time.

In Case 1 it is not surprising that a spleen enlarged by malaria should be ruptured, but one would think that its size would protect the intestine beneath it. I believe that in this case a coil of jejunum must have lain in front of the enlarged spleen and have been driven into this organ, which, rupturing, allowed the intestine to be torn against the vertebral column in the usual way. In Case 3 also another organ was ruptured. As the accident occurred at 2 A.M. it is reasonable to suppose that the bladder was fairly full as the man would not have micturated for five or six hours. The tear in the parietal peritoneum suggests that the bladder was first ruptured against the sacral promontory and then the ileum caught and crushed at the same spot as the ruptured bladder.

Diagnosis.

There is no sure and invariable sign or symptom, or group of signs or symptoms, which render the diagnosis certain. Occasionally, as in Case 4, a group such as rapid pulse, marked abdominal rigidity, and extreme tenderness, with the history, and with visible bruising and fracture of the ribs, makes rupture of the intestine almost a sure diagnosis; while on the other hand, the absence of these signs and symptoms in Case 2 made such a diagnosis improbable. The important signs and symptoms are:—

(*a*) *Time after accident.*—This, of course, influences the whole picture. If the patient is seen early, as in Case 4, primary shock is sure to be the predominant factor, while if seen late commencing peritonitis will control the signs and symptoms. From my small experience it would seem that peritonitis commences much later than one would expect. Only in Case 1 was there any sign of peritonitis, and this was only beginning.

(*b*) *Pulse-rate.*—This is always rapid, due to primary shock. It will fall as the shock passes off, and rise again if peritonitis commences. It is thus of no help in the diagnosis of intestinal rupture.

(*c*) *Temperature.*—This is generally normal or subnormal, due to primary shock. It will rise a little as the patient improves, but any rapid or marked rise is due to peritonitis, and I cannot agree with Battle that a high temperature indicates a "definite lesion in the wall of the gut." From my experience, and from cases I have seen with others, I would say that a high temperature indicates recovery from primary shock (if early), or peritonitis (if late).

(*d*) *Shock.*—Primary shock is nearly always present. Secondary shock may also occur later, especially if other injuries are present or much hæmorrhage: it is a bad omen. Primary shock should rarely prevent operation with modern methods of treatment and anæsthesia.

(*e*) *Rigidity; cutaneous hyperæsthesia.*—This is an important indirect indication that the gut may be ruptured; it may be hardly noticeable (as in Case 2). Also it is well to remember that contused muscles are often rigid and tender where no gut lesion exists. A more important sign and one rarely mentioned is cutaneous hyperæsthesia. A ruptured gut will give rise to cutaneous hyperæsthesia in its own cutaneous region, and it is elicited by picking up the skin and gently lifting it away from the underlying muscle before pinching it. The muscle tenderness is thus excluded. I have remarked this hyperæsthesia in many cases of gunshot wound of the intestine, and it was pronounced in Case 3.

(*f*) *Vomiting.*—This is not influenced by the proximity of the lesion to the stomach. In gunshot wounds of the intestine I have found vomiting rarely absent, but I believe it was due to the injury to the parietal peritoneum rather than to the gut itself.

(*g*) *Flank dullness.*—I believe the presence of this sign, especially in the left flank, to be of great importance. Rupture of the spleen or liver may cause it alone, but when the jejunum is torn blood is sure to trickle into the left kidney pouch and give rise to dullness on percussion. This sign was present in two out of three of my cases where the jejunum was torn; in the third case the bleeding had been insignificant. In Case 4 the dullness caused by the bleeding from the two arteries in the lacerated mesentery was so extensive that before operation I believed the spleen to be torn. Flank dullness with a ruptured gut is caused by fluid in the kidney pouch, either blood or the serum of an early peritonitis.

(*h*) *Absence of liver dullness.*—This must be rare. It usually occurs late and indicates peritonitis, the paralysed intestines masking the liver.

The only two signs which appear of real use in diagnosis are thus cutaneous hyperæsthesia and dullness in the left flank. The difficulty of diagnosis thus makes it clear that if there exists in the mind of the surgeon a suspicion that the intestine be ruptured the right procedure is to open the abdomen and see, providing the patient can stand the added shock of the operation.

Operation.

The outlook for operative treatment depends, of course, primarily on the length of time elapsed since the injury. The operation itself is likely to be successful if the shock receives proper treatment and if the anæsthetic is gas and oxygen, combined with local infiltration of the abdominal wall by novocaine (or spinal anæsthesia). The incision must be long and adequate, and no retractors or other instruments of torture to the central nervous system should be used. The abdominal wall should "flap in the wind" and reveal all its contents, and the patient should not be rolled or turned during or after the operation. The success of the operation depends also on whether the lesions are found at once. The portion of gut ruptured will be between the point of impact of the moving body on the abdominal wall and the side or summit of the vertebral column. A small tear in the posterior parietal peritoneum often exists. Resection of gut will only rarely be necessary. Tears in the mesentery, unless very severe and ragged, do not indicate resection unless the former is detached from the gut for some inches. A contused or lacerated tear, complete or partial, of the gut need not cause alarm or necessitate resection.

If the tear is complete and the edges bruised and ragged it is best to suture the torn ends together, folding in all the contused portion by a Connel stitch in the form of a diaphragm within the lumen. This diaphragm, so enfolded, will look after itself and the anastomosis be secure, for if the bruised intestinal edge is dead it will be digested. If the tear is contused and partial enfold and suture in the same way, converting a longitudinal tear into a transverse line of suture.

Gunshot wounds have shown the extraordinary vitality of the intestine; that there is a good longitudinal anastomosis in its submucous coat; and that much more extensive sutures can be performed with safety than was imagined. So certain is it that most recoveries take place after suture that one may justifiably insist that resection should only be performed in the minority of cases where the necessity is strikingly obvious. If adjacent to the main tear are found two, three, or a dozen other tears, they should all be sutured; this will take no more time than a resection. To perform a resection in order that sutures may be placed in healthy tissue is to my mind a procedure based on false premises and greatly endangering the patient's life. The contused tissue can be cut away with scissors or, better still, enfolded to any extent by sutures placed in healthy tissue; no narrowing of the gut lumen or harm will ever come from this method. A single sero-muscular suture suffices for tears in the intestine. In those cases where resection is an absolute necessity it should be performed as simply and rapidly as possible, and the most simple and rapid method of end-to-end anastomosis is that shown to me by my friend Gordon Taylor; no special instruments are needed other than two Mayo-Oschner forceps.

Drainage is hardly ever necessary and the abdomen should be closed with sutures of strong silk, rubber sheathed, taking up the whole thickness of the abdominal wall if the patient's condition causes anxiety; should a ventral hernia occur it can be cured later.

Paris.

CŒLIAC DISEASE OR BORIC ACID POISONING?

BY DAVID FORSYTH, M.D., D.Sc., F.R.C.P.,
PHYSICIAN TO THE EVELINA HOSPITAL FOR CHILDREN; PHYSICIAN TO OUT-PATIENTS, CHARING CROSS HOSPITAL.

IN Gee's original paper[1] in which "the cœliac affection" (consumptive bowels, diarrhœa alba) was first described and named, the disease is stated to occur most often in the first five years of life, the distinctive symptoms being: (*a*) a looseness of the bowels not amounting to diarrhœa, the stools being bulky, pale, not watery but very foul-smelling; (*b*) a soft doughy abdomen which may be distended and rather tight; (*c*) emaciation with muscular weakness; and (*d*) pallor. The onset of the disease is gradual, though sometimes sudden. The course is always slow, running for months or years and ending either in complete recovery, partial recovery (relapses and stunted growth), or in death from some intercurrent affection.

Summary of Recent Literature.

These particulars may be supplemented from the most recent literature. Confirming Gee's observations, Still, who has seen the condition as early as the eighth month, adds that dropsy may develop, the temperature is usually not raised, neither liver nor spleen is enlarged, and the dentition is not delayed. He mentions skin eruptions, including purpura, as occasional phenomena, and shares Gee's rather paradoxical view that the disease is often mortal and yet may run on for years to end in complete recovery.[2]

As to the cause and symptoms, the facts hardly carry us beyond speculation. Still raises the question of their relation to scurvy, and again to micro-organisms in the stools, but most inclines to see in them a likeness to tropical sprue.[3] Hutchison and Waugh,[4] who find the disease is as common in private as in hospital practice, speak of the cause as obscure, but suggest either a pancreatic deficiency, a hepatic deficiency, or, following Herter, some abnormal intestinal flora.

This uncertainty on the ætiological side is reflected in some measure when we come to the question of treatment. Hutchison and Waugh affirm the primary importance of diet, and would exclude fatty foods, seemingly because they find fat in excess in the stools. To Gee also the regulation of the diet is the main consideration, and of all foods "cow's milk is the least suitable." Poynton, Armstrong, and Nabarro write: "In some cases milk seems most injurious, in others it has been the great stand-by."[5] But the most emphatic condemnation of cow's milk comes from Still. "First and foremost ...... is the prohibition of all fresh cow's milk. I lay great stress on this point, for often ...... the mother has been specially advised to 'give the child nothing but milk.' No surer method could be adopted for perpetuating the trouble, and the omission of all fresh milk is generally sufficient alone to cause improvement ......" Though unable to explain the harmful effect of cow's milk, Still is inclined to suspect its fatty contents. Nevertheless, he admits that dried cow's milk is apparently harmless, as also is condensed milk or ass's milk.

---

[1] St Bartholomew's Hospital Reports, 1888 xxiv., 17-20.

[2] Common Disorders and Diseases of Childhood, by Dr. G. F. Still, third ed , 1915.

[3] Loc. cit.

[4] Diseases of Children, edited by Drs. Garrod, Batten, and Thursfield, 1913.

[5] Recurrent Diarrhœa in Childhood, by F. J. Poynton, R. A. Armstrong, and D. N. Nabarro, Proc. Roy. Soc. Med., vol. vii., Pt. 2, Med. Sect., p. 10.

On the whole, therefore, cow's milk would seem to bear some intimate relation to the symptoms, though it must be admitted that the foregoing opinions appear to include some puzzling contradictions.

Account of a Case.

To this summary of the current views I wish to add particulars of a case with some special features which seem to throw light on the problem.

The patient was a baby girl of 8 months, the only child of a medical man practising in the Home Counties. At first breast-fed, she was weaned to cow's milk, and for a while made satisfactory progress. In the early summer the milk-supply was changed; a fortnight later she began to ail—the bowels became loose and she took the bottle unwillingly—but she was sent away for six weeks to another part of the country and gradually became herself again. A fortnight after her return (to inter alia the same milk-supply), and 16 days before I first saw her, she again ailed and went off her food, though without any definite symptom except that her weight ceased to increase. At the end of this time her feeds, which had consisted of sterilised cow's milk and barley water in equal parts, were changed to whole milk, also sterilised. The next day she passed an extraordinarily bulky and copious motion, and this seems to have been responsible for my coming into the case the same evening.

On examination she was organically sound, with no distinctive signs of rickets or scurvy, but she was pale and flabby, with dark lines under the eyes and cold extremities. The abdomen was full, soft, and not tender. Though very much out of sorts she had a normal temperature, and was in no way acutely ill or seemingly in any pain. The general hygiene of the child was excellent, and the storage of the milk and preparation of the feeds were above suspicion—the mother had been a hospital sister—and I contented myself (for a reason given later) with prescribing raw meat juice as a daily antiscorbutic and, in view of the child's age, a small quantity of farinaceous food to be added to the bottle feeds.

During the next six days she became steadily worse. When I then saw her she was even paler than before, more restless and fretful, with no inclination to feed, and her weight was falling, but still no fever and no pain, unless, possibly, some uneasy feelings in the abdomen. During these six days, however, the outstanding feature of the case had been a looseness of the bowels, two, three, and even more motions a day, and almost all of them soft, pale, foul-smelling, and of voluminous size, so large, indeed, as to provoke comment that they could issue from so small a child.

Considerations as to Cause of Illness.

The case plainly conformed to the descriptions of cœliac disease. But this diagnosis did not solve the practical question as to the cause of the illness, and for guidance in this direction I relied on the following considerations:—(*a*) The child was organically healthy; (*b*) its home environment and daily hygiene were commendable in all respects; (*c*) its feeds were prepared at every stage in a way which left nothing open to criticism; (*d*) the symptoms pointed to a mild gastro-intestinal irritation. On these grounds it was hardly possible, even at the first examination, to resist the inference that the trouble was set up by a something harmful in the milk as supplied from the dairy. That this was improbably a bacterial infection was attested, in some measure, perhaps, by the associated mildness and persistence of the symptoms, but more unequivocably by the absence of fever, pain, and any ordinary diarrhœa.

The father, however, would not hear of my first suspicions. He had, it appeared, been at special pains in arranging for his infant's milk-supply which was obtained from a neighbouring dairyman—a patient of his—whose farm was close at hand; and he had personally obtained from him a verbal guarantee that nothing in the nature of a preservative should be used; further, the milk reached him by special hand-delivery within half-an-hour after each milking. But at my second visit he was persuaded to cancel any further deliveries from this source; and also to send a specimen of the milk for examination by the county analyst.

With no other change in the treatment than a new supply of fresh cow's milk the aggravation of the symptoms ceased, and within a couple of days the child began to mend, though it was some months before she was herself again. The symptoms never recurred.

The analyst's report showed that the milk contained boric acid to the amount of 5 gr. to the pint—i.e., the child had been taking at least 7½ to 10 gr. of the preservative daily.[6]

Toxic Effects of Boric Acid.

No special attention appears to have been given to the toxic effects of boric acid on infants, but all authorities are agreed that with adults the drug, in doses varying with the idiosyncrasy of the patient, acts as a mild gastro-intestinal irritant. From a comparison of several accounts[7] it may be said that the symptoms in adults begin with loss of appetite. Digestion is deranged, nausea and even vomiting may occur, and a mild diarrhœa sets in, but without any rise of temperature. The patient suffers no pain, but becomes weak, depressed, and sleeps badly. The weight begins to fall, and skin eruptions, including petechiæ, develop. Fatal cases are recorded.

The resemblance between these symptoms and those of cœliac disease are noteworthy; and though this might mean nothing more than that both are varieties of gastro-intestinal irritation, nevertheless, in view of (1) the analyst's report, (2) the contemporaneous relation between the first onset of the symptoms and the first supply of this milk, (3) the recurrence of the symptoms when this supply was resumed, (4) their aggravation as soon as the milk was given undiluted, and (5) the curative effect of merely changing the supply, the case appeared beyond any clinical doubt to be one of boric acid poisoning.

Is Cœliac Disease Due to Borated Milk?

If cœliac disease is, in fact, boric acid poisoning, the symptoms being due, not to cow's milk, but to borated cow's milk, the seemingly contradictory observations on treatment which have been quoted above appear in a new light. To give cow's milk, says Still, is the surest way to perpetuate the trouble, and merely to abstain from it is generally enough to cause improvement. Cow's milk, says Gee, is the least suitable diet. Poynton, Armstrong, and Nabarro emphasise the harmfulness of cow's milk in some cases and its good effect in others. Further, dried milk, condensed milk, or ass's milk (these contain no preservative) is a safe and harmless diet.

These statements, which cannot be explained by any of the hypotheses already quoted, at once fall into line on the assumption that borated milk is the cause of the trouble.

I would add the following historical note. Boric acid was not employed as a food preservative until comparatively recent times, and THE LANCET was the first to draw public attention to its use as a novel preservative of milk. This was in 1887.[8] The date of Gee's paper describing the new "cœliac affection" is 1888. *Ex hypothesi*, the earliest cases of cœliac disease could not have occurred until the later 'eighties.[9]

Conclusion.

Not to base too wide a conclusion on the testimony of a single case, it may be claimed that some examples, at any rate, of so-called cœliac disease are in fact cases of boric acid poisoning; and in view of the importance of the matter it would not be justifiable to withhold this conclusion from others who, with cases of this disease, consumptive bowels, or diarrhœa alba, may be in a position to help in settling whether all cases have this causation.

In undertaking a chemical analysis for boric acid it should be remembered that the preservative may not be present in each day's milk supply, but it is more likely to be made use of in hot or muggy weather.[10] Further, boric acid is very widely used commercially; it may legally be added to cream and butter; it has often been found in tinned foods, dried fish, and meats, bottled (liquid) eggs, &c. A patient may therefore be poisoned by one or more of a variety of comestibles.

---

[6] It may be of interest to mention that the case had a legal sequel. The father, with commendable public spirit, brought a civil action against the milkman and was awarded the nominal damages he claimed. The defendant in the witness box declared that until this suit was started he did not know what boric acid was, but in cross-examination he admitted a conviction elsewhere for this very offence. Indeed, the impression left on those who heard his evidence was that he kept a supply of boric acid somewhere at the back of his premises, and, in the summer months at any rate, ladled it to his milk just so much as accorded with his feelings as a meteorological prophet.

[7] Text-book of Pharmacology and Therapeutics. By Professor Cushny, 6th ed., 1915. Manual of Pharmacology, by Professor W. E. Dixon, 4th ed., 1915. Text-book of Pharmacology, by Professor Sollmann, 1906. B.P. Codex, 1911.

[8] THE LANCET, 1887, ii., 333.

[9] Just as the first cases of infantile scurvy, as recorded from 1878 onwards, had to await the spread in the earlier 'seventies of the novel practice of sterilising cow's milk.

SOME REMARKS ON
"SPANISH INFLUENZA":
ITS NATURE AND ÆTIOLOGY.

By ALEXANDER EDINGTON, M.D., F.R.S. Edin.,

MEDICAL SUPERINTENDENT OF GREY'S HOSPITAL, PIETERMARITZBURG; LATE LIEUTENANT-COLONEL, S.A.M.C., E.A. EXPEDITIONARY FORCE; FORMERLY DIRECTOR OF THE BACTERIOLOGICAL INSTITUTE, CAPE COLONY.

I took over charge of Grey's Hospital in January, 1918, and admitted cases of influenza every month from that time onward. In the majority of cases the malady was uncomplicated, but in some there followed a true influenzal pneumonia of the type so common in the Edinburgh epidemic of 1889. Only one case died up to October, 1918, but about the 12th of that month there was an enormous rush of cases, and between that date and the end of the month 234 cases were admitted, of which 41 died (29 natives and 12 whites). At that time, owing to the war, I was the only resident, and owing to the amount of work in the town and district the visiting staff were unable to render any assistance.

In the 1889 epidemic there was no heavy mortality, although, following in its wake, we had a large mortality from other diseases, especially tuberculosis, which had been lit up, perhaps, by the influenza, or, at least, had profited by the lowered resistance of its victims. In the case of the so-called "Spanish influenza," however, the mortality has been so enormous as to raise a grave doubt as to whether this mortality was actually attributable to influenza or to some other more malignant infection. If it is a new disease, what are its characteristics, or, if not, is it a recrudescence of some malady which has lain dormant for some generations?

Symptoms of the Epidemic.

The main symptoms of this epidemic in my experience, have been:—

(*a*) Malaise, headache, and pains in the body. In the fatal cases pains extending down whole length of the back have been common.

(*b*) The temperature has usually risen rapidly, but there has rarely been a true hyperpyrexia. Where this has occurred it has usually been within the first few days and, I think, was due to true influenza. But in certain fatal cases the temperature fell about the fourth or fifth day, and rose again about the fifth or sixth day, presenting a very different curve. I consider that in such cases the first curve was true influenza arising after a short period of incubation, and that the second curve arose after a longer incubation and was due to an unknown factor.

(*c*) The pulse rises with the fever, but during the curve of the second stage there is a very definite rise in blood pressure, and the pulse is hard and bounding.

(*d*) Following upon the rise in blood pressure there is frequently a short explosive cough when gelatinous masses of mucus, and sometimes clots of blood, are forcibly ejected. In one case there was an actual rupture of a blood-vessel attended with profuse hæmorrhage.

(*e*) The delirium comes on about the third night, and is not severe at first; the patient can be roused into a lucid interval; but after about 48 hours the delirium is much more severe, and lucid intervals are rarer. Eventually it is of a violent character and there is difficulty in keeping the patients in bed.

(*f*) In the cases which went on to a fatal termination there has usually been an entire absence of any definite pathological symptom in the lungs until crackling sounds are heard. This symptom usually comes on very late in the illness, and foreshadows death. The sound is very peculiar, and is such as one might expect if the lungs had been removed and the thorax packed with dry, crushed paper. But even after this crackling has been manifested for some time there is little or no alteration in the percussion note.

(*g*) The last symptom is one of the most serious import—namely, the blackening of the nails and the dusky hue of the face. This has been commonly the forerunner of death, and is so characteristic that the public have taken notice of it.

Post-mortem Examinations.

I regret that I have not had the opportunity of seeing as many post-mortem examinations as I could have wished, and I am much indebted to my friend Mr. C. Ward, the district surgeon, for assisting me in making examinations of my own cases and letting me have access to all that he could. In view of the preceding crackling sounds one was led to expect great changes in the lungs, but there is little actually to be found. Usually there is some excess of pleural and pericardial fluid; the lungs are deeply engorged and, when cut across, a dark fluid of the consistence of glycerine exudes. There is no pneumonia, either lobar or bronchial; the lungs are quite buoyant and float in water. In my opinion the fatal issue, so far as the lungs are concerned, is due to a thrombosis of the whole of the pulmonary vessels. The vessels of the meninges are also congested and we have taken long thrombi from them. Of the abdominal organs the liver and kidneys are usually very deeply congested, but the spleen is not usually enlarged although it may be soft and friable.

Bacteriological Investigation.

I did not attempt a thorough investigation since I had no laboratory to work in and did not really have the time to spare, but I shall state briefly such observations as I was able to make.

Examination of the scanty sputa of the delirious cases showed, in somes cases, the presence of bacilli of the plague type, but not absolutely typical. The bi-polar staining was not so clearly nor so sharply defined as in plague. An injection of a few drops of such a sputum into the subcutaneous tissue of a guinea-pig was followed by its death in six days, but it did not show any illness until the day previous to its death. An examination of its spleen showed the presence of small bacilli which gave an incomplete bi-polar staining. They frequently appeared in short chains of two or three, and might easily be mistaken for streptococci at a first glance. A gelatinous membrane surrounded them. I did not make pure cultures. Subsequent to this, examination of spleen smears from fatal human cases showed the presence of similar bacilli, but it was remarkable that they were never present in great numbers and appeared to be irregularly distributed in the organ. I succeeded in obtaining pure cultures from a series of five cases. More recently several peculiar cases have been seen where there were no suspicion of any influenza and the symptoms were fever with delirium passing quickly into unconsciousness. In one of them there were peculiar nervous convulsive movements of the arms. At the post-mortem of this case we found the lungs quite normal; the spleen was not at all enlarged and was unfortunately not examined. On opening the skull there was found a small patch of grey exudate of a somewhat dry granular character, a smear of which was negative. The ventricles were distended with fluid. I opened the left ventricle of the brain aseptically and spread an öseful of the fluid over a sloped agar tube. Eight pure colonies of the same bacillus, that I had already isolated from the spleens, were found.

In smears of the spleen containing this bacillus one finds many oval bodies showing bi-polar staining, having a strong similarity to the bacilli of bubonic plague. In size they vary from 1·0 micron to 1·75 micron in length and 0·5 to 0·75 micron in breadth. But one also finds somewhat amorphous bodies (these occurred largely in the first spleen I examined, but I failed to identify them as being organismal). These are but an exaggerated example of those found in bubonic plague.

Inoculation of this culture subcutaneously into a guinea-pig was followed by death six days later. There was a considerable amount of a greyish hæmorrhagic œdema at the site of the injection, a smear was found to be crowded with the characteristic bacilli and ovoid forms. The peritoneum was practically devoid of fluid. The liver was much congested, but the spleen was very little, if at all, enlarged and was of a ruby colour. Intra-peritoneal injection into a guinea-pig was followed by death in 48 hours. The peritoneal fluid was swarming with the bacilli, of which some had formed rather longer filaments. Pure cultures were obtained directly from this fluid. There was a remarkable pleuritis consisting of the greyish exudate which, however, was not at all like pus. This material was filled with the bacilli, a smear of which might almost be mistaken for a smear of a bubonic plague spleen.

---

[10] Its use at all in milk is, of course, now illegal in this country.

The bacillus grows rapidly in bouillon and possesses a very disagreeable odour. (Patients in an advanced state of the disease also have a very peculiar odour which is difficult to describe, but to my mind is sour and musty.) On agar it does not form a very characteristic growth and it is interesting to note that different samples show slight differences. The first culture was obtained under difficulties and was incubated for some time at a higher heat than I wanted. It shows a free, sticky, greyish-white growth. After passing through the peritoneum of a guinea-pig the culture was undoubtedly changed, in that the glutinous character was much less evident, although the morphology was still the same.

I have made a series of attempts to isolate the bacillus from the blood during life, but have never succeeded. In the case of the bacilli obtained from the left ventricle of the brain the fluid was drawn within three-quarters of an hour after the death of the patient.

I should mention that the guinea-pig inoculated intraperitoneally showed violent convulsive movements of the body for some hours previous to its death. The others inoculated subcutaneously showed no such movements, but passed into a lethargic condition ending in death.

One cannot say that the bacillus which has been isolated is actually the cause of the disease, although the fact of finding it so often and the results obtained by inoculation are certainly very suggestive. If it is the cause it is worthy of note that the virulence very soon disappears in artificial cultures.

It is one of the most pleomorphic organisms which I have ever had to deal with, following very much the line of bubonic plague bacilli. When grown in bouillon for six hours, examination after staining with carbol-methylene blue shows bacilli with rounded ends clearly giving a bi-polar staining. On agar the growth is that of bacilli mostly, and after a few days' growth there is great evidence of degeneration of the bacilli. One finds many of them with ends looking as if irregularly broken off. I have never seen such a peculiar condition before in any bacillus with which I have had to deal. The growth on agar is at first fairly profuse, but if removed from the incubator and allowed to grow at the ordinary room temperature one finds a secondary growth taking place. This is much thinner than the original, and projects away from the main growth in a thin plate made up of irregular striæ running out at right angles to the growth and granular in appearance.

It is extremely interesting to note that the spleen must carry much more bacilli than microscopical examination would make one expect. On the examination of one spleen I had difficulty in seeing bacilli and had to search numerous fields to find sufficient to justify an assertion that they were actually there; but on touching the spleen pulp with an öse and rubbing this over a sloped agar tube I obtained a nearly confluent growth. I had the pleasure of demonstrating this spleen smear and the tube of colonies to the Influenza Epidemic Commission on their visit to this hospital.

I have satisfied myself that the malady is a definite infective disease of high virulence. Indeed, in my opinion, it has probably accounted for the most of the death-rate of the so-called influenza in this province. I cannot, however, suggest the manner of its spread. I have not seen a case arising from direct infection; although a heavy percentage of the nurses went down it was from simple uncomplicated influenza from which they all recovered. The cases can be diagnosed very soon after admission, in some cases, especially if there are no lung symptoms and the temperature is not over 104°, and if the nervous condition is well marked. Cases in which a moderately high temperature remains high for 48 hours without lung symptoms are to be regarded with suspicion. The third type, which is not so common in the present epidemic as it was last October, is that in which the patient is admitted with a rising temperature which forms a curve extending over about five days, drops to nearly or quite normal, and is then followed by a sharp rise and remains high.

Treatment.

As regards treatment, so far as my experience goes, nothing seems of great avail. Recently we have been attempting to treat the delirium as early as possible with sedatives. Of these ammonium bromide is peculiarly beneficial. Under a dosage of 10 gr. per hour the delirium is somewhat abated and the pulse softens, but where it is insufficient paraldehyde, chloralamine, or hyoscine may be used. I venture to suggest that morphia is contra-indicated as tending rapidly to permit pulmonary œdema, which is the forerunner of a fatal issue. This treatment has undoubtedly the result of delaying the fatal issue for several days. In such cases one is able to note the enormously increased reflexes. These are so well marked that it is almost impossible to take the pulse at the wrist.

The disease would seem to be one affecting the cerebrospinal nervous system, and to be more irritative than inflammatory. Pulmonary and other conditions which may supervene might be regarded only as complications, arising from the disorganisation of the nervous system.

INFLUENZAL BRONCHO-PNEUMONIA AND PNEUMONIA TREATED WITH THE ARMY MIXED VACCINE.

FEBRUARY TO MAY, 1919.

By J. BLACK-MILNE, M.B. ABERD.,
AND
KENNETH ROGERS, O.B.E., M.D. LOND.,
PHYSICIANS TO BROOK WAR HOSPITAL, WOOLWICH, S.E.

BEFORE dealing with our experience of the vaccine treatment of influenzal pneumonias, we will first give the number of cases of influenza (3432 in all) and the death-rate, in the three waves, so far as this hospital was concerned: May to August, 1918, admitted 1809 cases with 10 deaths; September to December, 1918, admitted 1131 cases with 38 deaths; January to May, 1919, admitted 492 cases with 14 deaths. In the first two periods no vaccine was used.

The accompanying series of eight charts are taken from 35 similar charts, carefully recorded, of cases of broncho-pneumonia and pneumonia treated by vaccine here.

Clinical Notes of Eight Cases.

CASE 1.—The main features of this case were the marked cyanosis and prostration of the patient. Râles were heard all over both lower lobes, and the sputum was red-brown. Four injections were given in all, the dose increasing by m. i. from m. iii. to m. vi., and the patient made a rapid recovery.

CASE 2.—Râles with a similar distribution were heard in this patient; the sputum was copious and red for five days. One injection, m. iv., was given.

CASE 3.—This patient was cyanosed and had herpes on lips, besides râles in both lower lobes and red-brown sputum. Two injections, m. iii. and m. iv., were given, and he made a rapid recovery.

CASE 4.—In this case there was massive consolidation in the right lung, as well as râles in both lower lobes; the patient was cyanosed; he made a gradual recovery, with prostration. One injection only, m. iii., was given.

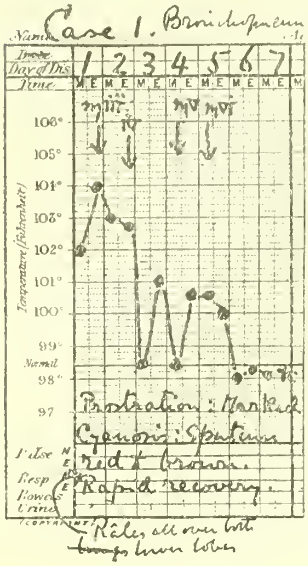
CASE 5.—This was a case of pneumonia of the lobar type, with red-brown sputum and massive consolidation in the right lower lobe. Two injections, m. v. and m. viii., were given on the third and the fifth days of illness.

CASE 6.—Epistaxis was a feature of this case, which was of the broncho-pneumonic type. An injection of m. iii. was given on the seventh day, when the temperature rose to 104·8° F., pulse 80, respirations 44, and m. v. on the following day. The right base was dull, and the patient showed the same conditions as to râles in lower lobes, prostration, cyanosis, and red-brown sputum as the other cases; he made a slow recovery.

CASE 7.—In this case there was marked dusky violet cyanosis to the tenth day, and also consolidation of the red lower lobe. Râles were heard all over the chest, and the sputum was brown. The patient showed marked drowsiness till the seventh day, and recovered gradually after the tenth day. Two injections of m. iii. and one of m. v. were given in all.

CASE 8.—This was a case of very severe broncho-pneumonia with slow recovery. Four injections were given, as in Case 1. The cyanosis, violet at first, dusky later, lasted for 14 days; the patient was drowsy and had tremors. There were râles over both lower lobes. On the eleventh day of illness the respirations were still 44, pulse 108, though the temperature was normal.

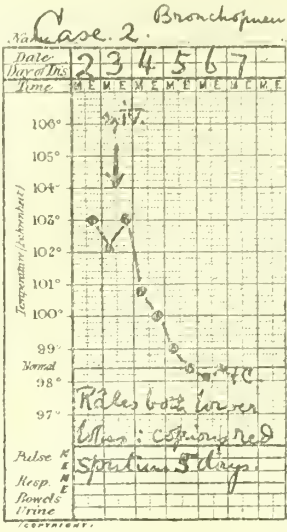
Case 1. Bronchopneum



Prostration: Marked Cyanosis: Sputum red & brown. Rapid recovery.

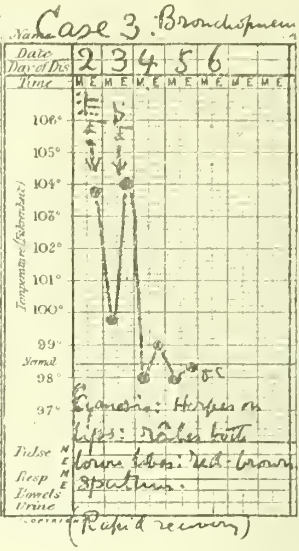
Râles all over both ~~lungs~~ lower lobes

Case. 2. Bronchopneum



Râles both lower lobes: copious red sputum 5 days.

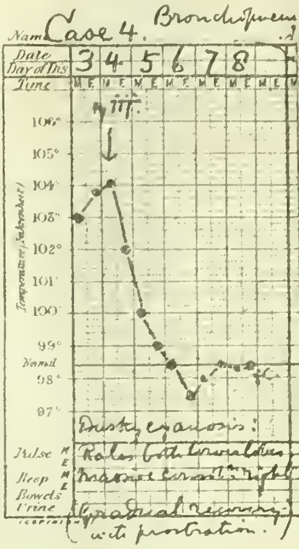
Case 3. Bronchopneum



Cyanosis: Herpes on lips: râles both lower lobes: red-brown sputum.

(Rapid recovery)

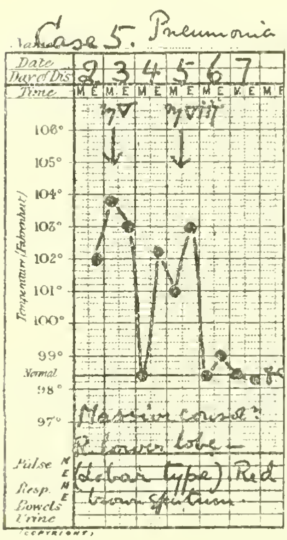
Case 4. Bronchopneum



Dusky cyanosis: Râles both lower lobes massive consolidation right

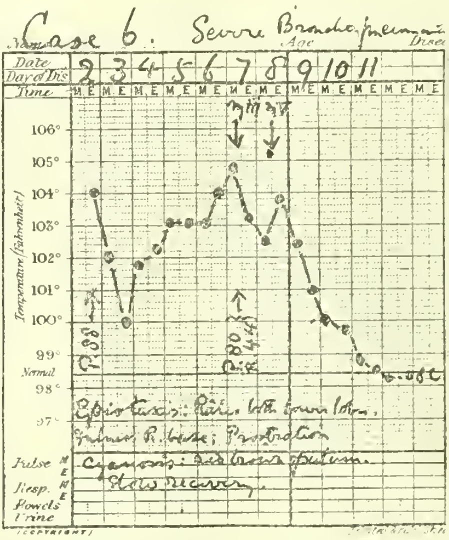
(Gradual recovery with prostration.)

Case 5. Pneumonia



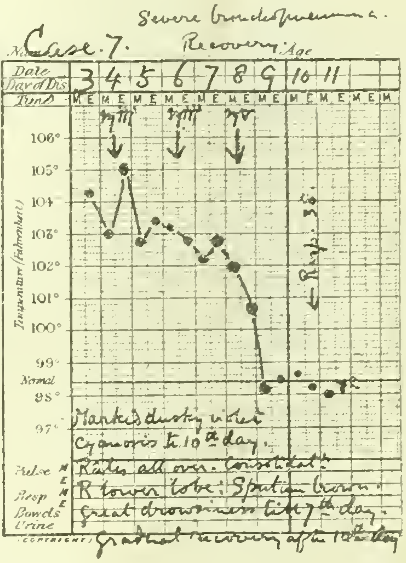
Massive consol. R lower lobe (lobar type) Red brown sputum.

Case 6. Severe Bronchopneumonia



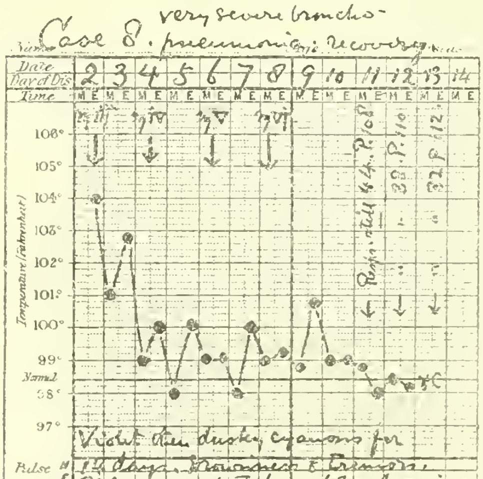
Epistaxis: Râles both lower lobes. [illegible] R. base; Prostration Cyanosis: red brown sputum. Slow recovery.

Severe bronchopneumonia. Case 7. Recovery.



Marked dusky violet Cyanosis to 10th day. Râles all over. Consolidation R lower lobe: Sputum brown. Great drowsiness till 7th day. Gradual recovery after 10th day

Case 8. very severe broncho-pneumonia: recovery.



Violet then dusky cyanosis for 14 days. Drowsiness & Delirium. Râles all over both lower lobes, becoming confluent in lower lobe. Slow recovery.

The vaccine was only administered in severe cases with definite lung signs—actually in 35 cases out of a total of 236 cases of influenza in our wards. In the remaining 201 cases, uncomplicated, or with mild or moderate respiratory symptoms, it was not given, as these cleared up readily with ordinary treatment, the temperature falling more or less abruptly within 48 hours in most cases, and so making the use of vaccine, in our opinion, unnecessary and fallacious.

Importance of Early Bed and Nursing.

In our experience, in all the three waves the bad cases nearly all had definite cyanosis and lung signs on admission, and it was quite unusual for a case uncomplicated on admission to develop pneumonia afterwards. This appears to bear out the generally accepted rule of the importance of bed and nursing as early as possible, as many of the bad cases—energetic young non-commissioned officers—had been struggling on at their work for a day or two.

Thirty of our 35 cases had definite signs of broncho-pneumonia, some developing complete consolidation of one lower lobe, and 5 had bronchitis without pneumonia. Nearly all the broncho-pneumonia cases were of the very severe type so fatal last October, with dusky cyanosis, marked prostration, red and brown sputum, and restlessness. The large number of such cases seen by us in October impressed us with the futility of ordinary methods of treatment. Out of the 35 cases there were three deaths; one had only one small and late dose and had marked mitral stenosis; the second and third appeared overwhelmed by the infection on admission; one had much hæmorrhage from the lung, the other malarial debility of long standing. Each of these had two small doses of vaccine, but died in a few days, without favourable response.

During the same period there were 256 other cases of influenza admitted here, not treated by vaccine, amongst whom there were recorded 11 deaths from broncho-pneumonia; unfortunately, the actual number of pneumonia cases in this non-vaccine series is not now available, though we are certain that the number was not greater than in our series.

Improvement after Vaccine Treatment.

Whether or not the accompanying charts may be considered to prove anything in themselves the writers are convinced of the improvement in general condition, in character of the sputum, and feeling of well-being of the patients that followed the injections in the majority of the cases.

Examination of sputa showed mostly Gram + diplococci, frequently in chains, resembling Fränkel's pneumococcus, and sometimes also streptococci in long and short chains; in some cases streptococci alone or with small Gram – cocci were found; and in others small bacilli resembling Pfeiffer's occurred with the other organisms.

In conclusion, we might state that 30 of the 35 cases were placed on the "danger list," and in view of our experience of last autumn, with their dusky colour and cyanosis, we should have expected a much larger mortality. In both epidemics a remarkable feature was the slow pulse-rate, frequently of 90 to 106, with respirations of 36 to 46 in the severe cases.

The vaccine used throughout was the official army formula:—

$$\left.\begin{array}{r}30\text{ m}''\ \textit{B. Influenzæ}\\ 100\text{ m}''\text{ pneumococci}\\ 40\text{ m}''\text{ streptococci}\end{array}\right\}\text{in 9 minims.}$$

Dosage used was at first m. iii. (and later m. v.) for the first dose; m. v. (and later m. viii.) for the second. No bad effects were observed, condition being unaffected in the few cases where it was not improved. Probably from over-caution the dosage employed was too small.

We are indebted to Lieutenant-Colonel J. B. Byles, R.A.M.C., for permission to publish this paper.

HYPERTHYROIDISM IN INFLUENZA.

By A. T. TODD, O.B.E., M.B. EDIN.,
MAJOR, R.A.M.C., 42ND CASUALTY CLEARING STATION.

AMONGST the sequelæ of the past epidemic of influenza those syndromes brought about by quantitative or qualitative alteration of secretion of the ductless glands have received very little attention. Various lesions have been suspected, notably of the adrenal gland, and methods of treatment based upon the resultant phenomena have met with a certain amount of success. The thyroid gland has received no notice, although it would appear to be involved with some frequency.

In the somewhat scanty medical literature at my disposal I can only find one reference to the thyroid gland in influenza during the last eight months.[1] The reference is brief, merely reporting that the thyroid gland is enlarged in a certain number of cases. An enlargement would be expected, whatever the disease described, for a simple enlargement of this gland was fairly common amongst the healthy soldiers of the British Expeditionary Force in France.

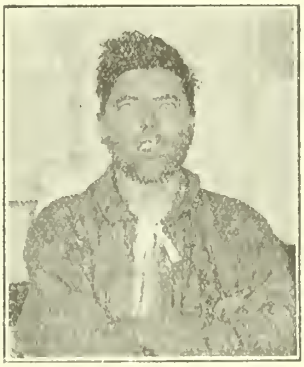
In this series of cases it would appear that the toxins of influenza have a predilection for the thyroid gland. This view is probably erroneous; while the epidemic was at its height time for research was strictly limited, and as signs of thyroid perversion are perhaps more obvious than those of the other glands of this group, undue attention may have been paid to them. Although search was made in life and continued post mortem in as many cases as possible, no other lesion in the endocrine group was definitely discovered, with a possible exception of the adrenal gland. In that group of cases of influenza which showed extensive lung involvement, a continuous low pulse pressure, and a high mortality rate, it was frequently found post mortem that the adrenal gland was flabby, and stained faintly after a prolonged immersion in pot. chrom. solution. Moreover, in this group of cases adrenalin was found to be of value in treatment.

In regard to case incidence of thyroid involvement exact figures cannot be given; in all, 16 cases were noted amongst roughly 1500 cases of influenza. No cases were noted before February, 1919. It may be stated here that the cases were not drawn from one area. Of these 16 cases 6 only are chosen for description, for in these the signs were marked, and in two of them von Graefe's sign was present to such a degree that, with an exposure of one second, satisfactory photographs were taken. The remaining 10 cases were slight and would probably have escaped attention if special watch had not been kept. With one exception all the cases showed varying degrees of hyperthyroidism. This exceptional case was a small French girl, Suzanne B., aged 10, who developed hypothyroidism during convalescence. Her illness ran a prolonged course, with large patches of consolidation in both lungs. Convalescence was slow, and the child was pale, listless, and obstinately constipated; the subcutaneous tissues lost their elasticity, and the hair on the outer thirds of the eyebrows was scanty. On treatment by pulv. thyroidea sicc., gr. ¼ t.d.s. and an increase to three times this dose, she made rapid progress, especially in regard to weight and growth.

Record of Cases.

The cases of hypersecretion are as follows:—

1. A. M. M., prisoner of war, admitted Feb. 1st as pneumonia on the third day of illness. Temperature 104° F. Lungs showed severe bronchitis, but no definite consolidation. On the 4th he was much better, temperature and pulse being normal. Next day his general condition was satisfactory, but there was slight exophthalmos; von Graefe's sign was positive, and the forehead remained smooth when he looked upward. Tremor was marked, pulse 84 per minute, and he was rather excited. These signs all diminished rapidly, and after five days had all disappeared.



Case 2.

2. M., driver R.A.S.C., admitted Feb. 1st, after two days' illness. He had the usual symptoms, and much bronchitis was noted. Temperature on admission 103° F. After 48 hours temperature and pulse became normal, and he was regarded as convalescent. On the 8th, however, exophthalmos was noted, forehead remained smooth on looking upward, von Graefe's sign marked, Mœbius absent, marked fine tremor present. Pulse-rate was now 94 per minute, and the patient was excited. He had not been allowed out of bed since admission. After three days these special symptoms abated, but the pulse-rate still remained high, and shortly afterwards he was evacuated to the base.

3. J. L., driver R.F.A., admitted Feb. 2nd, on the fourth day of illness. His symptoms were typical, and the only unusual feature was slight hæmoptysis. He had had previous attacks of bronchitis, and was a florid, fleshy man. On examination marked signs were found, and it was obvious that he was exceedingly ill. On the 4th he was slightly cyanosed, temperature 104·4° F., pulse 104, and there was diminished movement of the right base. On the 5th exophthalmos was noted, von Graefe's sign was marked, but forehead wrinkled slightly on looking upward. Tremor was present, but not more that would be expected in a man so ill. He steadily became worse; consolidation advanced on both sides, and there was much pleurisy. Heart failure set in and he died on the 15th. Post mortem the thyroid gland was found to be rather enlarged on both sides, and the blood-vessels around the capsule were engorged and appeared to be abnormally numerous. On section the gland was soft and deeply congested, of a rather darker shade than the spleen.

---

[1] THE LANCET, Jan. 4th, 1919, Abraham, Hallows, and French.

4. A. D., driver R.F.A., admitted Feb. 7th. He had been ill for a week, but felt himself improving. His temperature was normal, and except for some pharyngitis and bronchitis he showed few signs of active influenza. However, exophthalmos was present, von Graefe's sign marked, tremor present, slight wrinkling of forehead on looking upward. Pulse-rate 88. After three days the signs became less marked, although von Graefe's sign was still perceptible, and on any exertion the pulse-rate increased unduly. At this stage he was evacuated.

5. T. D., rifleman R. Brigade. Admitted March 3rd, after four days of illness. He had the usual symptoms, except that he had become short of breath one day before admission. He had had pleurisy with effusion two years previously. One brother had died of phthisis six years ago. On examination bronchitis and signs of a small collection of fluid on the right side of the chest were noted. This was explored and noted as sterile, the cell count showing chiefly polymorph cells. On the 14th there was evidence of increase of fluid, and 40 oz. were aspirated. There was no further accumulation. On the 20th signs of hyperthyroidism appeared. He was pale, forehead remained unwrinkled on looking upward, exophthalmos present, von Graefe's sign marked, Mœbius not present, tremor marked, and pulse-rate now 96 per minute. There was no appreciable tumour of the thyroid. These signs disappeared slowly, and by the end of the month he was evacuated to the base as convalescent. In this case the following points favour the diagnosis of influenza in opposition to tuberculosis; there was an epidemic of influenza in this man's unit; sputum examinations were repeatedly negative for tuberculosis, until no more sputum was brought up; effusions with similar cell counts were fairly numerous amongst the other cases of influenza who gave no tuberculous history.

Case 5.

Remarks.

The time of onset of the thyroid symptoms and signs were very variable; in one it was noted on the sixth day of illness, the other extreme was the twenty-first day. In all but the one fatal case it developed during convalescence, and the onset was sudden in all cases.

The importance of the condition rests with the recognition of the minor grades; the more severe cases are obvious. The lack of a more prolonged convalescence in these cases would lead to one type of so-called irritable heart.

TWO CASES OF
FOREIGN BODY IN THE ŒSOPHAGUS
REQUIRING ŒSOPHAGOTOMY IN CHILDREN.

BY LIONEL COLLEDGE, M.B., F.R.C.S. ENG.,
SURGEON TO THE THROAT AND EAR DEPARTMENT, ST. GEORGE'S HOSPITAL, AND TO THE THROAT HOSPITAL, GOLDEN-SQUARE;
AND
G. A. EWART, F.R.C.S. ENG.,
ASSISTANT SURGEON TO ST. GEORGE'S HOSPITAL.

AS almost every foreign body lodged in the œsophagus can be removed by endoscopic manipulation, two cases in small children in which the mechanical conditions rendered an external œsophagotomy necessary are worthy of record. It may be pointed out that this operation should never be undertaken until an attempt at removal by means of the œsophagoscope has failed, or until it has been found that removal by this method must involve laceration or perforation of the œsophageal wall. In both the cases here recorded it was found impossible, owing to the configuration of the foreign bodies, to move them either upwards or downwards by endoscopic methods. Chevalier Jackson states that the mortality of external œsophagotomy in children is as high as 42 per cent., but if care be taken not to injure the œsophagus in unsuccessful attempts at removal by endoscopy, and correct technique be employed in the operation, the mortality should fall much below this figure. There is no doubt also that in these two instances the skill and constant care of Sister Webley in the subsequent management of the cases were important factors in their recovery.

Account of Cases.

In the first case (L. Colledge) a female child, aged 2 years, had swallowed an open safety-pin, which the X rays revealed lying point upwards and to the left in the œsophagus at the level of the thoracic aperture, the ring of the pin being just below the top of the sternum. The accident had happened eight hours previous to admission. No difficulty was encountered in finding the pin, but to have pulled it upwards would only have caused the point to perforate the wall of the œsophagus and impact it still more firmly, and it was found impossible to push it downwards, as the point was securely caught in the mucous membrane. The method of Chevalier Jackson[1] consists in seizing the safety-pin by its ring with forceps whose jaws come in contact only at their tips, so that the pin can turn freely in the forceps but it cannot escape. The pin is then pushed gently down into the stomach. There is now room for the pin to turn over, and on withdrawing it the ring comes up first into the œsophagoscope. This method could not be employed as the safety-pin could not be pushed downwards. An incision was therefore made on the left side of the neck along the anterior border of the sterno-mastoid. An unusually large internal jugular vein caused some trouble, but was drawn aside, and a longitudinal incision was made as far down as possible in the œsophagus. The ring of the pin lay below the top of the sternum, so that it was necessary to draw the œsophagus up out of the chest. The pin was then seized by the ring at the lower end, and was removed by rotating it outwards round the point as an axis. It was then found that the tip of the pin had been bent out into a semicircle, which accounted for its being so firmly engaged in the œsophageal mucous membrane. The opening in the œsophagus was closed with stitches of fine catgut, and the outer part of the wound packed lightly with gauze. There was some leakage from the wound afterwards, but it was firmly healed, and the child swallowed normally at the end of five weeks. The patient remains in good health and has no stenosis of the œsophagus five years later.

In the second case (G. A. Ewart) the child, a male, aged 2 years, had swallowed on the day previous to admission part of a toy puzzle, consisting of a piece of iron with six projecting blunt spikes, all at right angles, so that a cross was formed in all three dimensions; consequently, in whatever position it lay the spikes engaged the mucous membrane, and removal through the endoscope was found to be impossible. The foreign body lay in the œsophagus just below the level of the cricoid cartilage, and measured 5/8ths of an inch across. The following day an incision was made along the anterior border of the left sterno-mastoid, and on exposing the œsophagus the foreign body was seen bulging the wall. It was easily removed through a short incision in the long axis of the œsophagus, which was closed with four interrupted fine catgut sutures. The outer part of the wound was packed with gauze and partially sutured with fishing-gut. The following day the child was fed with sterilised water and Brand's essence, about three-quarters of the fluid coming out through the wound and one-quarter passing into the stomach. By the end of three weeks the wound had completely healed. The child was able to swallow normally and had no stiffness of the neck. He remains well four years later.

Comments.

Attention may be drawn to the following points in connexion with these cases.

1. An attempt at removal by the œsophagoscope should always be undertaken first, since it is nearly always successful. Even if unsuccessful it reveals the true level of the foreign body, on which point the X rays may be misleading.

2. In the rare cases in which the mechanical problem of endoscopic removal is found to present apparently insuperable difficulties it is much safer to make a clean incision in the œsophagus than to risk its laceration or perforation of the carotid sheath by persistent manipulations in the effort to remove the foreign body by the endoscope.

3. The œsophagus, when exposed thus in the living child, is cylindrical and not a flattened band as usually seen at a necropsy.

4. By suturing the wound in the œsophagus and lightly packing the outer part the risk of spreading cellulitis of the

---

[1] Chevalier Jackson: Peroral Endoscopy and Laryngeal Surgery.

neck and mediastinitis is reduced to the minimum. Wounds in the œsophagus do not heal readily, and it is futile to aim at primary union, but the tissues are thus given time to recover before leakage begins. As there is certain to be some leakage, however carefully the stitching is done, the child should be fed on sterilised liquids, avoiding milk.

5. A clean vertical incision in the œsophagus does not lead to subsequent stenosis. The first child is in good health and swallows normally five years after the operation, and the second remains perfectly well four years later.

A TECHNICAL NOTE ON
HYPERTONIC SALT SOLUTION
IN THE TREATMENT OF TUBERCULOUS ABSCESS.

By CAPTAIN LUIGI DURANTE,
FELLOW OF THE MAYO'S CLINIC; ASSOCIATE PROFESSOR OF SURGICAL PATHOLOGY, GENOA UNIVERSITY.

FROM March to October, 1919, I received in my surgical section 245 soldiers, for the most part prisoners returned from Austria and affected by surgical tuberculous lesions. Counting lesions in different bones and joints of the same patient, I have had the care of over 500 tuberculous abscesses. By the use of intrafocal injections of hypertonic salt solution I have been able to accelerate the slow natural cicatricial process so as to reduce to a few months the healing period which, with common iodic injections, would normally extend over a year. To illustrate the exact value of the treatment used by me, I think it might prove useful to refer briefly to the fundamental biological and physical properties of salt solutions.

It is well known, by Arrhenius's laws, that two salt solutions of different molecular concentrations separated by a semi-permeable membrane—as we roughly imagine the structure of living tissue—will not be in equilibrium until the two solutions contain in the same volume of water the same number of molecules. The changes that take place before the solutions become isotonic are twofold—that is to say, a part of the solution diffuses itself from the point where the molecular concentration is greatest towards the part where it is least, and at the same time there is established a reverse passage from the point where the concentration is least to where it is greatest. These physical phenomena take place in biology each time a saline hypertonic solution is injected into an abscess cavity.

Wright has demonstrated that the drainage of lymph taking place every time we inject hypertonic salt solutions into an abscess cavity acts in different ways at different times—that is, in the first two hours there is a lymphagogic action and later a lymphocytagogic action. Thus these two elements, undoubtedly the most active that we know in the antitoxic and antibacterial fight, are both brought into action.

To obtain a lymphatic current in the abscess cavity from the circumfocal area I now use, after careful research, a sterilised hypertonic salt solution composed of—

Magnesium chloride	2½ g.
Distilled water	100 c.cm.
Commercial formalin	½ ,,

The reason for choosing magnesium chloride is that this salt has a stimulating action in the process of reconstruction of the tissues, as has been demonstrated by Rosenblith and Delbet.

In practice the treatment of tuberculous abscess with hypertonic salt solutions is carried out in the same way and on the same indications as treatment with iodic solutions; but the abscess cavity should be emptied, washed out, and filled with salt solutions every four days. This frequency of treatment is called for by the fact that the quantity of lymph collected in the abscess cavity by osmotic pressure is great and produces a slight distension of the tissues, and that this distension, united with active hyperæmia, causes a feeling of pain.

The quantity of liquid that I leave in the cavity varies from 10 to 40 c.cm., according to (1) the capacity of the cavity, and (2) the greater or lesser degree of vascular action, which varies with the individual.

References.—Delbet, P.: Action Cytophylactique du Chlorure de Magnesium, Journal de Chirurgie, 1915, No. 6, 652, 653. Rosenblith: Therapeutic Effect of Magnesium Chloride, THE LANCET, 1915, ii., 941. Wright, A. E.: Physical and Physiological Action of Hypertonic Salt Solutions, THE LANCET, 1915, ii., 957, 1016.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF OBSTETRICS AND GYNÆCOLOGY.

A MEETING of this section was held on Oct. 9th, Mr. J. D. MALCOLM, the President, being in the chair.

Indirect Traumatic Rupture of the Uterus during Pregnancy.

Mr. GORDON LEY read a paper on a case of indirect traumatic rupture of the uterus during pregnancy, a very rare condition of which he could only find nine previously recorded cases.

The patient, aged 22, was a primigravida 21 weeks pregnant, and had been in excellent health. When standing on a railway platform she suddenly felt faint and, staggering forwards, fell off the platform on to the metals. She fell doubled up in a crouching attitude. She was picked up, and after regaining consciousness was carried to a cab and taken home, where, having walked upstairs, she was put to bed. When Dr. R. Thorne Thorne saw her at noon, one hour after the accident, the temperature was 97·6° F. and the pulse 76. She was pale and suffering from nervous shock. She complained of pain in the hypogastrium; the lower lip was cut and the right shoulder bruised. An abdominal examination revealed an apparently normal 20 weeks pregnancy. There was no rigidity. A catheter was passed and clear urine was drawn off. She was reassured and became more composed.

At 6 P.M. Dr. Thorne Thorne again saw the patient. She had, since 5 P.M., noticed a slight watery show, the hypogastric pain had increased and was of a stretching character. Temp. 97·6°, pulse 110. There was no alteration in the physical signs. She was given tinct. opii, m. v. From this time there was no further vaginal loss. At 9 P.M. she was seen again by her doctor. He then noticed that she had become extremely pale. The pulse was 120 and soft; the pain was still severe. The abdominal physical signs had not altered. A diagnosis of concealed accidental hæmorrhage was suggested, and he made an unsuccessful attempt to rupture the membranes by passing a sound, which appeared to come in contact with the fœtal head. The patient found the left lateral position much more comfortable, and was accordingly left in this attitude. At 9.30 P.M. she was much worse; pulse 140, feeble and soft.

Mr. Ley saw the patient about 1.30 A.M. on the next morning. She was lying on her left side and complained of continual agonising abdominal pain, made much worse by moving her. She was extremely anæmic. The pulse was feeble and uncountable, and the respirations rapid. There were air-hunger and restlessness. The abdomen was distended, rigid, and extremely tender all over. In the left lumbar region there was an undefined swelling about the size of an ostrich's egg. The uterus could not be palpated. On vaginal examination the cervix was closed and Douglas's pouch bulged slightly. He came to the conclusion that there was hæmoperitoneum, probably from rupture of the uterus, the mass in the left lumbar region being the unruptured ovum, but suggested as a second diagnosis a ruptured left kidney, with perinephric hæmatoma perforating the peritoneum.

On laparotomy he found three pints of blood in the peritoneal cavity. The ovum, unruptured, was lying free in the left kidney pouch. The uterus was contracted and showed on its anterior wall a laceration three inches long, running from the right cornu obliquely downwards and to the left, and judging by the vascularity of the wall the rupture was through the placental site. The uterus was sutured and the abdomen closed. The placenta and membranes appeared normal and the urine contained no albumin. She was given a rectal saline, and except for some pyrexia, due largely to the absorption of blood-clot, made an uninterrupted recovery.

Mr. Ley suggested that the sequence of events was as follows: (1) Trauma; (2) incomplete rupture of the uterus involving the peritoneum and the outer muscular coats; (3) complete rupture of the uterus with bleeding into the peritoneum; (4) extrusion of the ovum at about 9 P.M.

The Pre-cancerous Uterus.

In the absence through illness of Dr. F. J. McCANN, his paper on the Pre-cancerous Uterus was read by Dr. J. S. FAIRBAIRN. Dr. McCann deplored the growing tendency to relegate the clinician to the background and to look to the laboratory alone for a solution of the cancer problem. He maintained that no real progress would be made until the clinician could seek out and identify pre-cancerous changes in organs as definite clinical entities. He then described two cases, one in which scrapings from a curettage for "fungous endometritis" were pronounced innocent by a high pathological authority, and the patient died of uterine cancer five years after; while the other, a single woman aged 54, had a cervical polypus, declared to be innocent, removed, and died eight years later from uterine cancer with secondary hepatic deposits. Dr. McCann emphasised the necessity of the study of after-results in this connexion, as, had he not seen both women again when the growths were too advanced for operation, he would have assumed that the previous treatment had effected a complete cure.

As to the predisposing causes of uterine cancer, Dr. McCann regarded parity as the most important of these, and thence concluded that cervical injuries are factors. He considered gonorrhœal endocervicitis, if persistent, to be also a predisposing factor. He suggested that as several years elapse before a hot clay pipe produces cancer of the lip, or before the traumatism of childbirth produces cervical cancer, it is during these years that it is necessary to be on the look-out for pre-cancerous changes. He proceeded to enumerate the changes before the menopause which, in his opinion, should give rise to suspicion. The list included erosions, fissures, chronic endocervicitis, and chronic hypertrophy of the cervix, and in the body fungous endometritis and chronic metritis; also the presence of intra-uterine polypi. He recommended that erosions should be excised, and that fissures, even of long standing, should be repaired; he considered that a woman approaching the most common cancer age (46 to 53), from whose cervical canal a chronic discharge continued to flow, incurred the risk of subsequent development of cancer within the cervical canal. To eradicate the disease and to prevent the development of cancer he advised the performance of a supra-vaginal amputation of the cervix, or under certain circumstances of uterine enlargement and menstrual disturbances, a pan-hysterectomy with conservation of the ovaries. In such women he also recommended supra-vaginal amputation of the cervix for chronic hypertrophy. As to uterine conditions, he suggested hysterectomy in women nearing the menopause for marked fungous endometritis, and also for chronic metritis, as many patients suffering from these conditions subsequently become the victims of malignant disease. He differentiated between fibroid and adenomatous polypi, the presence of the latter being another indication for hysterectomy if occurring in the body. After the menopause Dr. McCann advocated a still wider application of radical operative measures to any uteri showing signs of pathological activity, and concluded by stating his conviction that many lives would be saved by adopting such methods as he had indicated.

Discussion.

In the course of the discussion on Dr. McCann's paper,

Dr. A. LAPTHORN SMITH expressed his agreement with the writer of the paper in advocating drastic methods, and agreed on the importance of the following up of all cases for many years, as practised by the Mayos.

Dr. HERBERT SPENCER disagreed with Dr. McCann as to the advisability of removing erosions, which often occurred in virgins and nulliparæ, and also as to the danger of adenomatous polypi.

Mr. LEY dwelt on the importance of routine examination of curettings, as the characteristics of malignant endometrium were often not recognised by pathologists.

Dr. FAIRBAIRN found the paper suggestive but far from convincing. The author gave no proof, and apparently jumped to the conclusion, not yet established, that cancer was local in origin, and moreover, had given no evidence in support of his contention that the conditions mentioned were predisposing causes of cancer.

Dr. H. WILLIAMSON considered the paper to be of an unscientific nature. He suggested that in the only two cases quoted the connexion between the conditions at five and eight years' interval respectively was not established, and might easily have been due to coincidence. He also contended that since no serious operation is without a certain mortality more lives might be lost than gained by promiscuous hysterectomy.

NATIONAL ASSOCIATION FOR THE PREVENTION OF TUBERCULOSIS:

SEVENTH ANNUAL CONGRESS.

AFTER several years' interval due to the war the National Association for the Prevention of Tuberculosis resumed last week its annual conferences with a very successful three-day session at the Central Hall, Westminster.

On the first morning Lord GLENCONNER occupied the chair, and the opening address was given by the Minister of Health, Dr. CHRISTOPHER ADDISON.

A Welcome to Distinguished Representatives.

The Chairman cordially welcomed the distinguished guests: Dr. Linsly Williams, Professor William C. White, Dr. David Lyman, and Dr. C. J. Hatfield (U.S.A.); Professors Léon Bernard and Rist (Paris); and Professor Denys (Louvain). He expressed great regret at the absence, through illness, of Sir William Osler. Professors Calmette (Paris), Poli and Rasponi (Italy), whose names appeared on the agenda, had found it impossible to attend. The Chairman alluded to the notable increased incidence of tuberculosis in the Navy and Army since the commencement of the war, and urged the undertaking of increased educative propaganda work among the people. He referred in terms of cordial welcome to the coöperation of the British Red Cross Society with the Association, from which there was every reason to be hopeful concerning the future.

Address by the Minister of Health.

Dr. ADDISON began his address with a few words of welcome to the distinguished strangers from all lands. He assured the conference that it would receive from him and from the Ministry the best help they could give. The war had certainly made the difficulties of this and other work greater than they were before. It had added from the ranks of those who had served with the forces to the number of tuberculous patients. He was sorry that, in consequence of the necessary suspension of many of our activities, with the absence of many skilled men from the tuberculosis service in the ranks of the Army Medical Corps, and from the entrance of a large number of women into industrial service, there had been an increase in tuberculosis in some directions, notably among women. It was one of the functions of the Ministry of Health to try to secure that their efforts to deal with these great problems were not disjointed and fragmentary. As he had so often said, we had suffered in this country a great deal from failing to have a considered body of policy, and that applied with singular aptness to tuberculosis. We were apt to deal with these matters piecemeal—necessarily so sometimes. One of the chief purposes of such conferences as this was to help in arriving, in the light of what knowledge we had, at a considered body of policy. Whatever policy was formulated to deal with tuberculosis, it would need a long time and a considerable body of people to carry it out. Hence in these great matters it was useless to be impatient. It was partly with the object of insisting on one of these prime factors that he asked Sir George Newman to prepare a memorandum on the scope of prevention in medicine, and that had been issued within the last day or two.[1] Unless, hand-in-hand with the remedial measures which might be initiated or prosecuted, operations were conducted with a view to the prevention of the disease, money would be poured out largely in vain. Hence he laid very great stress on educational propaganda dealing with the social policies of a preventive type.

Re-housing and Clearance of Slums.

Among these he unhesitatingly placed improved housing. Not only with regard to tuberculosis, but also many other ailments, unless a big programme of re-housing and the clearance of slums were carried out, combative efforts would be largely in vain. That was why the first action of the Ministry of Health was to promote a Housing Act. In this campaign they would need the best, the most considered, the most intelligent efforts of the public and of the interests concerned. It would need a great deal of money; the cost of housing was prodigious; the cost of providing sanatoriums, dispensaries, and village settlements had been more than doubled, and in these times, when our national efforts must necessarily be directed towards reducing our gigantic expenditure, it enhanced the difficulties of all who recognised that, unless we were prepared to incur capital expenditure in fighting these plagues, money would be spent in vain. And the task sometimes made those responsible for it very unpopular, laying them open to all manner of accusations. His own view was that the millions of money now being spent in our manifold health services were largely wasted, because we had never had the foresight and the courage to tackle the capital expenditure necessary to remove the causes of disease.

---

[1] THE LANCET, Oct. 18th, p. 695.

Education of the Public.

Education and enlightenment he placed only second in importance to housing. Whilst we had millions of people who never opened their bedroom windows, or were content to have a window which would not open, the efforts of health workers would be very largely stultified. The information for the public which he had in mind need not be of a highly professional kind, couched in technical phraseology, nor clothed in a pedantic vesture; it needed to be sound knowledge and good common sense. This was apt to be lost sight of, workers concentrating on relatively showy performances. His Ministry was not likely to lose sight of these principal essentials.

Research Work.

The foregoing—housing and the spread of information—naturally went hand-in-hand with research. He recently had had given to him a paper prepared by Sir Walter Fletcher, the secretary of the Medical Research Committee, and he asked Sir Walter Fletcher to put down, as far as he could, in the vulgar language of money, what had been the benefits of the work of the Research Committee during the war. Sir Walter Fletcher provided him with six illustrations, and it was quite possible in each of them to assess, in terms of money saved, the results of the researches initiated by the Committee. In each of them the money saved was more than the total expenditure on the Committee since the first day of its formation. When he was at the Ministry of Munitions vast sums of money had to be spent every week, as compensation and in other ways, in connexion with T.N.T. poisoning, which at one time was very widespread in our factories. The research carried on into the matter resulted in practically getting rid of the disease in every factory. The saving effected by the few thousands of pounds spent in research, properly carried out under responsible direction, was one of the things which the nation must be prepared for, and the expenditure on this would be trifling compared to the gain which would arise. That was the case in relation to tubercle. We had been short, and in some directions were still short, of staff and accommodation, and the war had shown that a good deal of the expenditure on sanatoriums might be fruitless unless the arrangements were supplemented by others. In many cases it was of no use to send a man to a sanatorium if, on emerging, he returned to an insanitary home.

Industrial Training and Village Settlements.

Again, the monotony and dreariness of long life in a sanatorium was a human factor of great importance. It was clear that many men who had been in sanatoriums ought never to return to their former occupation. Therefore the Committee under Sir Montague Barlow had pointed out, in its valuable report,[2] the necessity of proper arrangements for securing facilities for industrial training, linked to the sanatorium system; and the Ministry of Health were now, in conjunction with the Ministry of Pensions, arranging for the provision of a thousand training places in connexion with sanatoriums. There would have to be linked with this some system of settlement, perhaps akin to what obtained at Papworth, or the colony system, so that the men would be able to earn a living afterwards in healthy surroundings and as ordinary citizens. Any attempt to have a sort of tuberculosis colony was doomed to failure. A person who had had tuberculosis was much the same as one who had had the mumps; he liked to live among his fellow-citizens and be one of them, not as one who was marked out. Some of the representations which had come to him seemed to lose sight of that very necessary but ordinary consideration. But village settlement centres, bearing in mind what he had just said, had got to be provided. He was not yet in a position to state what financial provision would have to be made arising out of Sir Montague Barlow's report, but materially increased contributions would have to be made. One thing was certain: he would not be a party to branding the tuberculous person as a leper.

Increased Grants for Health Visitors.

These matters raised the question of after-care, the examination of contacts, and the facilities for that kind of work. It was with that in view that the Ministry were providing increased grants for the training of health visitors and nurses; this was necessary if the disease was to be attacked in its early stages. Facilities for early diagnosis and for consultation in connexion with early cases was one of the most important parts of the work which lay before them. In some places there were abundant facilities for diagnosis, but in a vast number of others there were very few or none at all. The whole of the organisation of these health services was now committed to the Medical Advisory Council, with others who had been called into being under the Ministry of Health, and he would not announce proposals until the best available advice had been received, and every consideration had been devoted to it. These matters must be on a sufficiently elastic plan, not dealt with—as had hitherto been too much the case—as odds and ends. The provision of laboratory facilities and so forth could not be considered purely in terms of tuberculosis. He hoped he had said enough to show that the Ministry of Health was prepared to face its bigger responsibilities in a courageous and, he hoped, a sensible spirit, and he looked to this Association and kindred bodies to give continual assistance. And if at any time the Ministry could render help it would be for such bodies to command.

Dr. Addison was cordially thanked for his address.

Address by Sir Robert Philip.

Sir **ROBERT PHILIP** (Vice-chairman of the Council of the National Association for the Prevention of Tuberculosis) delivered an introductory exposition of the Association's activities. He said the line between prevention and treatment had become thinner and thinner, but in the case of tuberculosis it had disappeared. The eradication of tuberculosis meant placing health on a higher plane all round; hence every suitable weapon should be used. The war had enabled a register to be compiled of the amount of tuberculosis in our adolescent and adult male population, and this would enable the Ministry of Health to provide accordingly in its schemes. He hoped great things from the alliance of the Red Cross Society and the activities of the League of Red Cross Societies, the foundation of which was due to the initiative of Mr. H. P. Davidson, of the American Red Cross Society.

Uniform Tuberculosis Schemes.

Dr. **JOHN ROBERTSON** (Birmingham) said he had noted a tendency to concentrate on treatment rather than on prevention, yet the results from the latter were far better than those following treatment of the established disease. He did not think results had been achieved commensurate with the huge sums of money which had been expended. Divided authority had been responsible for much friction and inefficiency, and the establishment of the Ministry of Health was most welcome as the commencement of a better order of things. The increased prevalence of tuberculosis was not due, he thought, to new infections, but mostly to a resurgence of old cases. There should be a more uniform standard of treatment throughout the country, and he would like to see a central tuberculosis department for the purpose of universally distributing the most valuable information available on the subject. He hoped all Poor-law cases would be handed over to the local authority to be dealt with. Cases of successful arrest of the disease went unrecorded, whereas a case advancing to death "stood on the doorstep." Local Insurance Committees were continually troubled with advanced cases, while successful ones passed unobserved. Sanatoriums were not yet being properly used. His experience had been that from 50 to 60 per cent. of the cases diagnosed as pulmonary tuberculosis by competent physicians recovered sufficiently to require no attention, and disappeared from the register. He considered that more attention should be devoted to tuberculosis as manifested in the lower animals.

---

[2] THE LANCET, Sept. 6th, p. 451.

He regarded the statement that bad housing was the main cause of our tuberculosis as quite unfounded. In support of his idea was the fact that though women were practically always in the home, they suffered less from the disease than did men.

Dr. LYMAN (U.S.A.) expressed his lively satisfaction that Americans found themselves working shoulder-to-shoulder with the British in the great battles of peace and reconstruction which lay ahead. In the States, so far, there was no Ministry of Health: in many health matters each State was a law unto itself; it was only in regard to port sanitation and national aspects that a uniform policy obtained. Attention should be given not merely to living conditions, but to what might be termed in regard to many, their "loafing conditions"—how they spent their time when they were not at work. There was need of a central organisation in this work, which should prevent overlapping and keep workers advised as to what was being done.

Local Authorities and Insurance Committees.

Dr. F. N. KAY MENZIES said that owing to the suspension of building operations during the war, and the present greatly enhanced cost of labour and materials, the expense of erecting necessary institutions had gone up by leaps and bounds. An instance was that of a sanatorium of 180 beds projected in 1914 which it was estimated then would cost £40,000, but which to-day would cost £133,000 to build. Bearing in mind the great demand for dwellings, he thought the question should be faced whether there was real necessity for a complete tuberculosis scheme, such as that suggested at the Cannes Conference. He hoped a reply to this would come from this conference. He drew attention to the unsatisfactory position of the tuberculosis officer. It had been the fashion for many medical officers of health to give as little encouragement as possible to the tuberculosis officers; some had even forbidden the latter to enter the homes of the patients. If proper value was to be got from the dispensaries this attitude of mind must speedily disappear. The outlook of the tuberculosis officer must embrace everything which affected the tuberculosis problem in his area, and the medical officer of health must be his colleague and fellow-worker. Moreover, the tuberculosis officer must not limit his activities to cases of the pulmonary form of the disease. It was desirable that there should be complete harmony and coöperation between the tuberculosis officer and the medical practitioners of the area. He urged that the present unsatisfactory methods of selecting cases for sanatorium treatment should be got rid of. Patients so recommended should be submitted first to a period of careful observation in bed. After-care had been too much neglected; no field of anti-tuberculosis work more needed concentrated effort. In many cases most of the benefit of sanatorium treatment was thrown away because the patient returned to the same home and conditions of life. He thought it might be wise to make sanatorium and even hospital treatment contingent on the tuberculosis dispensary guaranteeing a sound system of after-care. Bad housing he regarded as the most important individual factor associated with the prevalence of tuberculosis.

Dr. G. LISSANT COX (Tuberculosis Officer, Lancashire County Council) exposed the defects in the present system of compulsory notification of tuberculosis. In his area during seven years 19 per cent. of the cases who died of the disease had not been notified at all, 1 per cent. occurred before the notification had been received, and 26 per cent. of the deaths occurred within three months of the notification. The unnotified cases presented a serious reservoir of uncontrolled disease, and were therefore centres of further infection.

Dr. H. HYSLOP THOMSON (County Medical Officer, Herts) advocated the formation in each area of a single public health committee, on which the various bodies concerned in this work should be represented. Too little attention had so far been given to combining preventive action with treatment.

The Action and Scope of Pensions Boards.

On Thursday afternoon the Conference considered the schemes in relation to Pensions Boards and Committees (discharged sailors and soldiers).

M. BERNARD (Paris) related the work which had been set going to deal with the disease in France, where the crusade was, at the commencement of the war, in a very backward state. He was followed by Professor RIST (also of Paris), who stated that at the end of 1915, 85,000 soldiers had been discharged from the French Army on account of real or suspected tuberculosis. It was subsequently found that these figures were very faulty, for many of the men so discharged were in good health and had been engaged in arduous work ever since.

Dr. HATFIELD (U.S.A.) spoke of the problem as it was met with in America.

Dr. R. CUNYNGHAM BROWN, representing the Ministry of Pensions, said that since the establishment of the Boards in May, 1918, there had been 427,949 examinations made up to the end of September last. The Boards had to consider attributability and to assess the degree of disablement. Recommendations for treatment were no longer made by these Boards, but by the tuberculosis officers appointed as members of the Boards. On the question of attributability, instructions had been drawn up by the Ministry of Pensions, under the advice of the various committees, to the effect that no time-limit should be fixed, either for admitting or excluding attributability, in the case of tuberculosis. He thought the organisation permitted of a greater degree of joint action and allowed more coöperation between the officials in the various regions and those at the Ministry of Health.

Mrs. SHAKESPEAR, D.Sc. (Birmingham War Pensions Committee), said the treatment of men who had acquired tuberculosis in war service was at last on a generous scale. But many were unwilling to enter a sanatorium, and some left for home before the full term therein. 20 per cent. of 500 cases dealt with in Birmingham came under one of those two headings. The tedium of sanatorium residence was to be met by combining training with treatment, as was being done in some orthopædic hospitals; this was doubly necessary when the patient's occupation had been unsuitable. Attached to each sanatorium there should be an employment committee to assist patients concerning their future. Return to industry should be gradual. She thought sanatorium accommodation should be increased, so that each patient should have as long a period of treatment as his case required, the men receiving full disability pension for such time as they remained under the supervision of the committee.

Mr. E. B. TURNER spoke of the part in the campaign taken by the general practitioner, whose support and hearty coöperation were an absolute necessity for the success of this crusade. It was surely the regular medical attendant who was most likely to detect any serious and menacing departure from usual health, and that attendant should be well equipped for his work. Despite the pressure in industrial practice, and the amount of contract work, the practitioner should endeavour to visit every case in which he suspected tuberculous mischief. He placed great stress on the "clinical sense," which often detected danger before laboratory tests gave any positive indication of disease. And the general practitioner must take a large share in the domiciliary treatment of cases of this disease. Moreover, it was his duty to preach health at every possible opportunity.

The Red Cross and other Voluntary Activities.

At the Friday morning session the chair was occupied by the Hon. Sir ARTHUR STANLEY, chairman of the Joint War Committee of the British Red Cross Society and Order of St. John, and the subject was the various voluntary activities in the campaign.

The CHAIRMAN spoke of the desire of the V.A.D.'s in all parts of the country to have their services utilised now that the war was over, and said it would be a pity if the energies of so devoted a band could not be used for peaceful purposes. Of the three obvious channels, venereal disease, cancer, and tuberculosis, the last-named was well fitted for them. He had always hoped it would be possible to form a definite organisation to secure for every man, woman, and child in this country just that amount of skilled attention which was necessary in the early stages of any accident or any disease, and so work on to the next stage—treatment in a great hospital. A great step could be now taken towards realising that ideal by the use of the motor ambulances which did such fine work in the war, for the civilian who had broken his leg required an ambulance just as much as did a soldier who sustained the same accident in battle. It had been determined to map out the country in such a way that no town or village should be more than 15 miles (a ¾-hour run) from an ambulance station. And in many villages there was a trained nurse or V.A.D., who could give first aid in minor accidents. In regard to tuberculosis V.A.D.'s could be taught the preliminary symptoms, that stage at which the disease was curable, and could urge that medical attention should be secured. They could also do something towards persuading established cases of the danger of remaining in their own homes, and could visit the families at frequent intervals. No State institution could so well compete with a difficulty like that. He concluded by a reference to the formation of the International League of Red Cross Societies, on the initiative of Mr. H. P. Davison, of the American Red Cross Society. There was great danger in the summer of an epidemic of typhus, commencing in the Balkans and spreading to the Ukraine. The League had sent out a scientific commission which had reported, and if its recommendations were carried out it would probably save Europe from a great pestilence.[3]

Countess FERRERS pointed out that the mental attitude of the visitor to homes should be one of humility and understanding sympathy, especially in view of the fact that the family were putting up a heroic but silent fight against adversity.

Dr. LINSLY WILLIAMS dealt with the voluntary work in France.

Professor WHITE (Director of the Tuberculosis League, Pittsburgh) discouraged the concentrating of effort on any one measure, such as sanatoriums. He attached considerable importance in this campaign to the health visitor; there should be all-round coördinated effort. For every population of 250,000 he considered there were required 20 visiting nurses, one dispensary, with four or more substations, a number of hospital beds equal to the mortality rate for the district, five physicians, five consultant nurses, and a sanitary administrative office. In his city there had been established a number of international scholarships on public health nursing, and in this it would be hoped Britain would join.

A general discussion followed.

The Training of Doctors and Nurses.

On Friday afternoon, under the presidency of Sir ROBERT PHILIP, the Conference discussed the training of doctors and nurses, the CHAIRMAN remarking that the time was probably not far distant when medical schools generally would follow Edinburgh in compelling all students to take a special course in tuberculosis. Those engaged in this work should know what machinery had already been set up, and how to use it, and doctors should be trained to detect the earliest manifestations of the disease.

Dr. LINSLY WILLIAMS (Rockefeller Commission, Paris) said if a doctor could not detect early tuberculosis, he should at least have intelligence enough to send the patient to someone who could. Doctors engaged in this special work should have periods of leave to keep themselves up to date by laboratory study. He spoke of the qualifications of doctors and nurses as he found them in France.

Dr. H. DE CARLE WOODCOCK (Leeds) attributed the recent increased incidence rate to the strain of the war. As attributing causes the workshops and amusements must be considered, as well as the homes. He would like to see a law forbidding any chronic case of the disease being allowed to live in a congested district.

Dr. T. GWYNNE MAITLAND said there should be some unified scheme which the practitioner or student wishing to enter this work could lay hold of. The same also applied to the nurse. There was something radically wrong in the present system. The status of tuberculosis should be, in his opinion, the same as that of public health and psychological medicine, for both of which a diploma was granted. Brompton Hospital had made a successful start; it was for the Ministry of Health to carry it forward.

Miss REDL (College of Nursing) spoke of the great need for tuberculosis work of trained nurses and nurses in training.

Professor RIST dealt with the same subject from the French side.

After-Care.

The concluding session was devoted to the consideration of after-care, under the presidency of Lord GLENCONNER, and, in the absence of three of the advertised speakers through illness, the opening address was given by the Marchioness of ABERDEEN, who described the work done in Ireland by a voluntary band of people about the year 1907, the activities having since been greatly amplified. In the years 1907 to 1914 the death-rate in Ireland from tuberculosis was reduced from 11.500 to 9000; it had always been much heavier in Ireland than in any other part of the Kingdom, but in that country there were appalling houses, scarcity of milk, and lack of proper water supplies. She made a touching appeal for help from all classes in this crusade.

Father BERNARD VAUGHAN, S.J., followed with an eloquent appeal for unselfish activity in the crusade, and alluded in passing to the ravages made by the disease, the lowered birth-rate, and the desire of many women to escape maternity. He wished it could be so arranged that there should be no case of tuberculosis without an angel guardian watching over it.

Resolutions Carried.

At the conclusion of the sitting the following resolutions were proposed by Sir ROBERT PHILIP, seconded by Lady ABERDEEN, and unanimously carried:—

(1) That it is imperative that the Government take all possible steps forthwith, even if further expenditure be involved, to hasten the development throughout Great Britain and Ireland of the various elements forming the coördinated scheme of anti-tuberculosis measures recommended in the Departmental Committee's report.

(2) That a copy of the foregoing resolution be sent to the Minister of Health, the Board of Health of Scotland, and the Chief Secretary for Ireland.

The Annual General Meeting.

The twentieth annual general meeting of the association was held during the course of a conversazione at the Central Hall, Westminster, on the evening of Oct. 16th. Lord GLENCONNER took the chair shortly after 9 o'clock, when the secretary read the minutes of the last meeting. In addition to six retiring members two new members, Sir Robert Fox-Symons and Mr. H. J. Gauvain, were elected to the council. Lord Glenconner referred with feeling to the loss sustained by the association in the recent death of Dr. W. O. Meek. He welcomed Sir Arthur Stanley as chairman of the council in succession to Lord Balfour of Burleigh, who now becomes its president. The business done was formal.

Dinner given by the Tuberculosis Society.

A dinner, at which the foreign delegates to the Tuberculosis Conference were entertained, was given by the Tuberculosis Society at Claridge's Hotel on Oct. 15th, Sir ROBERT PHILIP presiding.—Dr. HALLIDAY SUTHERLAND, retiring President of the society, gave a short account of the work of the society and an outline of future aims.—Dr. LYMAN, late President of the National Association for the Study and Prevention of Tuberculosis in America, said that, benefiting by England's recruiting experiences, America had rejected 63,000 cases of tuberculosis before enlistment, and later had weeded out a further 25,000 men before drafting over to France. It was now estimated that there would not be more than 15,000 cases discharged with the disease from the American Army.—Dr. LÉON BERNARD, professor of hygiene (Paris), attributed the enormous prevalence of tuberculosis in France in great measure to the impossibility of thorough medical examination, which had resulted from the rapid mobilisation of the reserves at the first onslaught of the German Army. France was admittedly behind Britain in public health organisation, but there was a firm determination to follow in her footsteps. He hoped that the International Association for the Prevention of Tuberculosis would be reconstructed, and tendered an invitation from its president, M. Bourgeois, to a preliminary conference in Paris.—Professor RIST, of the Hôpital Laënnec, paid a tribute to the excellent work of the Rockefeller Commission, carried out successively under the direction of Dr. Livingston Farrand and Dr. Linsly Williams. Until a universal classification of terminology was adopted he doubted whether serious progress could be made.—Professor DENYS (Louvain) responded for the guests, and Professor WHITE (Pittsburgh) responded on behalf of the Italian delegates—Professor Rongoni (Milan), Professor Poli (Genoa), and Professor Rasponi (Rome), who were unable to be present.—Dr. NATHAN RAW referred to the proposals made by the Inter-departmental Committee for the treatment and training of the discharged tuberculous soldier. No country, he said, had done more in this direction than England.—Lord GLENCONNER expressed his pleasure at the coöperation among so many great allies in the campaign against tuberculosis. The aims of the future might be set down as peace, reconstruction, and research.—Dr. DE CARLE WOODCOCK spoke of the work before the society, and the CHAIRMAN expressed his conviction that the future was full of hope.

---

[3] See p. 748.

Reviews and Notices of Books.

I. *Essentials of Physiology.* By F. A. BAINBRIDGE, F.R.S., Professor of Physiology, University of London; and J. ACWORTH MENZIES, M.A., M.D. Edin., Professor of Physiology, University of Durham. Third edition. With 179 illustrations. 1919. Pp. 484. 12*s.* 6*d.*

II. *An Introduction to General Physiology, with Practical Exercises.* By W. M. BAYLISS, M.A., D.Sc., F.R.S. 1919. Pp. 233. 7*s.* 6*d.* London: Longmans, Green, and Co.

I. THE object, as in previous editions, has been to bring together in a concise form the fundamental facts and principles of physiology, primarily to meet the requirements of the medical student. Histological details, chemical methods, and all matter of purely historical interest are excluded. The sections dealing with the constitution of proteins, with the chemical changes accompanying muscular contractions, and the functions of the renal tubules, have been rewritten. It is surprising that we find no reference in the section on muscle to the effect of veratrin. The chapters on the nervous system and organs of sense are excellent, so far as they go, and are well illustrated. In the chapter on blood we failed to find any reference to "buffer" salts. There are but two references to "shock"—we should have welcomed a few more details as to recent work on this subject—e.g., as to the observations of Bayliss on the effects of intravascular injection of solutions of gum. Amongst "internal sensations" in the next edition we hope that space may be found for reference to the causes of the sensations associated with hunger and thirst. This is a judiciously compiled compendium of the essential facts and principles of physiology, such as every student of medicine should be thoroughly conversant with.

II. It is far more difficult to write a text-book for those commencing the study of a science than to write one for advanced students. In the first place, the author has to decide what shall be omitted. We agree with the author that students do not readily apply their knowledge of physics and chemistry to physiological problems. It is for this reason that he gives so much space to certain elementary facts on these subjects. The exposition in the text is intended to be dogmatic and concise. The book is divided into two parts. The first part (159 pages) is upon "General Physiology," the author taking a very wide view of this subject, while the second part (about 70 pages) deals with "Laboratory Work"—i.e., with experiments to illustrate the text and convince the student of the facts and principles therein stated. The teacher is advised to take the book as a suggestion of what the author regards as the fundamentally important things to be taught, and to describe them in his own words. In the first chapter (39 pages) the student is introduced in terse and pithy terms to the salient facts and theories regarding protoplasm, the cell wall and its permeability, the nucleus, surface-tension, osmosis and osmotic pressure, electrolytic dissociation, electrical resistance of living cells, the colloidal state—a subject of far-reaching and ever-increasing importance—electrical adsorption, and other cognate questions. The author admits that the subject-matter of this chapter is "undoubtedly a difficult one," and the student is recommended to refer back to it from time to time. Under food digestion and respiration (52 pages) the uses of food for growth and maintenance are first discussed, and then the supply of energy is dealt with. The description of the mechanism of oxidation in and by the tissues, always a perplexing matter for the student, is particularly good and illuminating. The chapter on work and muscle is short, and includes the newer views on the causation of muscular activity. Sixteen pages suffice for the senses, and here, again, apt illustrations from chemical phenomena are used to elucidate how light may act on the retina. The nervous system is treated broadly and briefly. The high importance of inhibition as a function of the cerebral cortex is insisted on and illustrated by many familiar examples. The short story of "conditioned" and "unconditioned" reflexes is particularly interesting, and will whet the student's appetite for further knowledge of these comparatively modern discoveries. The main principles of the circulation and transport are ably set forth and particular lucidity characterises the description of how the heart adapts itself to the demands made upon it. Eight pages are given to a general description of growth and reproduction. Some of the laboratory exercises are simple, but others are not fully described and certainly require the aid of a teacher. There are numerous references throughout the text to the author's well-known "Principles." Names of discoverers are for the most part omitted, only a few names of outstanding men of genius being introduced.

We congratulate Professor Bayliss on the result of his judicious selection of facts and principles, and on his illuminating presentation of "General Physiology" in such a readable and attractive form.

Précis d'Anacousie Vocale et de Labiologie. Méthode Orale d'Éducation Auditive, d'Initiation Phonétique et de Lecture sur les Lèvres. By G DE PARREL. Paris: Maloine et Fils. 1919. Pp. 492. Fr.10.

M. de Parrel, whose work has just been officially rewarded, signifies that his work was compiled and published in order to meet the needs of soldiers rendered deaf during the war, either as a result of the continuous noise of bombardment, of shell shock, or of wounds. The book, however, is not limited to that purpose; on the contrary, it contains a fund of information about all classes of the deaf, from congenital deaf-mutes and those naturally hard-of-hearing to sufferers from acquired deafness of varying degrees.

The author writes in detail about phonetics, and gives the usual and correct diagrams of the positions of the organs of speech in the production of the various sounds; also several illustrations of the appearance of the face during speech, which should be very helpful and instructive in the teaching or acquiring of lip-reading. He touches on the general qualities of the voice, such as pitch, intensity, and timbre, and classifies words according to the pitch of the vowels composing them. Chapter IV. includes some interesting and exhaustive formulæ for use in the pathological examination of patients with various degrees of deafness and for the keeping of records during treatment. The general tone of the educational parts of the book will excite sympathy or antipathy according to the school of thought to which the reader belongs. Certainly many of his theories would not be favoured by modern English teachers; such, for example, as the statement concerning children who are deaf from birth that "the intellectual development of this class of patient is, generally speaking, less elastic than that of the normal child." This idea of the author tallies with the theories that the education of the deaf child should not be begun whilst the child is still in its nursery days, and that lip-reading must begin with the phonetic elements. M. de Parrel is certainly consistent throughout his plan of education. Some exercises for breathing, articulation, lip-reading, and so forth are given, but these must be regarded as serving as guides rather than being exhaustive. In the case of nasality of speech the remedy proposed is the closing of the nostrils with a specially constructed pincer. This may be useful in some cases, but generally nasality is caused by the dropping of the soft palate, which can be strengthened by suitable exercises.

The study of this work and the comparison of French and English phonetics is very interesting. English readers will find in this book an improved, modernised, and extended edition of Arnold's "Education of the Deaf."

A Laboratory Outline of Embryology: with Special Reference to the Chick and the Pig. By FRANK R. LILLIE, Professor of Embryology, and CARL R. MOORE, Instructor in Zoology in the University of Chicago. Chicago: University of Chicago Press. 1919. Pp. 66. 35 cents.

THE authors are of opinion that a course of embryology for medical students can be presented more effectively by studying the development of each organ system separately than by consideration of the entire embryo at time intervals. The printed directions require constant reference to Lillie's "Development of the Chick," and Prentiss and Arey's "Text-book of Embryology." First the morphology and gross anatomy of the chick embryo (33, 48, 72 hours, 5 days) and pig embryo (10, 15, 25 mm.) are considered, then embryonic membranes, ectodermal, endodermal, and mesodermal derivatives. The whole programme can be carried out in about 60 hours. It is an excellent little guide and represents an amount of laboratory work which we should think is rarely done by the average medical student in this country.

THE LANCET.

LONDON: SATURDAY, OCTOBER 25, 1919.

The Campaign against Typhus in Poland.

IN the chaos of affairs in Russia, famine, destitution, and civil war, together with the disappearance of ordinary government, have all combined to produce the conditions required for the wholesale propagation of typhus and relapsing fever. Enteric fever and dysentery are also seriously epidemic, while the further spread of cholera in and from Russia is far from improbable. The actual toll of life taken by these diseases, and particularly by typhus, since the Russian revolution will never be accurately known, but on all reckonings it has already been enormous, and there are no signs of its lessening during the coming winter and spring, the period in which epidemics of typhus and relapsing fever are ordinarily at their height. The spread of these epidemics from Russia westwards is a matter of very serious concern to the rest of Europe, and creates a situation which not only needs close watching, but timely and energetic action. Great credit is due to the new Government of Poland for their early recognition of this fact. Last spring that country sustained a severe outbreak of typhus, which was particularly intense in the portion which was Russian before the war, as well as in the regions of Galicia, which have formed so many battle grounds since 1914. The epidemic gave a great impulse to the newly-created Ministry of Public Health in Poland, which pushed forward in the Diet a number of well-contrived Acts for the improvement of public health and epidemic disease prevention. These Acts, based largely on British models, came promptly into operation, and considerable sums were voted for public health work.

A substantial beginning has already been made by the Ministry in the matter of organisation. Local public health authorities, roughly corresponding to our county and borough councils, have been set up; whole-time medical officers have been appointed for sanitary work; disinfecting plant and hospital equipments have been obtained from the surplus stocks of the American Army in France; good laboratories have been established at Warsaw and in other centres; and the new organisation has been particularly pressed in those parts of the country where modern sanitary measures were previously almost unknown. This applies to the more settled or "Congress Poland," but, in addition, there are large areas in the east and south where Poland has had no boundary, though she has been engaged with different forces in endeavouring to make it, and has still large armies in the field. In these regions epidemic diseases in the civil population are dealt with as part of the military rule which prevails, and the Polish army medical service, which includes many able and highly skilled men, has also done its best with the limited means at its disposal to cope with the prevalent typhus, a task in which the French army medical officers in Poland have also assisted. The Polish authorities, however, were quick to realise that, under the present conditions of the country, they could never succeed in dealing effectively with the situation unaided. Everything pointed to a recrudescence of these louse-borne diseases, as well as to other serious epidemics, in the winter and spring of 1919–20, and the lesson of Serbia is too recent to be forgotten.

A wholesale pestilence, occurring at so critical a stage of the re-creation of their nation, might well destroy much or all that their military and civil government, and the efforts of M. PADEREWSKI and his colleagues at the Peace Conference, had achieved. Encouraged by the invaluable aid they had secured from individual Red Cross agencies, particularly the American, British, and Australian Red Cross Societies, the Government appealed to the newly-created League at Geneva, which was established to coördinate the work of all Red Cross Societies, and to concentrate their efforts on the prevention and relief of suffering in cases where a large and combined international effort is called for. The Polish authorities laid special stress on the continued introduction of disease by the stream of refugees and others which continues to pour in from Russia, a population of men, women, and children requiring everything in the way of food, clothing, and maintenance, and too often bringing infection with them. The League of Red Cross Societies realised the force of the appeal and took the wise step of consulting the public health services of various Allied Governments, as well as the Office International d'Hygiène Publique, and with their concurrence sent a small International Medical Committee to Poland to size up the situation. This committee, which consisted of Colonel H. S. CUMMING, of the United States Federal Public Health Service; Dr. G. S. BUCHANAN, of the British Ministry of Health; Dr. A. CASTELLANI; and Médecin-principal VISBECQ, of the French Army Service de Santé, was appointed early in August. Its members immediately went to Poland for about six weeks of inquiry and inspection, and on their return presented a valuable report which the League has just issued, together with a preliminary statement by its secretary-general, Sir D. HENDERSON. We give an abstract of the report in another column of our present issue. It shows evidence of great industry in collecting facts and the conclusions and recommendations have been made with obvious care and good judgment on a wide survey of the needs of the case. Typhus and relapsing fever present throughout many towns and villages of "Congress Poland," and persisting even in the summer months; special concentration of the infection in Galicia and mining and industrial areas, which are destitute through the destruction of machinery or the absence of raw material; a population, a large part of which is compelled to live under conditions of gross overcrowding and usually of food shortage; general prevalence of lice; constant importation of disease from the East by the million and a quarter refugees who have already come in, an importation likely to continue for months to come:—these and many other considerations lead the committee to conclude that very severe epidemics are to be expected in the coming winter unless energetic measures are taken. The report reflects most favourably on the present government of the country, on its public health service, and on the devotion and knowledge of its doctors. They know what is wanted, and are in a position to do what is required if they have material and personnel. But hospitals are often mere shells in which there are no sheets, blankets, or ordinary utensils; refugee observation-stations cannot be properly worked through absence of sufficient food, clothing, and medical staff; the troops on the front, in frequent contact with the disease, cannot be systematically cleansed and "deloused" without being given changes of underclothing and soap. The material already sent has been invaluable, but it is all used. Doctors are needed everywhere. In some districts there is but one doctor for 30,000 persons, and the average for the whole of the civil population is 1 per 10,000. If doctors can be obtained from other countries they can be used at once at the hospitals, which are now being properly equipped, and they will release a number of Polish doctors for house-to-house visits, which require men with a knowledge of the Polish language. There is a similar demand for nurses and for workers to help in the organisation of the Polish Red Cross Society.

In issuing the report the League points out that the aid required will have to be furnished by the Allied Governments as well as by voluntary effort. These Governments should recognise frankly that states bordering on what once was Russia are in this matter of epidemic disease struggling, not for themselves alone but for the common good. At the same time the League takes up the voluntary burden and is ready to act at once. The Red Cross can and will alleviate some of the more acute misery, interfere with the progress of epidemic disease, and save some of the children on whom the future of these countries depends. The means which are being taken by the League for this end will, no doubt, be shortly announced in more detail, so that all who desire to coöperate in the movement will know what is required of them. We trust that every success will attend the efforts of the League.

◆

The Genesis of Cancer of the Uterus.

IN spite of the large amount of experimental research which has been carried out on the causation of cancer we know but little of this subject. The theories are many but the facts are few, and the facts, such as they are, do not carry us very far towards our goal. The first conception of these growths was that cancer was a diathesis and the tumour a parasite. Then followed the realisation that the main distinction between the normal cell of the part affected and the cancer cell was the unlimited power of proliferation of the latter. The cause of this abnormality was thought to be either the effect of some chronic irritation or some condition inherent in the cell itself. The numerous experiments which have been carried out in recent years on rats and mice have established certain facts of the utmost importance. It has been found possible to transplant certain strains of cancer, and it has been further demonstrated that when a growth of relatively low virulence is inoculated into an animal it may become entirely absorbed, and that the animal acquires a relative degree of immunity against similar malignant growths. The further interesting fact that carcinoma and sarcoma may occur together, affecting the same tissues, would seem to show that they are due to the same stimulus acting upon different cells. Other experiments have demonstrated that almost any cell can be made to take on malignant characters as the result of an external irritant, and that growths of this nature may continue to grow and retain their malignancy when transplanted into one host, but may lose that property and become innocuous when transplanted into another host. This would seem to indicate that the action of an external irritant must be supplemented by some special reaction on the part of the tissues of the animal affected, which takes us back some distance towards the original conception of cancer as a diathesis. It is evident, however, that the problem is one which is very far from being solved, but that certain vital reactions on the part of the tissues affected, of the nature of which we are quite ignorant, are always associated with the development of such new growths.

Traumata have always been considered to play an important part in the ætiology of malignant tumours, and especially is this so in the minds of the laity. It has been stated, for instance, that in carcinoma of the breast there is a detailed history of an intensive mechanical injury in about 10 per cent. of the patients, while in sarcoma of the breast it would appear that a number of cases have been recorded in which a definite injury to the breast has been observed to be followed by a sarcomatous tumour. The occurrence of cancer in the chronic ulcers produced by the use of the portable fire basket, or kangri, of the Kashmiri, occurring, more especially, as NEVE has shown, when there has been actual contact of the sooty pan with the skin, due to burning away of the outer basket-work; the curious cases of soot and pitch cancer; and the variety following the use of X rays would appear to establish a very definite relationship between the development of, at any rate, squamous carcinoma of the skin and a previous condition of chronic dermatitis. It has further been suggested in connexion with the occurrence of cancer of the lower lip in men associated with leukoplakia that the lip injury, due to excessive smoking, has some determining influence; and similarly, in the case of cancer of the vulva, the traumata associated with coition and childbirth may play a predisposing part. Some gynæcologists maintain that the frequency of tears of the cervix uteri consequent upon child-bearing accounts for the frequency of cancer in this particular organ. It is on the whole uncommon for a carcinomatous growth of the cervix to start actually in a tear, but that chronic cervicitis is constantly associated with carcinoma of this part of the body is certain, and the influence of the tear may well be that it forms a point of entry for infection resulting in the chronic inflammation. There is no certain evidence that the number of children born has much influence, and it is a curious fact that American Indian women are more fertile than white women, and yet carcinoma of the uterus among them is comparatively rare.

In a recent paper read before the Obstetric Section of the Royal Society of Medicine, Dr. F. J. MCCANN attempted to show that certain conditions of the cervix uteri, such as erosions, fissures, chronic inflammation, and chronic hypertrophy, should be regarded as pre-cancerous conditions and should always be considered with suspicion. To avoid the subsequent development of cancer of the cervix he advocates in women with signs of chronic cervicitis, who are approaching the age at which cancer usually develops, that the cervix uteri should be removed by supravaginal amputation as a prophylactic measure, and that in certain circumstances in which there is evidence of chronic inflammatory disease of the uterus a total hysterectomy should be performed. Dr. MCCANN'S suggestions met with a good deal of criticism, for he particularised conditions the immediate relationship of which to the development of cancer has not been certainly established, and did not base his suggestions on the more certain ground that most of these conditions are associated with chronic inflammation of the cervix, which is admitted by most pathologists to be a definitely pre-cancerous condition. But although we feel that Dr. MCCANN attempted to prove too much, yet we believe his main contention correct; if a woman has a chronically inflamed cervix, which is the seat of tears due to the traumata of childbirth, her chances of subsequently developing carcinoma would be materially lessened if the unhealthy cervix were removed. There can be no doubt at all that if the routine removal of such cervices by supravaginal amputation, an operation practically free from risk, was practised on a large scale, a very large number of women would be saved from dying a painful death from cancer of the uterus. Unfortunately, even at the present day the number of women with cancer of the uterus, who seek advice while the disease is still in a sufficiently early stage to enable a radical operation to be performed, is but a small percentage of those affected, and until steps are taken to educate women more thoroughly as to the importance at certain ages of what they often regard as merely trivial symptoms, the appalling death-rate from this variety of new growth will never be lessened, unless some such proposal as that put forward by Dr. MCCANN is adopted. That he fails to produce evidence of the causal relationship of some of the conditions he impeached as precursors of cancer is no doubt true, but there can be no question as to the accuracy of the observation that women with chronically inflamed cervices, which have been damaged, are especially liable to develop cancer, and that this condition is a definitely pre-cancerous state of this particular organ. Therefore the remedy which he suggests is not one to be dismissed lightly as useless and impracticable.

◆

Tuberculosis Problems in the New Age.

THE six years which have elapsed since the National Association for the Prevention of Consumption and other Forms of Tuberculosis last held its sessions in London have very materially altered the nature of the problems presented to it. Tuberculosis in 1913 was supposed by the sanguine to be well in hand and our measures for dealing with it to be well conceived, needing only further development on the same lines. The war has put an end to all that. Enlightenment first came from France, and was doubly illuminating because it is easier to learn from the misfortunes of others than from our own. The French delegates to the Conference were able to assure us that the incidence of tuberculosis among French troops had been grossly exaggerated—it was suggested for ignoble reasons. But the delegates also made it clear that the sudden drafting of the whole male population of France to defend its frontiers immediately resulted in placing a strain on that large proportion who were suffering from quiescent tuberculosis beyond what they were able to bear. The result was widespread disease little short of national disaster. In 1917 the French Government, realising its inability to cope with the outbreak of tuberculosis in the country, accepted the American offer of help, and the work of the Rockefeller Institute in Paris, with Dr. DAVID LYMAN at its head, marks an epoch in the antituberculosis campaign. Dr. LYMAN could obtain neither French doctors nor nurses; he had to bring with him his own staff, and to begin by educating a new class of public health visitor or nurse before the educational campaign could be launched. More surprising than the initial lack of means was the reception which the Institute met with. In many of the towns a large proportion of the population assembled to witness the tuberculosis show which perambulated the country. But the Rockefeller Institute regarded this whirlwind campaign as but the preliminary to serious educational work based on local effort, and went on to obtain in many departments complete unanimity between the official and intellectual heads of the community in working out administrative schemes. The results are not likely to be seen for long enough, but the Franco-American tuberculosis adventure will go down to history.

In our own country it is now clearly enough realised that our conceptions of means were vastly too narrow. Fortunately, Sir ARTHUR STANLEY is offering, in the name of the Red Cross, not merely a prospect of largely increased funds available for antituberculosis work, but a practically unlimited body of educated women, sympathetic amateurs, who are keen to offer their services if they can be usefully employed. In an impoverished world it is urgently necessary to be parsimonious both of effort and of money. Both must be employed where they will give the best return. Professor WILLIAM C. WHITE, of Pittsburgh, whose brief but suggestive address we print at the front of this issue, regards the share of the tuberculosis nurse as 60 per cent. at least of the total antituberculosis effort. Tuberculosis nurses in America have, we believe, had three years' general hospital training, plus a year of special public health work. Although this may be ideal it is obviously unattainable at present, and there can be little doubt that, short of this, there is a great opening for a band of trained workers to translate into the practice of everyday life in working-class households the skilled knowledge which is at the disposal of the few. The fault of all our public health work has been that it has not penetrated to the masses of the population. No one now regards the sanatorium as more than a link—a very useful one, it is true—in the administrative chain. Dr. ADDISON, in his opening address at the Conference, enunciated three factors which he held to be of paramount importance—namely, housing, an educational campaign, and research. The first and the third of these, the Health Minister reminded his audience, depended for their realisation on the expenditure of money, and in the first case the result must be strictly proportional to the outlay. The second desideratum is largely a question of personal effort. The lesson of the war will not have been in vain if it leads to a proper appreciation of the value of coördinated action in pursuit of national health, and particularly in the elimination of tuberculosis.

Annotations.

"Ne quid nimis."

THE POSITION OF RADIOLOGY IN MEDICINE.

IN his presidential address before the Electrotherapeutic Section of the Royal Society of Medicine, appearing in our present issue, Dr. A. E. Barclay raises many points that are worthy of serious consideration, especially by those who are engaged in hospital work and administration. If there is one subject which the war has brought more than another into prominence it is the importance of the intelligent use of physical agents in nearly every branch of medical science. To put it generally, through the agency of the X rays, electricity, heat, light, radiation, and massage many thousands of persons who would otherwise have been helpless cripples have been rendered contented and useful citizens. The transformation of Roentgen's interesting laboratory observation into one of the most important branches of medical and surgical work has been due almost entirely to members of the medical profession who have devoted their best energies to this purpose, and who have made the medical applications of X rays and electricity their life's work. Twenty-five years ago an X ray department was outside human conception—to-day it is among the most important special departments in any progressive hospital; and because every other department may be dependent on it, more cases pass through the hands of the head of the X ray department than through those of any other member of the staff. And the radiologist discusses cases and problems with the head of every other department in the hospital. This valuable position on the staff of the institution is not realised in any general way in hospital administration. It is only in rare instances that the radiologist is a member of the full staff; most often, and especially in London, he holds his appointment with little or no security of tenure and under conditions that lend themselves to criticism. There can be no justification for such an unfair and short-sighted policy. No valid excuses have been put forward in defence of the relegation of the radiologist to a status inferior to that of his colleagues, some of whom have less responsible duties. The radiologist is entitled to a place equal to that of the head of any other special department. The increasing value of radiology and electrology in medical and surgical work demands a recasting of the circumstances in which these appointments are offered and accepted. We are glad to note that at the University of Cambridge the importance of the subject is recognised, and a course is now prepared of a very comprehensive character, to be closed with a diploma in radiology for those who can satisfy the examiners.

THE TEACHING OF TROPICAL MEDICINE.

THE London School of Tropical Medicine will within the next few months remove from its abode at the Albert Dock Hospital to a permanent home in what was the Endsleigh Palace Hotel, close to Euston Station. The journey from Fenchurch-street Station to the docks was described by Dr. Andrew Balfour at the annual school dinner on Oct. 16th, in the words used by one Scottish divine of another, as "short, dark, and dirty," and whatever reason there may have been at the time of its foundation for placing the school at the point of disembarkation of its patients, in these days of motor ambulances and quick road transport that reason no longer exists. It cannot fail to be of great advantage to the school to be located in the neighbourhood of one of the largest medical teaching centres in London, and the gain will doubtless be mutual. Of clinical material there can be no lack. The return of our citizen army from many tropical regions, bearing with them not only wounds but the protozoal fauna of the parts from which they came, will ensure that, and as Professor J. L. Todd of McGill has recently pointed out[1] to Canadian doctors, they must be prepared to meet with "Uncanadian diseases." We understand, too, that the India Office is to avail itself of the services of the school for the observation and treatment of its employees of whatever grade. Staff and salaries will have to be reconsidered in the new and palatial surroundings. It is hardly to be expected that the numbers of students will remain limited to those as yet taking the course, who are for the most part entering the Colonial Medical Service. An intensive three months' training in tropical medicine is likely to become the equipment of every ambitious medical student, and the school now has on its register a number of members of allied or associated nations on their way back from the European turmoil. We may gratefully remember Mr. Joseph Chamberlain's keen intuition, to which the school owes its inception, and congratulate Sir Patrick Manson on seeing this fruit of his long toil.

EYE-STRAIN AND CINEMAS.

WE learn with relief that the question of eye-strain in cinematograph halls is under consideration of the London County Council. The Illuminating Engineering Society have been asked for advice, and that body propose to appoint a committee of investigation which, it is proposed, will include members of the Council of British Ophthalmologists and of the Physiological Society, besides representatives of the cinematograph industry. The subject is not new. In 1917 Dr. J. Kerr read a communication before the Illuminating Engineering Society dealing with the effect upon the eyes of varying degrees of brightness and contrast, and made certain recommendations for the improvement of cinema performances from this point of view. In the same year a commission appointed by the National Council of Public Morals issued a voluminous report in which the recommendations of Dr. Kerr and others were embodied. In view of the growing popularity of cinemas and the probability of their continued increase in the near future, not only for purposes of recreation but as a means of education, the matter is one of considerable urgency, and it behoves medical men in especial to have clear ideas on the subject. There is no evidence that organic injury to the visual apparatus can be directly produced by these displays—at any rate, when the eyes are healthy. On the other hand, it is a matter of common knowledge that they frequently induce a high degree of nervous fatigue. This fatigue probably arises mainly from the following causes:—

1. *Glare.*—By glare is meant the uncomfortable sensation caused by a brightly illuminated surface when the eyes are in a state of dark adaptation. It is contributed to largely by the excessive darkness of the auditorium, which produces

---

[1] Canadian Medical Association al, August, 1919.

an excessive contrast with a highly illuminated screen. Especially trying are some of the programme slides shown between the films, in which the contrast between the bright lettering and the dark background is far too abrupt. In this connexion the lighting arrangements, not only of the auditorium but of the passages, require attention.

2. *Flicker.*—This is the unpleasant sensation caused by the changes in the moving films when these are not sufficiently rapid to produce the effect of continuous motion. The result is the necessity for continual rapid readjustment of the whole visual mechanism on the part of the spectator. In this respect much depends upon the quality of the film. Old or damaged films are especially injurious, causing flashes of light, which are extremely trying.

3. A third cause of fatigue results from the heavy demands made upon the lateral muscles of the eye and the nervous mechanism by which these are coördinated when any swiftly moving object is fixed by a stationary observer, or when an observer who is himself swiftly moving, as in an express train, fixes a comparatively near object from the carriage window. In either case, the nearer the object to the observer and the swifter the motion, the more work is thrown upon the lateral eye muscles. In many films, those representing processions, for instance, the motion is unnaturally accelerated to prevent boredom on the part of the spectator. The spectator, however, if he is sitting at all near the front, becomes unpleasantly conscious of the effort thrown upon his eye muscles.

It is especially in children that the bad effects of cinema fatigue from all these causes are apt to show themselves. Defective ventilation, when it exists, is an additional and potent cause, and in some halls the irritating effect of an atmosphere thick with tobacco smoke upon the conjunctiva is an additional drawback. The displays are generally far too long, and even for adults it is more trying to concentrate the attention on any object when the retina is in a state of dark adaptation than when it is adapted for light. In all these respects there is great need for a proper standard for cinema displays to be laid down by public authority. It is to be hoped that the matter will not be lost sight of by the London County Council until this has been done, and that their example will be generally followed.

CALCIUM AND BACTERIAL GROWTH.

Sir Almroth Wright has introduced the term "kataphylaxis" for the transport of leucocytes and antibodies to the site of infection in bacterial disease. The same term was used in an opposite sense by Dr. W. E. Bullock and Dr. W. Cramer in a paper, from the laboratories of the Imperial Cancer Research Fund, on a New Factor in the Mechanism of Bacterial Infection recently read[1] before the Royal Society. These authors denoted thereby a rupture of the local defence mechanism directed against bacterial invasion, and possibly their claim to the use of the term in this sense was better founded, although to avoid confusion they have since substituted the term "aphylaxis." Experience on the Western Front made it quite clear that not all soil-contaminated wounds, which yielded the flora of gas gangrene and tetanus, gave rise to the clinical symptoms of infection with these organisms, and Dr. Bullock and Dr. Cramer have now shown experimentally that the determining factor in these two infections may be the presence of a soluble, ionisable calcium salt. The nidus theory thus is not sufficient in itself to explain the onset of gas gangrene. Sterilised earth added to the bacilli of tetanus and gas gangrene, completely freed from their toxins either by washing or by heating to 80° C. for half an hour, so that spores are formed, will produce virulent gas gangrene or tetanus, although without the earth no symptoms ensue. If the soluble calcium in the earth be removed by sodium carbonate the result is again negative. When no calcium is present in the wound it appears that lysis and phagocytosis suffice to keep toxin formation in abeyance. Even so minute a dose as five milligrammes of calcium chloride, if injected along with bacilli or spores into a mouse, will initiate a virulent type of disease. Chlorides of sodium, potassium, strontium, or magnesium do not produce this effect. Magnesium proves antagonistic to calcium. With calcium the same result ensues when bacteria and salt are injected successively at the same site, or when different sites are injected simultaneously or at different times. The writers are inclined to think that there is an additional factor at work besides calcium, but are not as yet able to define its nature. Whether these facts have any bearing upon osteomyelitic or other bone infections is not yet apparent, but it is clear that we have not yet got to the bottom of the problem of the function of calcium in the bodily economy. If calcium should be confirmed as a determining factor in tumour formation as well as in bacterial infection, we can understand why magnesium is sometimes effective in removing warts or, as some hold, in arresting cancer. The beneficial effect of copper salts or of colloidal copper in malignant growths may also rest on calcium antagonism or neutralisation. The whole subject is one of great interest, and will, we hope, be followed further by the Imperial Cancer Research Fund.

THE SCOPE OF POST-GRADUATE EDUCATION: ADDRESS BY SIR GEORGE NEWMAN.

Sir George Newman, K.C.B., the Chief Medical Officer of the Ministry of Health, opened the winter session of the post-graduate course at the West London Hospital on Oct. 16th with a short address on the objects and scope of post-graduate medical education. After complimenting the committee upon the arrangements made at the West London Hospital, which contained in his view the elements of an ideal scheme, Sir George Newman presented the chief reasons for such teaching as (*a*) the overcrowded state of the medical curriculum which seemed to require some lightening at the beginning and at the end; (*b*) the new medical work which is continually arising both in methods and in the applications of medicine and surgery, and the spirit of prevention which is more and more inspiring all branches of medicine; (*c*) the need for revision which every practitioner feels after a few years of active practice; (*d*) the desirability of what has come to be called "team work"; and lastly (*e*) the new relations and duties which the State is imposing upon, or at least demanding from, the general practitioner, such as the work of the School Medical Service, the National Insurance system, and the developments likely to arise under the Ministry of Health. Sir George Newman next turned his attention to the principal subjects which in his view should form part of any programme of post-graduate teaching. He named first the desire of the practitioner seeking further medical education to obtain a wider and more accurate experience of clinical practice. He placed laboratory work next, referring in particular to the importance of the practitioner being able to submit specimens in suitable condition for examination and with adequate particulars as to history, and the necessity of being able rightly to interpret pathological reports. In a third category came the desire of the practitioner to specialise in eye, ear, nose, or throat, diseases of women and children, radiography, &c. In a final category he placed the importance of systematic study of particular subjects—such as dyspepsia, mental disease, orthopædics, venereal disease, and "war neuroses." Finally, the lecturer dealt with ways and means of providing satisfactory post-graduate training. He recommended the attachment to each medical school of a complete post-graduate scheme with clinical assistantship appointments for practitioners (3–6 months), comparing England rather unfavourably with Germany and America in this respect. Another method was to provide post-graduate teaching *ad hoc* preferably at a general or special hospital, accessible, at convenient hours, and at reasonable fees. Still more advantageous was the method he hoped to see developed, in the course of a few years, of associating a post-graduate teaching scheme in relation with the new clinical units, the establishment of which is now under consideration in the principal medical schools. He thought that such teaching should be separate from that given to the ordinary medical student, while it should be of recognised university standard and provided by the permanent staff of the unit in association with the hospital staff of the medical school. Lastly, Sir George Newman adumbrated a scheme by which post-graduate teaching should grow out of the new network of hospitals and clinics which was being steadily created throughout the country. Through these institutions a great deal of valuable clinical material was passing, not available for the ordinary medical student, but of great value and interest to the practitioner.

---

[1] Proceedings of the Royal Society, B., vol. xc, 1919.

TREATMENT OF SOFT CHANCRE.

AT a recent meeting of the Société de Thérapeutique of Paris Dr. Goubeau[1] described the following method of treating soft chancre which had been successfully adopted in 366 cases in the French Army. The surface of the chancre is first carefully cleaned with a swab soaked in ether and then painted by a brush or piece of stick wrapped in cotton-wool with a 1 in 50 alcoholic solution of sodium arsenate. This drug being only slightly soluble in alcohol is in suspension rather than in solution, and the bottle containing it must therefore be shaken well before use. Lastly, the alcohol must be made to evaporate by a stream of air from a bellows or a Paquelin cautery. A fine film of arsenate of soda is thus deposited on the surface of the chancre. The swabbing and evaporation must then be repeated and the chancre covered with aseptic gauze. Under this treatment it rarely needs more than from 3–5 days for the chancre to be transformed into a smooth, red, healthy wound with a rapid tendency to cicatrise. When the pus does not reaccumulate a daily application of iodoform may be substituted for the arsenate of soda. In the case of chancres complicated by buboes, if the bubo is not yet softened, 1 or 2 c.cm. of a sterile watery solution of 1 in 100 sodium arsenate is injected into the glands, the injection being repeated, if necessary, every two days. If an abscess has formed, the pus is evacuated with a small trocar and the solution of sodium arsenate injected, together with 1 c.cm. of ether, which enables the cavity to be distended and allows the sodium arsenate to penetrate into all the parts of the cavity. The injection should be repeated daily or every two days. If the bubo is already opened it should be treated like the actual chancre by cleaning it with ether and swabbing it with a 1 in 50 solution of sodium arsenate.

RUPTURE OF INTESTINE WITHOUT WOUND OF THE ABDOMINAL WALL.

IN the issue of THE LANCET of July 19th last appeared an account by Mr. W. H. Battle of a case in which he had operated successfully for a rupture of the jejunum caused by a blow on the abdomen, and in the present number we publish a paper by Mr. Gerald Stanley on four cases of a similar nature. The main difficulty in connexion with this injury lies in diagnosis. When there has been some form of blow on the abdomen, but no wound of the abdominal wall, the surgeon has to answer the question, Has there been important damage to any of the abdominal viscera? And in framing an answer to this difficult question the surgeon has to remember that a diagnosis must be made at once, for time is a most important element in the matter. If there has been any severe injury to a viscus, the sooner the abdomen is opened the better chance of recovery there will be for the patient. There are practically only two forms of injury with which the surgeon need concern himself—laceration of a solid viscus with hæmorrhage, and rupture of a hollow viscus with extravasation of the contents. Hæmorrhage is, on the whole, the more easily recognised of the two. The rapid increase of the faintness, the progressive increase of the collapse resulting from the blow itself, the dullness in the flanks, pointing to the presence of free fluid in the abdominal cavity, and the increasing frequency and feebleness of the pulse, will almost always point clearly to the existence of hæmorrhage. Here an immediate laparotomy will in a very large proportion of the cases enable the surgeon to arrest the hæmorrhage and to save the patient's life. The case is, however, far otherwise when the injury produced by the blow is a rupture of one of the hollow viscera of the abdomen. In a torn bladder the symptoms will, as a rule, arise quickly, and a careful examination of the bladder will generally point strongly to a correct diagnosis, when early surgical intervention will lead to a successful closure of the rent. When the stomach or intestine is ruptured the diagnosis is more difficult, the material for exact diagnosis being, perhaps, temporarily wanting. The tear of a piece of bowel will lead to the escape of gas and fæcal contents. The passage of gas from the bowel into the peritoneal cavity may enable the liver to fall away from the anterior abdominal wall with a loss of the liver dullness. At one time this sign was regarded as an almost infallible sign of a rupture of stomach or bowel, but few modern surgeons lay much stress on the absence of the liver dullness, for experience has shown that an extensive tear of the bowel may occur without any such physical sign, and further that there may be much diminution of the liver dullness without any perforation having occurred. So that at the present time it is generally recognised that no real reliance can be placed on the presence or absence of the liver dullness. There may be also a complete absence of any dullness in the flanks indicative of fluid poured out into the peritoneal cavity, and, as a rule, other signs are wanting until the onset of peritonitis demonstrates clearly that there has been a perforation. Then it is often too late; the ideal time for operative interference has gone by and the peritonitis has become so severe that the operation is in vain. How, then, can the surgeon know in time that the bowel has been injured? He may judge to some extent by the amount of the shock, but this is no certain guide, though it may be said that the greater the shock present the greater the probability that some viscus has been injured; for as a rule the shock, or at least a major part of it, is due to the abdominal blow and not to any tear of the bowel. If the surgeon is sure that the patient has received a severe blow on the abdomen, and if there is any possibility that a viscus has been damaged, he should operate at once. It may well be that he will sometimes perform a laparotomy unnecessarily, even in the presence of many indicative signs and symptoms, but if the operation be done with care no harm should follow. It is certain that in the large majority of cases he will find some injury of one or other viscus to justify the clinical diagnosis, when the patient will benefit greatly by the early operation. It is of the greatest importance to remember that it is not at all rare to find more than one lesion, and an instance of this is found in Mr. Stanley's paper; in one case there described there was in addition to the tear in the bowel a rupture of the urinary bladder. In early operation lies the only hope in these cases of rupture of the intestine without a wound of the abdominal wall, and only the utter absence of facilities for performing the operation should prevent it being done.

---

[1] Bulletin de la Société de Thérapeutique, 1919, 4 série, xxiv., 150–7.

A VETERINARY SANITARY SERVICE IN RELATION TO PUBLIC HEALTH.

An account of the activities of the Veterinary Sanitary Service of Paris for 1917 shows an increased incidence of rabies consequent on an increase in the number of unmuzzled uncontrolled dogs in the area. The zeal of the public in the capture of wandering dogs was attended with good results in 1916, and it is to their lack of perseverance in this direction that the 56 cases of rabies in Paris, against 51 in 1915, is largely due. The direct causes of the epizootic were dogs contaminated in the provinces, dogs bitten by others proceeding from the front and passing on, and dogs bitten by rabid strays. In January, 1917, 2163 dogs were impounded by the police, and five cases of rabies were recorded, whereas in December, 1917, 758 dogs were impounded by the police, and there were 14 cases of rabies recorded. The figures for 1918 are likely to proceed higher. Forty-eight people were bitten by the rabid dogs, and after treatment at the Pasteur Institute no deaths occurred.

Apart from activities directed against the spread of rabies, good work has been done in the protection of the public against diseases communicable to man by animals. Inspection of cattle for tuberculosis has been extensively carried out; the frequency of tuberculosis in pigs and fowls has not been overlooked, and 706 porcine carcasses were found affected. In fowls, apparently in a good state of flesh, large tuberculous lesions have been found in the liver, spleen, and lungs, and it is now common practice to make an incision in the right flank of fowls to ascertain the condition of the spleen and liver. 396 cases of avian tuberculosis were discovered. The diseases or defects found in fish, molluscs, and crustaceans included putrefaction, natural death, tuberculosis (in a sturgeon), redness of the flesh (codfish), ascites, and tuberculiform vegetations. The abattoir of Vincennes was an important centre for the supply of meat to the French army. It was well supervised and inspected, and over 23,000 lb. of diseased or defective meat were condemned there. Among 72,036 horses slaughtered for food six cases of glanders were found.

The report throughout bears evidence of careful compilation and thoroughness. It furnishes a useful lesson in the value of an efficient veterinary sanitary service in the protection of human health. It shows what danger may arise to the community where inspection is superficial or non-existent, and provides a conclusive and indisputable piece of evidence in favour of the establishment throughout this country of a system of public abattoirs and meat-inspection halls.

THE ANNUAL MEETING OF THE BRITISH MEDICAL ASSOCIATION.

The next annual meeting of the British Medical Association will be held at Cambridge under the presidency of Sir T. Clifford Allbutt, Regius Professor of Physic and President of the Association. The meeting of representatives will be held on Monday, June 28th, the general meeting and meetings of sections beginning on June 29th and closing on Saturday, July 3rd. It will be seen that all the dates fall a month earlier than usual, having been dictated by the exigencies of the Cambridge term. Nor is this the only innovation. It is proposed that the number of sections shall be smaller than has at all recent years become the custom. There will be sections of medicine, surgery, physiology and pharmacology, and neurology and psychiatry, each of these sections meeting on three days, while certain other sections will meet on one day only. The desire is to give a practical character to the proceedings by arranging a large number of clinical and laboratory demonstrations, when the facilities to be afforded by the University become obvious. We may surmise that the Special Clinical Meeting of the Association held in London this spring has to some extent formed a model for the Association in the plans for the forthcoming meeting, for the gathering in April last was an unqualified success.

The Ministry of Health announce that arrangements have now been made to extend considerably the functions of the Welsh Board of Health. The work to be immediately transferred includes all the functions of the Housing Department of the Ministry of Health in Wales. Mr. A. Lloyd Thomas, the Housing Commissioner for Wales and Monmouthshire, becomes a member of the Welsh Board of Health, and his staff is transferred from the London to the Cardiff establishment. Arrangements have also been made to transfer to Cardiff an important part of the work of the Ministry in relation to public health.

The Juvenile Organisations Committee was appointed by the Home Secretary in 1916 in response to the widespread feeling that the conditions of war were conducing to juvenile criminality or insubordination of a serious if not criminal type. The work of the committee has now been transferred from the Home Office to the Board of Education, Mr. J. Herbert Lewis, Parliamentary Secretary to the Board, taking the place, as chairman, of Dr. A. H. Norris, who remains a member of the committee. Mr. C. E. Clift is organising secretary, and the secretary is Mr. R. S. Wood, to whom all communications should be addressed at the Board of Education, Whitehall, S.W. 1.

REPORT OF THE INTER-ALLIED MEDICAL COMMISSION TO POLAND.

THE report of this Commission to the League of Red Cross Societies has just been issued by the League from its headquarters at Geneva as No. 4 of its bulletins. We refer elsewhere in this issue to the circumstances in which the Inter-Allied Medical Commission was formed and the general nature of its findings. Below are notes of some of the principal matters brought out by the report.

Nature of Investigation.

The Commission was appointed on August 6th last and began its inquiries in Warsaw on August 17th. The Russian and Galician fronts were visited, together with the towns and villages at present under military government in those areas. Subsequently a tour was made of various parts of "Congress Poland," including the manufacturing and mining areas in the south-west of "Congress Poland" and typical agricultural districts. The Commission left Poland in the middle of September and reported to the League without delay. They received every facility for the inquiry, and adopted a prearranged routine of inspection at the various towns which enabled them to get the main facts as to disease prevalence, food-supply, destitution, sanitary conditions and administration, and so forth.

Interim Report.

On Sept. 9th an interim report was telegraphed to Geneva confirming the statement that typhus was widely spread and advising action by the League (*a*) to coördinate Red Cross efforts in Poland; (*b*) to support and maintain cleansing stations for refugees and repatriated persons; (*c*) to obtain doctors, ambulances, and hospital personnel; and (*d*) to inquire the most expeditious way of obtaining and consigning 2000 tons of soap; shirts, drawers, and blankets up to 200 000 of each; ordinary equipment and utensils for a hundred hospitals of 300 beds each; drugs, especially salvarsan, iodides, quinine, castor oil, salol, and opium; *lessiveuses* or other apparatus for boiling linen; and outer clothing for about 200,000 men, women, and children.

Prevalence of Typhus Exanthematicus in Poland in Recent Years.

Typhus has long been endemic in Poland, but in general only manifested itself by occasional scattered cases before the war. With the invasion, destitution, and all the other causes which brought serious social disturbances into the country the disease found conditions favourable to its development, and reached pandemic proportions in 1918 and 1919. The latter has so far been the worst year. In "Congress Poland" alone, from Jan. 1st, 1919, to July 27th, the number of declared cases was 124,620, with 9657 deaths. In a general way the progress of the epidemic was a rising curve from January to April, becoming practically stationary from April to June, at which time it began to decline. In the capital, Warsaw, the epidemic was severe in 1918, but in 1919 reached a much lower figure, a fact which the Commission ascribes largely to the energetic action of the medical officer of the city. Figures are given for various districts, but great caution is advised as to the use of them. Notification in some parts of Poland has only lately been introduced and thousands of cases are not seen by doctors, while certification of the causes of death is very unreliable. Apart from figures, however, the Commission had abundant evidence of the severity of the 1919 epidemic in certain places visited, including Eastern Galicia and the industrial and agricultural area to the south-west of Congress Poland. 5688 cases of typhus had been reported among troops at the base between January and July, 1919, and the corresponding figure for troops at the different fronts from March to July was 5863. The forces in Galicia and Volhynia were those most severely attacked. The mortality was very difficult to estimate, but it appears to have been generally low, about 10 per cent. to 14 per cent.

Typhus in August and September.—The most serious factor in the situation, as actually seen by the Commission, is that typhus, though greatly diminished, "continues to exist, and in some cases to increase, in so many centres, all over the country, and in the military forces also, notwithstanding the time of year. The refugees and the prisoners continue to import typhus, and the disease persists in local foci without any new introduction from outside." This persistence suggests that typhus will maintain a fairly high rate of epidemicity until the winter, when it may be expected to attain the proportions of a large epidemic in consequence of the bad conditions of living and increased opportunities of infection which are to be expected in the winter months.

Character of Prevalent Typhus and its Association with Relapsing Fever.

The typhus appears generally to be typical, without any specially prominent complications. In Warsaw and some other towns the Weil-Felix reaction has been much used for confirming the clinical diagnosis. The epidemic is accompanied by a widespread prevalence of relapsing fever, and in some districts cases of relapsing fever were much more numerous than those of typhus. Salvarsan, or salvarsan combined with tartar emetic, is in great demand for treatment of relapsing fever cases, but hitherto has, with other drugs, been almost impossible to obtain at the Polish hospitals.

Presence and Nature of the Conditions which Cause the Spread of Typhus.

These are discussed in some detail in the report. Great stress is laid on the overcrowding of persons in houses, due either to actual destruction of dwellings or to the increase in population from refugees and prisoners of war. It is estimated that 1¼ million persons have been added to the population in this way during the last year, and that about the same number is still to come from Russia as well as from other parts of Europe. These refugees after arrival get scattered throughout the towns and villages, and are usually quite destitute. Malnutrition also plays an important part in some areas. Lousiness is reputed to be "practically universal" among the ordinary working-class and poor population. In the smaller towns and villages, and sometimes also in the larger towns, there is nothing worthy of the name of a public water-supply. Soap in many places is almost unobtainable, bad in quality, and dear. Fuel, except in the wooded districts, is ver scarce. The standard of personal cleanliness, especially among the ordinary Jewish population, has probably always been low, and in present circumstances has become lower than usual. Infection is spread by undetected cases, particularly in children, by overcrowding in public vehicles, by the clothing of persons who have died from typhus, and in various other ways. In many places no attempt at hospital treatment can be made, and it is frequently impossible to carry out essential measures of cleansing and disinfection.

The refugees arrive at frontier stations closely packed in trains, sick and healthy together, with numerous cases of typhus among the sick. At one refugee station the proportion of refugees found to have typhus on arrival was as high as 2 per cent. There are several stations for the reception of these refugees, which have excellent equipment for cleansing, disinfecting, &c., on a large scale. But from the absence of soap, linen, spare clothing, and food at these stations they have not been utilised as thoroughly and systematically as the conditions require.

Similar considerations apply to the large numbers of prisoners who have been lately captured or who have surrendered from the Bolshevist, Ruthenian, and Ukrainian forces. The conditions under which these prisoners are kept, and the arrangements for preventing the spread of infection, were unsatisfactory at two large camps visited, Dambié and Brest-Litovsk, although improvements were in progress. These improvements are needed also in regard to dysentery, which was epidemic at these and other prisoners' camps.

In the army at the front special risk arises for the coming winter in consequence of the close way in which the civil and military population are associated and of the absence of sufficient underclothing, which prevents any systematic delousing of the soldiers.

The Question of a "Sanitary Cordon."

The Commission give a long chapter to the importance of checking typhus in Poland for the protection of Western Europe and America, and the question of a "sanitary cordon," which deserves close attention from the public health departments of the different countries which may be affected. Practically they conclude that it is at least feasible, along the eastern border of Poland, to establish efficient observation stations, or to develop existing observation stations, at which the main streams of refugees from the East can be thoroughly and systematically cleansed, disinfected, and kept under observation if they have been contacts of typhus cases. This implies adequate reserves of food-supplies, sufficient hospital accommodation, and considerable stocks of spare clothing, &c., for the refugees—none of which are at present available, though a great deal has been done by the Polish officials with the resources at their disposal.

State of Sanitation of Polish Towns and Villages, and Risks of other Epidemic Diseases.

Poland, especially in the part formerly under Russian domination, obviously needs many years of sanitary effort and good administration before real and permanent progress can be secured. The provision of public water-supplies is one of the most pressing needs of the country, as are also drainage, public scavenging, cleansing and paving of courts and passages, and provision of infectious diseases hospitals, public baths, and public wash-houses. Generally speaking, and with exceptions for some of the large towns, "all the factors exist for the propagation of the epidemic diseases which are carried by contaminated water, food, or flies." Enteric fever is common, and numerous outbreaks of Shiga dysentery came under notice. Some 500 cases of small-pox have been reported during the present year, but vaccination is being actively pressed, and anti-typhoid, anti-cholera, and anti-dysentery vaccines are also being prepared on a large scale at the laboratories of the Ministry of Health for use among the general population. The Commission urge that all Red Cross and other workers going to Poland should be adequately protected by recent vaccination, and should also be inoculated against enteric fever and cholera.

Destitution; Condition of Nutrition of the Population; Reported Increase of Tuberculosis and Rickets.

The report recognises that the food-supply dominates the whole question of epidemic prevention, particularly in the cases of typhus and relapsing fever. While in some regions, recently occupied by the Polish troops, there was evidence of acute famine, the situation as a whole was relatively good; as a rule the evidence in bad districts was rather of the effect of a long-continued scanty diet and dear food than of actual starvation. It was obvious, however, that there was no margin of food in the country with which to meet special calls, such as those for refugees, prisoners of war, or even hospitals. In connexion with the system of public food distribution the Commission suggests that it would be well to link it up with the measures of disinfection and cleansing, in any area where these measures are in good working order.

Measures which are being Taken or Proposed to Check Typhus and Deal with other Epidemics.

Under this heading the report gives an interesting account of the establishment and development of the Ministry of Public Health in Poland, and of the very remarkable progress which it has made during its short existence. While, however, a great deal has been achieved in preliminary organisation (for example, by the appointment of local health officers and local health committees and the preparation of "antityphus campaigns"), it has often been impossible to make progress with actual preventive work owing to the absence of material and personnel, and a striking picture is drawn of the deficiencies of many of the civil and military hospitals in this respect. The position is the more to be regretted as the hospitals are often themselves very satisfactory institutions, with a thoroughly competent medical staff. The Ministry of Health has, however, lately secured a large quantity of useful hospital and other material from the surplus American military stores in France, and the Commission considers that with this equipment much can be done, provided that a supply of doctors and nurses can be secured. In the army and in the civil area under military control the great need is sanitary equipment, hospital material, and clothing.

"Neither technical knowledge nor devotion is lacking in the army medical corps, and from conversation with different Polish military doctors we were able to assure ourselves of this fact. We have likewise seen on the spot what they could do. ...... They know what has to be done, they want to do it, and only the lack of material means prevents them from realising it."

On the other hand, it is clear that a great deal has already been done to aid in this matter by the American Red Cross Society, which has been particularly active in Poland, as well as by the British Red Cross and others. The Commission lay great stress also on the need for supporting the Polish Red Cross Society, which has a large membership and enthusiastic workers, but needs outside help in its organisation.

Recommendations of the Commission.

The report concludes by a statement of the necessity of supplementing the present measures by voluntary action through the League of Red Cross Societies, and by recommendations the general nature of which will be gathered from the above notes. Organisation of the voluntary work, so that it can be directed to the combating and treatment of disease in Poland as a whole, receives the first place. A representative of the League on the spot should direct supplies or personnel to the military area, to the civil administration, or to the refugee organisations, according to the needs of the case, and for this purpose should be in the closest communication with all the different Government departments and voluntary agencies concerned. The supplies required are set out, much as in the interim report quoted above, but with some further detail. The League is urged to secure the services of doctors and nurses, and as an immediate working figure 50 doctors are suggested.

"We think that at the present time it should be possible for the League to obtain from different countries the services of medical men who have been recently demobilised and are willing to undertake infectious disease work in Poland, on a suitable agreement with the League, say, for 12 months, for their pay and maintenance. The experience required is that of medical treatment and organisation in military or civil hospitals. Special knowledge of infectious disease treatment would also be an advantage, as also a knowledge of colloquial French or German. Other things being equal, preference should be given to younger men or those who have previously suffered from typhus. The medical officers employed could be placed by the representative of the League in Poland in civil or military hospitals or in other special posts, as circumstances require. They should be guaranteed reasonably good conditions of living and opportunities for really effective work; the representative of the League should be in position to make necessary stipulations on this matter before the services of the doctor are given to the department or organisation concerned."

Further suggestions for the development of the Polish Red Cross Society are made in the report, which is prefaced by an introductory statement by Sir David Henderson, the secretary-general of the League, from its office in Geneva.

HEALTH IN FACTORIES AND WORKSHOPS:

ANNUAL REPORT OF THE CHIEF INSPECTOR FOR THE YEAR 1918.[1]

THE report of the Chief Inspector of Factories for 1918, the first report of any size issued by him in recent years, is a more than usually interesting document. It summarises much that occurred during the war, and herein appeals to the reader rather as the echoes of a far-off storm; but it also sets out in detail lessons learnt from war-time experience, and holds out a greater promise of industrial improvement, which is even now taking place, than we have found in any previous report. The form of the report follows that introduced just at the end of the pre-war period, and deserts the formal and often somewhat desultory account of the routine of official work to which we had become accustomed, and which often so confused the reader that he could with difficulty see the forest for the trees. There are eight chapters by experts, each dealing with separate subjects; and, instead of a mass of undigested statistical data as of old, there are presented readable and considered accounts, backed by instances, of the trend of affairs in relation to such matters as hours of labour, accident prevention, welfare and continuation classes. We hope this method of permitting the use of brains in the presentation of official information will be continued in future years; for we feel confident that this report will be more widely read than many of its predecessors.

---

[1] H.M. Stationery Office. (Cmd. 340.) Price 9*d.* net.

Reduced Hours and Increased Output.

Mr. R. E. Graves's article on hours of labour must attract attention at the present moment. Instance after instance, chosen from a great variety of trades, is given of reduced hours with maintained or increased output; and with what is of even greater importance, reduction in lost time and sickness. The introduction of the one-break day and the abolition of before-breakfast work is proving a success even in the textile industries. In one typical case, for instance—

> "The net weekly hours were reduced from 55½ to 49, and the starting time was altered from 6 A.M. to 8 A.M. Opportunity is given for refreshment for workers who do not get a proper breakfast at home. The output is said to be quite up to the old standard. On coarse counts it is better, but on the finer counts it is not so good. Bad time-keeping has almost entirely disappeared, and the health of the workers has improved."

In another case with similar reduction of hours—

> "The output at first fell in proportion to the reduction in hours, but it gradually rose during the following four years, till it reached the old maximum, which has been maintained ever since. The cost of production remains about the same as before, time-keeping has improved, and absence from sickness has been reduced."

Similar results are stated to have been obtained at soap factories, engineering establishments, and match factories. The boot and shoe trade have adopted the 48-hour week with success; and one Rossendale firm found—

> "The output did not fall off when the hours were reduced from 55½ to 48, and even on the 46½-hour week it has been fairly well maintained. Cost of production remains about the same."

This result was accompanied by a considerable reduction in cases of sickness, especially among females, which is attributed by the firm to working shorter hours and to giving a cup of tea morning and afternoon. "It is clear," says Mr. Graves, "from the facts stated that the early morning work is generally unprofitable owing to the large amount of time lost, and it is also apparent that hours can be very considerably reduced in many industries without reducing output or increasing the cost of production."

The Two Day-shifts System.

He also sets forth clearly the advantages of the two day-shifts system which has been so ably advocated by Lord Leverhulme, but which is to-day not legally permissible for female and juvenile labour:—

> "(1) It increases the volume of available employment, which at the present time is most urgently necessary—particularly in the case of women. ...... (2) It affords a means of increasing the total national production which is essential to the restoration and maintenance of the national prosperity. (3) At the same time it decreases the cost of production. (4) It obviates overtime."

We would like to read between the lines when Mr. Graves writes: "It would probably be adopted more generally if it were likely to be permanently legalised," and to express the hope that the intention is to introduce legislation at an early date.

Labour-saving Appliances.

The introduction of labour-saving appliances, discussed by Mr. Stevenson Taylor, is, from the point of view of industrial fatigue, closely associated with reduction of hours. In the future—

> "It is unlikely that the worker will be content to perform continuously work which involves heavy lifting, straining, or tugging, with possible risk of accident due to overstraining, when such work can be performed quite easily by means of mechanical appliances. On the other hand, the employer will naturally adopt any appliance which tends to increase output, reduces the cost of production, and possibly also reduces the risk of accidents to his workers."

An extensive introduction of labour-saving devices has been taking place, due to:—

> "(*a*) The advent of women into many industries where their limited physical powers tended to place them at a disadvantage as compared with men; (*b*) the necessity for economy of manual labour owing to its scarcity and increasing cost; (*c*) the massed production of articles of the same size; (*d*) the mass production of articles, such as shells, of a form which readily lends itself to simple mechanical methods of handling and transport."

The increased employment of women has led to the provision of lighter barrows, smaller spades and other tools, and has caused attention to be paid to adjusting tables and benches to the height of the workers. Only good can come from such care which in the past has been rather conspicuous by its absence; and the information given of new forms of hand-trolleys, electrically-propelled rail-less vehicles, and overhead runways for the transport of material from room to room shows that the question of labour-saving is to-day a pressing one.

Accident Prevention.

The chapter on accident prevention by Mr. G. Bellhouse is refreshing in its recognition that, important as are the fencing of machinery and the use of guards, "the reduction of accidents to be effected by this means only represents a very small proportion of the whole." In previous reports the impression has been given with almost wearying reiteration that accident prevention was only to be effected by mechanical devices; but now a new spirit is abroad which perceives that the psychology of the workers themselves is the important factor, and that—

> "A very large number of accidents occur through the neglect of simple precautions on the part of workers, which is often due to the want of training, defective organisation, or absence of discipline in the factory. Probably more accidents are attributable to these causes than to direct breach of any requirement of the Acts. ...... These are cases in which the factory inspector can play but a small part. If a real reduction is to take place, it can be effected only by the joint effort of employers and workers in each individual trade and factory. The remedy, then, is undoubtedly to be found in a wide extension of the system of safety committees which have been attended by so much success in the cases where they have been tried."

The establishment of such committees is advocated, and their constitution and functions discussed. In one factory alone accidents were in one year reduced by 50 per cent.; in America we are aware that even more striking results have been obtained, and we rejoice that at last in this country the value of action on these lines has received official recognition and the promise of organised propaganda.

Treatment of Injuries.

The subject of the treatment of injuries, dealt with by Dr. J. C. Bridge, is cognate to the prevention of accidents. In this section of the report the development of factory ambulance stations is referred to, but we regret that greater stress is not laid on the way in which the use of these stations is extending outside what was originally intended, until they are coming to be industrial clinics. We should also like to have found reference to the organisation of ambulance corps coöperating with the safety committee; for there can be no doubt that treatment, like prevention, will have to be popularised to become effective.

Electricity in Industry.

The enormous increase in recent years in the use of electricity in industry is described by Mr. G. S. Ram. The account encourages the hope that some now alive may see our industrial centres freed from their pall of smoke and the heavy infantile mortality with which it is associated. Everything good, however, has its dangers, and the use of electricity is no exception. But Mr. Ram's statement that, notwithstanding the expansion which has occurred, the number of electrical accidents has not increased is reassuring, and is eloquent testimony to the good work he has done in getting new installations made as far as possible "fool-proof." Yet electrical accidents will occur occasionally, and the warning he again addresses to the profession is timely. He urges on them not to pronounce too readily "dead" those apparently lifeless from electric shock, but rather to insist on the prolonged continuation of artificial respiration. In this matter he claims, and probably justly, that "the medical profession generally is woefully ignorant." We published a letter in this journal in 1912 (vol. ii., p. 1539) from Dr. R. Morton on this subject, the substance of which still holds good, in which he pointed out that—

> "Death from electrical shock is only an apparent death at first, and whatever the conditions or severity of the accident there is practically always a time, varying from a few moments upwards, during which it is possible to resuscitate the victim by artificial respiration if resorted to at once. Artificial respiration must be persevered with for at least two hours, or until the patient revives; in many cases it may be only a few minutes."

Industrial Welfare.

The subject of industrial welfare is reported upon at some length by Miss Anderson, who traces the past history of the movement, its sudden war-time development, and foreshadows its future possibilities. To those unacquainted with the subject this chapter will be interesting reading, as it tells of much good work done in a field of preventive medicine till recently neglected. We cannot help regretting that the writer recognises so little the essentially medical side of her subject. No one ever thinks of infant welfare apart from its medical aspect; but there is a tendency here to treat industrial welfare as something *sui generis* to which medical service is a minor appendage. This way danger lies; much in welfare is yet to be proved and tested; and, if appeal is not made to the medical scientist and to research, mistaken philanthropy may do much damage and harm. A priori deductions as to what ought to be beneficial without appeal to proof are to-day the rocks upon which this excellent ship may founder. The medical staff of the factory department wants strengthening, so that it can pay some attention to this most important side of public health. A staff of two medical inspectors to supervise the health conditions of some eight million workers would be ridiculous were it not a national reproach.

Industrial Poisoning.

The chapter written by Dr. T. M. Legge is devoted to industrial poisoning, the only branch—and that a small one—of industrial medicine he and his colleague are numerically strong enough to deal with. Lead poisoning, of which there were 1058 cases in 1900, only claimed 144 victims in 1918, and many of the cases were only of slight duration. This reduction seems fully to justify the statement that "on the practical side little more is to be learned as to how lead poisoning is caused, and it can be taken as axiomatic that all risk lies in inhalation of dust and fume. These removed or prevented there will be no lead poisoning." The way in which "phossy jaw" (phosphorus poisoning) reappeared, after its extirpation following upon the Yellow Phosphorus Match Act, owing to the call for this poisonous substance for the manufacture of certain munitions of war, is described. Arsenical poisoning also, particularly due to arseniuretted hydrogen and to arsenic trichloride (for the purposes of chemical warfare), increased for the same reason, and the opportunity was seized of having pathological research carried out by Professor S. Delepine. Details of his findings are given which are of some importance, for they suggest that arseniuretted hydrogen when inhaled "produces changes in the cells of the liver and kidneys, and that the symptoms are in some measure due to these changes." Hitherto the action of this gas has been regarded "as due to the action of the gas on the blood, which breaks down the red blood cells and is followed by failure, partial or complete, of the liver and kidneys to eliminate the débris." This piece of research establishes the early links in the chain which, if continued, terminates, in some cases of arsenical poisoning, in toxic jaundice. An outbreak of poisoning from arseniuretted hydrogen in a submarine crew, fortunately with no fatalities, due to the presence of 0·2 per cent. of arsenic in an accumulator plate, disclosed a previously unsuspected danger. Such cases, however, are rare, and the mode of their occurrence is now well understood—viz., the generation of hydrogen in the presence of arsenic which, being only an impurity, perhaps in the iron of a shovel, may escape recognition.

Industrial Anthrax.

Industrial anthrax is dealt with at an almost undue length when the number of fatalities attributed to it (an average of 9·6 per annum for the past ten years) is kept in mind. We hope that even this small mortality may be abolished when the wholesale disinfection of possibly contaminated wool is established; and the process which has been evolved is applied also to horsehair. It consists in "agitation for 20 minutes in warm water containing soap solution and a little sodium carbonate, assisted by squeezing through rollers, subsequently treating the wool in a bath of warm water containing 2½ per cent. formaldehyde, again squeezing through rollers, and finally drying in a current of hot air."

Interest attaches to the remarks on cases of poisoning from fumes of petrol and of benzol, since these spirits are being so largely used by the general public for motor transport. Benzol causes "hæmorrhages from the mucous membrane of the gums and nose as an early symptom and one that can safely be used as a guide for the purpose of exclusion from work"; and safety lies in free ventilation, or where possible in handling the spirit in the open air.

Epitheliomatous Warts.

The occurrence of warts which may become epitheliomatous is reported as continuing in the manufacture of briquettes, especially in South Wales, and in shale oil works in Scotland. Considering the attention devoted eight years ago to the need for regulations for the prevention of this disease, and the research then carried out, this is distinctly disappointing. We hope the subject will be reconsidered at an early date; the disease is not, it is true, widespread; but investigation into the exact origin of any form of malignant disease may result in throwing light on the greater mystery underlying the origin and steady increase of cancer in general. The part played by the products of vegetable distillation in giving rise to industrial dermatitis, warts, and epithelioma, not only among pitch and shale oil workers, but among chimney-sweeps and agriculturists who handle soot, among tobacco-smokers, and those who handle aniline, naphthylamine and their homologues, and benzidine, calls for organised investigation at the hands of the Medical Research Committee.

A STATE MEDICAL SERVICE.

By J. Norman Glaister, M.R.C.S., L.R.C.P.

The requirements of a satisfactory State Medical Service are: (1) That it shall satisfy the need of the industrial classes for efficient medical attendance at a price which they are economically able to pay; and (2) that it shall satisfy the need of medical men for honourable work at a wage sufficient for their maintenance. It is quite true that the public is not an infallible judge of its own needs, just as it must be admitted that the medical profession does not always know what is good for itself; but it is certain that any system which ignores the desires either of the public or of the doctors is foredoomed to failure, and it is probable that in both cases the desires of those concerned form the most reliable starting-point for the determination of their real needs.

Desires of the Worker and the Doctor.

The worker desires: 1. To be attended by a doctor whom he knows and trusts. 2. To be seen without delay. 3. To be seen, at his own option, either at a convenient consulting-room or in his own home. 4. Treatment embodied in some concrete form—a bottle of medicine, a dressing, an electrical or other application, a printed diet table. 5. The assurance that his doctor knows all that is practically necessary of his profession. 6. An air of complete self-confidence on the part of his doctor. 7. A right to the services of a recognised expert if he loses confidence in his doctor, or otherwise "gets the wind up." 8. Some form of insurance, so that the incidence of a doctor's bill may not coincide with a period of financial depression resulting from illness. 9. A payment which seems to him reasonable.

The doctor desires: 1. Work which can be done quickly and efficiently without strain or friction—i.e., work objectively worth doing. 2. Work which demands the greatest effort of his best faculties—i.e., work subjectively worth doing. 3. Opportunities to better his position by effort. 4. Definite hours of duty, reasonable leisure and holidays, and time for study. 5. Bread-and-butter. 6. Housing accommodation for himself and his family. 7. Provision for his own old age and for the future of his dependents.

The Ideal Medical Service.

We may now attempt the construction of a theoretically ideal medical service in order to see how far it may be possible to reconcile the claims of such a service with the practical requirements above detailed.

It is obvious that the work with which we are concerned is essentially mental work, and that even in operative surgery manual dexterity is of quite secondary importance. It is equally obvious that no one mind can operate effectually over the whole field of modern medical practice, and that in any efficient medical service there must be specialisation of function and division of labour. The problem, in fact, becomes one of herd-psychology, and is concerned with the organisation of mental team-work. A scheme devised in accordance with these principles will work out roughly as follows.

The Junior Medical Officer.

The M.O. will enter the service as soon as practicable after becoming qualified to practise, and his function will for some years be that of a general practitioner. I am not here concerned with the question of salary, but the initial salary would probably be *equivalent* to about £500 of money at its present value. The earning of this salary will be a frankly commercial transaction, the employee contracting in return for his salary to work for a definite number of hours, and to keep his work up to a minimum standard which will be defined as rigidly and accurately as possible. This standard will not be high, but will be designed to be easily attainable by any qualified man; if any M.O. fails to get through the minimum amount of work, or commits errors proved by the experience of others to be easily avoidable, his attention will be drawn to the routine devised to enable him to overcome his difficulties, and if he still remains inefficient he will be dismissed. In the arrangement of this part of his work no account will be taken of the stultifying effect of routine, beyond the limitation of this kind of work to a maximum of perhaps six hours a day; the considerations to be always kept in view in this department of work are that there are every day a number of patients with every-day diseases to which it is necessary to apply every-day treatment, that this is the first charge upon the time of the service, and that in order to find time for more advanced and interesting work machinery must be devised to deal with it quickly and efficiently.

It is for this utilitarian purpose that the State buys the services of the junior M.O., and it will be the business of the State to expend those services in the most effective and economical manner possible. This business of the purveying of standard medical attention to commonplace cases will be organised like any other efficiently-organised business with a view to the immediate and obvious requirements of the work to be done, and the M.O. will be expected to fit into his place as a cog in the machine.

But the M.O. is much more than a cog in the machine; he is also the owner of a vigorous and inquiring mind upon which the State must in great measure rely for the advancement of medical knowledge and for the conduct and direction of the medical service in the next decade; more important still, he is a citizen with needs—physical, mental, and moral—of his own, and he has human relationships with his patients and with others. The value of his work in these higher capacities cannot be measured by any standard which we possess, and the work cannot therefore be bought with money; any attempt so to buy it is foredoomed to chaos and failure.

It will be made clear to the newly appointed M.O. that he is expected to continue his medical education, and that time, laboratories, libraries, and expert advice are at his disposal for this purpose; but it will be made equally clear that the payment of his salary is dependent solely upon the practical efficiency of his routine work, and that so long as this is maintained his salary will continue to be paid. In the course of his higher education he will almost certainly take some part in research, which may prove to be of great value, and he will necessarily do practical work of some value in special clinics and laboratories; but he will be expected to carry the spirit of the great teaching hospitals to these labours and to ask for them no reward beyond the interest of the work itself and the knowledge that it is appreciated by his colleagues and his patients.

Somewhere about the age of 30 many of these general practitioners will become dissatisfied with their work. A man has developed an interest in some more specialised line of work, and grudges the hours devoted to the old familiar routine. Moreover, he has not of late found time to keep himself up to date in all the branches of his work, and realises that his work is becoming inferior in some respects to that of more recently qualified men. He accordingly applies for promotion to a higher grade, and if in his (voluntary) higher work he has shown a normal degree of aptitude he receives this as a matter of course.

Investigators, Operators, and Teachers.

In the higher grade there will be investigators, operators, and teachers. The teachers will be those who, while desiring a position of greater authority and responsibility, yet retain an effective grasp of the whole of general practice, and feel no desire as yet to specialise along any of the routine paths laid down for the specialising officers of the service.

The line between investigators and operators will not correspond exactly with the conventional distinction between physicians and surgeons. The investigator will cultivate the careful mind; it will be his responsibility to see that no effort is spared to reach a correct diagnosis; a mind open to any suggestion, even though apparently irrelevant, a readiness to explore side-tracks and to admit that his own way may not be the best way, to revise his opinion even at the eleventh hour, and, in the absence of sufficient evidence, even to refuse to make a decision and to call for help—these are virtues in the investigator, vices in the operator. The operator, on the other hand, will cultivate a decisive mind. His will be the responsibility for vigorous and effective treatment, accurately applied at the proper time; confidence in his own ability to deal with the case, the courage of his convictions, an obstinate refusal to be delayed by interesting trivialities, or to be weakened by opposition, or to be troubled by doubts—these are all of the highest value to the operator, whether engaged in the application of surgical or of medical treatment.

The man who is to teach has now to qualify himself as a leader of the herd of general practitioners. His function now will be to keep himself informed of the most modern practice and the latest results of research in every department; becoming thus a connecting link between the different departments, he will often be able to help in research by bringing ideas lying loose in one department to the service of another, and as a "locum" of universal valency he will often be of the greatest assistance to smooth working, but his use in both these capacities will be quite incidental; his essential business will be to purvey to the general practitioners any information of which they may be in need, to revise the routine of general practice from time to time by the light of advancing knowledge, and in general to supervise and help the work of his department.

The investigator will be required to make himself proficient over the whole field of diagnosis; even if he has already acquired some reputation as an expert in a special department, it is entirely desirable that he should study the science of exact diagnosis in its broadest aspect. The routine work by which he earns his salary will now be the systematic establishment of an absolute and detailed diagnosis in every case sent to him (i.e., every case whose adequate diagnosis is not provided for in the routine of the "G.P." department); if there is room for doubt, or if a greater accuracy in detail than he can attain to is desirable, he will ask for the help of that member of his department or senior investigator best able to give it. He will continue as before to do unpaid work of a higher and probably more specialised character, and as this work is probably by now of a useful quality, and also has a more definite relation to his routine work, it will be sound business to decrease the number of hours of his routine work and to encourage him to spend more time over his special work.

The operator will also be at first one who applies treatment in general, and he will have to make himself reasonably proficient in all branches of treatment; but it is likely that it will be found desirable for him to limit the field of his practical activities at a quite early stage. In other respects his activities will be ordered on lines parallel to those of his investigating colleague. (In dealing with a difficult case the investigation will probably be nominally in the hands of one investigator, but he will call many of his colleagues into consultation and so share the responsibility with them; in the application of treatment the responsible operator will equip himself with any necessary special information, choose his assistants, and thenceforth assume unquestioned control of the case. This difference of method, like the earlier specialisation of the operator, will be a recognition of the contrast between the openness of mind necessary for safe diagnosis and the obstinate decisiveness which is so essential to effective treatment.)

The officers of this grade, who continue to make use of their opportunities of learning, will in due course again find themselves overtaken by the advance of knowledge. The investigator will realise that his absorption in one branch of diagnostic work has led to his neglect of another branch, and that some curtailment either of his routine work or of his special voluntary work is imperative; and he will accordingly be promoted to a higher grade of more specialised routine work. The hours of compulsory routine work will be yet further reduced.

The Standard of Efficiency.

In this way he may continue to the top of the tree, each upward step being accompanied by a decrease of routine work and increased opportunity and encouragement for special scientific work. As the medical officer grows older he will become progressively less the paid craftsman of a department and more the honoured servant of the public; while the field of his professional activity grows more narrow, his work within that field will become more valuable and more far-reaching; in the highest grade of all he will do no routine work, but will busy himself with research or its application in the manner that seems to him most useful.

The general investigator or the general operator who has qualified for promotion will be allowed if he so desires, instead of narrowing his field, to become a teacher and supervisor and coördinator of his department, exactly as on the lower plane of general practice. He may remain permanently a teacher, he may at any time decide to follow one of the recognised special lines of his department, or he may strike out a new line of special work.

Remuneration throughout the medical service will be paid for the routine work; it will increase automatically with length of service and independently of promotion; and it will be paid so long as the medical officer continues to do his routine work satisfactorily, and no longer. There will probably be either a special "children allowance," or the free use of schools, playgrounds, rural centres, &c., for them. The man whose object is to make money may do so by working hard and earning early promotion, and so attaining a position where his short hours of routine work will enable him to devote time to private practice or other remunerative work. If in this way he sacrifices his professional efficiency he will be dismissed as inefficient; in any case, it is not likely that a man who substitutes private practice for advanced work will qualify for the highest posts in the service, but if any exceptional man is able to do both he need not be prevented from doing so. In general, the man who is keen about his work will make it his hobby as he grows older, and when he reaches the highest grade will draw his salary for such work as he cares to do; if he chooses to retire he can continue to draw his salary as a pension.

Conclusion.

I believe that such a service would attract many of our best men. It would provide the doctor with everything above noted as representing the wishes of the professional man in search of a career.

Most of the desires of the patients could also be met. Those patients who especially like to be seen by "their own doctor" would probably become attached to a man whose interest in his patients was more human than professional, and whose intention it was to remain for life a "G.P." Good organisation of clinics served by 12 or more medical officers would enable patients to be seen without delay either at the clinic or at their homes. Treatment in a concrete form—the "bottle of medicine" idea—could be provided well enough under such a system; but useful work might be done by occasional public lectures, which would teach the public to be more intelligent patients. The practical efficiency of the doctor would be increased, while the knowledge of his close association with an up-to-date service would enable him to wear more easily that cloak of infallibility which the patient values so highly. The services of experts would be easily available. Insurance could be provided as under the present Health Insurance Act, the worker paying nothing directly to the doctor; and the service, while more efficient, need cost no more than attendance under the existing system.

This scheme would require very considerable modification in order to render it workable in rural districts, but there is no reason why it should not be applied at once, on an experimental scale, in those densely populated areas where the need for medical care is most urgent.

Literary Intelligence.—The Cambridge University Press announce the forthcoming appearance of a book by Dr. S. Gurney-Dixon entitled "The Transmutation of Bacteria."

SCOTLAND.

(From our own Correspondents.)

Scottish Board of Health: Establishment of Consultative Councils.

A draft of an Order in Council establishing consultative councils under the Scottish Board of Health Act will be laid before Parliament when it reassembles next week. In terms of the Act, before the Order can be made and come into operation the draft of the Order must lie before each House for 30 days on which the House is sitting. The Order has been in draft for some time past, but during the Parliamentary recess the necessary procedure for bringing it into operation could not be carried through. It is proposed under the Order to set up four consultative councils in Scotland to advise the Board on the following matters respectively: (1) medical and allied services; (2) National Health Insurance (Approved Societies' work); (3) local health administration and general health questions; and (4) Highlands and Islands. The members of the councils are to be appointed by the Board, and are to be persons having practical experience of the matters for the purposes of which the particular council is established, and due regard is to be had to any special interests (including those of local authorities and of labour) which may be involved. The membership of any council is not to exceed 20. and each council will include persons of both sexes. Provision is made for the council's appointing committees for special purposes and for the inclusion in such committees of persons who are not members of council. The Board may convene joint meetings of any of the councils or committees of the councils. The councils are to meet at such times as they may, subject to the approval of the Board, determine, but it is specially provided that each council must meet at least three times in each year. The functions of the councils are set forth in the draft Order, and include inter alia the consideration of and reporting upon questions which may from time to time be referred to them by the Board, including questions arising on draft Orders in Council, regulations, orders, &c., and questions involving considerations of important principle and scientific difficulty affecting or incidental to the health of the people. Subject to the provisions of the Order each council has power to regulate its own procedure.

The Royal College of Surgeons of Edinburgh.

At a meeting of the College held on Oct. 15th Dr. George Mackay was appointed President; Dr. R. McKenzie Johnston, Vice-President; and Mr. Alexander Miles, secretary and treasurer. Dr. George Mackay, the new President, was for many years ophthalmic surgeon to the Royal Infirmary, and University lecturer on ophthalmology. He is now consulting ophthalmic surgeon to the Royal Infirmary, and a representative of the Royal College of Surgeons on the board of management.

Scottish Universities: Opening of the Winter Session.

The principal feature of all the universities this winter is the great increase in the number of students attending, and the consequent straining to the utmost of available accommodation and material for teaching. All the universities alike have had to select from applicants for admission those whose claims deserved priority, preference in all cases being given to men who have been on service with the forces. Many of the junior applicants are having meantime to postpone commencing the study of medicine, and not a few are occupying the waiting period by taking classes in the faculties of arts or science. Much of the present pressure is occasioned by the fact that practically five years of "freshers" are seeking entrance simultaneously.

At Edinburgh on Oct. 14th, Sir Harold Stiles, the new professor of clinical surgery, gave his inaugural address on "Reminiscences of a Surgical Training." After referring to his own early education, he emphasised above all the importance to the surgeon of a thorough knowledge of anatomy, and the advantage to the student of the teaching of surgery from the anatomical standpoint. Now that text-books had reached such a standard of excellence he thought that much of the time spent in systematic lectures would be better devoted to practical demonstrations in ward and laboratory. Referring to the lessons of the war, Professor Stiles said that the chief was the value of team-work by younger men under the direction of those of wider experience, and he thought that it was largely to this combination that many of the advances in the treatment of wounds and fractures were due.

On Oct. 17th Professor F. D. Boyd gave his inaugural address on "Clinical Medicine in Edinburgh in the Past and Present." The teaching of clinical medicine in Edinburgh was intimately linked up with that of the Royal Infirmary, the "Tounis Colledge," and the Royal College of Physicians. The latter body was founded by a small number of accomplished physicians who had been trained abroad, and a Charter was obtained in 1681. The College first appointed two of its number to serve the poor of the city, and in 1727 hired a small house which was converted into a temporary hospital with four beds. The town owed a great deal to its then chief magistrate, George Drummond, who was keenly interested in the foundation of the Royal Infirmary. In 1736 a Royal Charter was obtained and a plan drawn up for a hospital to accommodate 226 patients. When the infirmary was founded the town council appointed four professors of the Medical Faculty to deliver lectures. The first to give clinical instruction in the infirmary was John Rutherford, professor of practical physics in the University; a great debt was also owed to John Hughes Bennet, professor of medicine and clinical medicine from 1848 to 1874, who might be regarded as the founder of the present method of teaching. An epoch in clinical teaching came when the present Royal Infirmary was opened, described at the time of its opening as the largest and most up-to-date hospital in the kingdom. Since then many additions had been made, but extensions were required still to enable it to maintain its great traditions. Professor Boyd emphasised the importance of bedside work, for it was in the wards that practical physicians were made, and not by listening to lectures. By the present method of keeping a careful record of each student's work, it was hoped to get a more accurate estimate of his knowledge and application than could be obtained by examination alone.

General Medical Council: Election of Direct Representative for Scotland.

Dr. Ebenezer Duncan, of Glasgow, has issued to the members of the profession an address in support of his candidature, in which he outlines his views on medical education and on other matters of general interest. Dr. Duncan has been in general practice for many years, and has therefore first-hand experience in the problems of the practitioner; he has also practical knowledge as a teacher and examiner in medical subjects. The principal reforms which he at present advocates are:—

1. A minimum age limit of 18 years for registration as a medical student.

2. Raising the standard of the Preliminary Examination of all medical students to that of the Preliminary Examination for Arts and Science Students in the Scottish Universities.

3. The elimination from the medical curriculum of Elementary Chemistry Botany, and Physics, which should in future be studied in secondary schools. An examination in these subjects should be passed by the student before commencing medical studies.

4. Less systematic lecturing and more practical teaching, including Compulsory Tutorial Classes.

5. The elimination of systematic lectures on Materia Medica, the time so obtained to be devoted to instruction in Pharmacology, Toxicology, and Therapeutics.

6. Toxicology being relegated to the teacher of Pharmacology, one-half of the session of the class of Forensic Medicine should be devoted to instruction in Preventive Medicine and Public Health.

7. Clinical classes to consist of not more than 20 students. Where infirmary accommodation and clinical lecturers are insufficient to permit of this, the clinical material in Poor-law hospitals and more clinical lecturers should be utilised.

Lastly, with regard to the present system of Examination for Qualifying Degrees and Diplomas in Medicine and Surgery, evidence given by their teachers of excellence in class work and in class examinations should be taken into consideration by the Examiners in grading the examinee for pass marks, especially in doubtful cases.

The Candidature of Dr. Norman Walker.

Dr. Norman Walker addressed a meeting in the Medico-Chirurgical Hall at Aberdeen on Oct. 16th in support of his candidature for the General Medical Council. Referring to the impending elevation of the standard of the preliminary examination, he said that he anticipated no long delay before the next step was taken under which students would be allowed to sit for examination in elementary chemistry, physics, and biology immediately on entering the University. Speaking as a member for several years of the Penal Cases Committee of the Council which was being criticised in certain quarters because at its direction the registrar had written to certain medical men, against whom complaint had been made, informing them of the fact, Dr. Walker stated that the letters were written wholly in the interests of the doctors with the result that, in the great majority of cases, nothing further was heard of the complaint. He felt sure that the sore feelings had been based on misunderstanding. In conclusion, Dr. Walker expressed his regret at the breakdown of the arrangements, entered into between the authorities and the professional committee on armistice day, under which the young graduates who had been released from combatant service in order to complete their medical education would automatically have joined the Army. He felt that it was now for these men to offer on their own initiative the six months' service which the Army Medical Department now required. He was authorised to say that anyone in or out of the Army who signed the new contract would be released that day six months in whatever part of the world he might be.

Addressing a meeting of electors in Dundee on Oct. 15th Dr. Walker raised the question of the position of the medical profession in the event of future wars. He advocated the appointment by the Government of a commission, on which the Services and every section of the civil medical profession should be represented, to survey the whole problem of naval, military, and civil medical service in the event of another war, and to draw up a skeleton plan combining the maximum of utility with the minimum of waste.

Bequest by the late Professor Trail to the Aberdeen University Library.

At a meeting of the Aberdeen University library committee held on Oct. 16th the chairman referred to the great loss sustained by the library through the death of Professor J. W. H Trail, who had acted as curator of the library since 1889. The librarian intimated that Professor Trail had bequeathed to the University "all the collections and the books not already in the library of the University of which I die possessed."

Oct. 20th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The Irish Public Health Council.

THE address with which Dr. E. Coey Bigger inaugurated the first meeting of the Irish Public Health Council, of which an abstract appeared in THE LANCET of Oct. 18th (p. 702), has aroused hopes that in Dr. Bigger we have a reformer capable of taking wide views. In his survey of the fields of activity of the council he has omitted little that could reasonably be included; if he has not defined the lines on which the various problems should be met, his reticence was probably due to the intention not to appear, at the outset, to wish to dictate to the council, which has very wide powers. Indeed, it can advise the Minister of Health in whatever way it thinks right. Dr. Bigger's address, at any rate, reveals the intention of the council not to content itself with minor amendments to existing statutes. It is recognised that Ireland requires a building up of the whole health administration. But allowing that Dr. Bigger could at the moment hardly do more than run an eye over the field of the council's future activities, one or two of his references have been regarded as unnecessarily vague. In particular, the problem of the support of the voluntary hospitals must be recognised as one of urgency. The hospitals are necessary to the public welfare, and their present principle of maintenances has broken down. Dr. Bigger's suggestion with regard to possible support by paying patients will not meet the case. No doubt in the past many patients who might have contributed something to the hospital were treated free. But in a city like Dublin, where there is little industry, and most of the labour is casual and unskilled, there is a large element of the population always on the verge of starvation. People of this class cannot contribute anything for their medical treatment, and if the voluntary hospitals reserve their beds for paying patients this large class will either be left at home unrelieved or will be forced to the union hospitals. The problem is pressing, and the failure of the Government to maintain the hospital in Dublin, for whose upkeep it is responsible, has rendered it critical not only for the House of Industry

Hospitals, but for all the other hospitals in Dublin. This is a position that the council must face without delay.

It may be that, although the constitution of the council is open to just criticism, there is some misunderstanding as to its relation to the medical profession. Of the three unofficial medical members of the council two were chosen by the Chief Secretary from a list submitted by the Irish Medical Committee, which is the recognised executive of the Irish medical profession, as far as any body is so recognised.

The Belfast Medical School.

The winter session, 1919–20, began at the University on Tuesday, Oct. 14th, when the various classes, which are unusually large, opened, and the two new professors—Dr. Thomas Walmsley (anatomy) and Dr. A. W. Stewart (chemistry)—were received in the usual boisterous way by the students. At a meeting of Convocation held on Oct. 15th eight graduates were elected as representatives on the Senate, of whom the following are members of the medical profession: Lieutenant-Colonel A. B. Mitchell, Dr. W. Calwell, Dr. J. W. Browne, and Dr. R. W. Leslie. Colonel Mitchell takes the place of Mr. T. S. Kirk, who did not seek re-election. At the Royal Victoria Hospital, Belfast, Colonel Mitchell delivered the opening address to the students on Oct. 16th. After referring to the duty the students owed their hospital patients, Colonel Mitchell said the war had been the means of forming for the first time an idea of the actual state of the health of the country, which showed that of those presenting themselves for the Army only one man in three was placed in class A1. The health of the nation depended on the medical profession, and it was their duty to see that matters improved. Colonel Mitchell drew attention to two matters greatly affecting the health of the city of Belfast; the first was the manner in which meat was exposed for sale outside shops, dirty flies having access to the meat and spreading disease wherever they went. Further, he said, meat was conveyed about the streets on lorries in such a manner as to gather disease. Then there was, secondly, the conveyance of milk by rail. He had seen men with dirty hands emptying large milk cans He thought there should be proper supervision of such things, and it was necessary for the medical profession to make recommendations to the corporation of Belfast. Finally, in reference to the question of a State Medical Service, he hoped if ever such a scheme did come it would be different from anything they were accustomed to in the Army or elsewhere. At its conclusion Colonel Mitchell was heartily thanked for his address.

Scarcity of Water in Ulster.

All over the north of Ireland there is still a great scarcity of water, especially in some of the towns, such as Armagh, Derry, and Belfast, due to the long-continued diminished rainfall. Taking Belfast, up to the end of September, only 20·06 inches of rain have been registered this year, as compared with 28·58 inches for the same period of last year, or 23·62 in the dry year of 1911. So far, the rainfall of this year is 3½ inches below that of 1914, and 8½ inches less than in 1918. The rainfall this year is less, moreover, than the average for the past 45 years by 5·10 inches. The rainfall in 1918 was 44·07 inches, whereas the average for the past 45 years was 36·10 inches, and the wettest year (1877) had a rainfall of 44·73 inches. In September, 1918, the rainfall was 5·89 inches, while it was only 3·21 in the same month this year. The present reduced supply to Belfast will have to continue for the present, but things would have been much worse had not the water commissioners, after the lessons of the previous dry years of 1911 and 1914, enlarged a number of existing reservoirs. As soon as the financial situation will allow, since the population of Belfast goes on increasing, the Commissioners will have to build their long-promised and huge reservoir at the Mourne Mountains.

Oct. 20th.

ROYAL COLLEGE OF SURGEONS OF ENGLAND: THOMAS VICARY LECTURE.—In 1919 the Barbers Company undertook to provide an annual sum of £10 10s. for five years for the purpose of instituting at the Royal College of Surgeons an historical lecture in anatomy or surgery, to be called the Thomas Vicary lecture, the appointment of the lecturer being in the gift of the College. The first lecturer will be Sir John Tweedy.

Correspondence.

"Audi alteram partem."

THE BRITISH FEDERATION OF MEDICAL AND ALLIED SOCIETIES.

To the Editor of THE LANCET.

SIR,—"What actually took place" at the Steinway Hall meeting can hardly be stated by persons who were not present, and when the representatives of the British Federation who write in your issue of Oct. 11th enter on this field, they deal not in evidence but in hearsay. I will not presume to pit my memory against their information, but will refer your readers to the accounts of the meeting which appeared in the medical journals of October, 1918. There it is plainly stated that the committee (1) was appointed "to further the election of medical men as Members of Parliament," and (2) was directed "to report to a subsequent general meeting of the profession." The committee has not discharged this reference, nor has it reported to a "general meeting of the profession." To say that it has done a number of things for which it had no authority, or that it sought some tribunal other than that to which it was pledged, cannot redeem its neglect of the one thing for which it was appointed; indeed, these unauthorised adventures are an additional condemnation. If the British Federation endorses and approves this curious fashion of dealing with pledges publicly given it is well to have the fact on record. It is suggested that now the Federation is in existence nothing relative to its origin matters. But surely it is important to know of any organisation whether it cultivates a high standard, or a modest one, in the interpretation of its promises.

Until the Steinway Hall Committee has either met its obligations, or has acknowledged its negligences and excesses, the British Federation cannot escape the shadow of this unhappy association. It is not, Sir, the irregularity of its birth which mainly excites suspicion; the flaw is rather in the qualified record of some of its sponsors.

I am, Sir, yours faithfully,

Harley-street, W., Oct. 14th, 1919. C. O. HAWTHORNE.

To the Editor of THE LANCET.

SIR,—The executive of the Federation request the kind publication of the following communication from Sir Henry Morris, Bart., the original chairman of the Medical Parliamentary Committee.—We are, Sir, yours faithfully,

CHARLES BUTTAR,
Honorary Secretary.
N. HOWARD MUMMERY,
Organising Secretary.

The British Federation of Medical and Allied Societies,
1, Vere-street, Cavendish-square, W. 1, Oct. 20th, 1919.

[ENCLOSURE.]

8, Cavendish-square, London, W. 1, Oct. 16th, 1919.

DEAR SIR,—I have read in THE LANCET and *B. M. J.* of Saturday last the letter signed by yourself and two other office bearers of the British Federation of Medical and Allied Societies, and also that of Dr. C. O. Hawthorne. Dr. Hawthorne accuses the members of the Temporary Committee elected at the general meeting of the profession held at the Steinway Hall on Oct. 1st, 1918 (which committee soon adopted the title of Medical Parliamentary Committee), of having broken two pledges given at the general meeting. These so-called broken pledges he describes as follows:—

1. That the committee, having been appointed to draw up a scheme with a view to secure an increased medical representation in Parliament on the assurance that no executive action would be taken until the scheme had been approved by "a further meeting of the profession," had not fulfilled its pledge to report to such a meeting. He enumerates several "gratuitous exercises" of the committee "without the sanction of the meeting which called the committee into existence," which "exercises," he says, "cannot be accepted as a substitute for the particular engagement which the committee definitely undertook." Now the chief thing for which the committee was elected was to find out which medical men were willing to stand for Parliament, and to assist them as to their choice of constituencies, and in finding speakers to help them in their candidatures. This the committee did, so far as was possible in the very limited period between its formation and the date of the general election.

2. That the chairman of the original meeting "assured the meeting that the committee would not concern itself with the electoral affairs either of Scotland or of Ireland. ...... Yet at the general election the committee supported the claims of the candidates for the Scottish Universities constituency, and it coöpted a representative from a body which called itself the Scottish Universities Parliamentary Association." Your conjoint letter gave a somewhat distorted explanatory reply to the first charge, and no reply whatever to the second.

It must be admitted that the Temporary (or Medical Parliamentary) Committee did not call a further or second general meeting open to the whole profession such as that at Steinway Hall on Oct. 1st, 1918. The meeting at the Central Hall, Westminster, was no "further" or "second" meeting of that description. It was a first "conference of representative bodies," to which invitations were issued by the Medical Parliamentary Committee; and to this "conference," instead of to an open meeting of the profession, the past activities and proposed scheme of future activities of the committee were reported.

It was fully understood at the original meeting, as stated above, that the committee would proceed at once to assist medical candidates for Parliament at the approaching and at future elections. It broke no pledge therefore in at once setting about the purpose for which it was called into existence. But on considering the unfavourable experience of two other general meetings, held at the instigation of certain groups of the profession, which followed on the meeting of Oct. 1st, 1918, there was thought to be ample justification for the M.P.C. calling "a further meeting of the profession," as Dr. Hawthorne claims it was pledged to do, but in the form of a meeting, either of those who had taken the trouble to vote for the committee at the Oct. 1st meeting, or of representatives of the various organised medical societies and institutions, rather than summons, in the face of what had transpired at the two meetings just referred to, another meeting open to the whole profession. This decision was arrived at, you will remember, after the whole question had been fully considered and discussed by the M.P.C., and it would have been wiser, in my opinion, to have freely admitted in your letter the deliberate departure from the intention expressed at the Oct. 1st meeting, and to have defended and justified the course actually adopted by the committee.

Dr. C. O. Hawthorne is mistaken in his interpretation of the significance of the chairman's reply in regard to Scotland and Ireland. What the chairman said was that there was no intention, at any rate at the outset, of including either Scotland or Ireland in our English medical Parliamentary movement, because both these countries were prone to insist on having and organising their own independent societies. In no other way did the chairman commit himself as to Scotland and Ireland.

One of the candidates for the Scottish Universities constituency, to whom Dr. Hawthorne alludes—a resident in London—was elected on to the Temporary Committee at the general meeting on Oct. 1st, 1918, as a representative of the Royal Institute of Public Health. Naturally he was included in the list drawn up by the committee of medical men suitable for a seat in Parliament. The other candidate for the Scottish Universities constituency, to whom Dr. Hawthorne refers in his very reproachful and denunciatory criticism of the committee, was also a resident in London, and was also, of course, included in the same list. No other action whatever was taken by the M.P.C. in "the electoral affairs either of Scotland or Ireland"; neither canvassing nor platform oratory was rendered by the committee in any university or other constituency in either Scotland or Ireland.

What, then, becomes of the second charge of "broken pledges"?

Lastly, the gentleman described by Dr. Hawthorne as having been "coöpted a representative from a body calling itself the Scottish Universities Parliamentary Association" is also a resident in England, and he represented members of the association resident in England. As an advocate of the formation of a Medical Federation for Parliamentary purposes solely—and chiefly in the interests of the general community—I regret that Dr. C. O. Hawthorne was not thoroughly answered by you and your co-signatories, and that his charges of "breaches of promise" were not fully refuted. But if I may venture to say so without presumption, I think that in future the best, and only answer to give to carping and jealous critics of the Medical Federation as compared with other associations is the statement contained in the fourth and part of the fifth clauses of the "Summary" of my article, "On a Plea for Medical Unanimity and Public Spirit," published in THE LANCET of Feb. 1st, 1919.

I remain, yours very truly,
(Sd.) HENRY MORRIS.

PS.—I am writing as ex-chairman of the Medical Parliamentary Committee and as chairman of the general meeting of Oct. 1st, 1918, at which that committee was elected. You are at liberty to make what use you like of this letter.

The Hon. Sec. of British Federation of Medical and Allied Societies.

GENERAL MEDICAL COUNCIL ELECTIONS: THE ELECTION OF DIRECT REPRESENTATIVES FOR ENGLAND.

To the Editor of THE LANCET.

SIR,—At the request of the medical profession in Blackpool I have consented to be nominated as a Direct Representative for England on the General Medical Council, and my nomination form has been sent to the Registrar. It has received the support of 30 doctors in Blackpool; no refusals; more could have been obtained. It is significant, and I believe it expresses the views of many other divisions in regard to the action of the Association. The chairman, secretary, and representatives of the Blackpool Division were the first to subscribe their names and to canvass. My candidature is my earnest protest, which is supported by my nominators, at the action of the British Medical Association in again nominating all four of the Representatives for England. This practically excludes the free election by the medical profession of Representatives who are not members of the Association. The Medical Act of 1886 was intended to give equal opportunity for all medical practitioners to nominate and elect anyone eligible. Since the British Medical Association has adopted the policy of nominating all four no one has been, nor is likely to be, the free elected Representative of the medical profession in England. Acting as a caucus, it uses and abuses its power, which is not honourable and is unworthy of the traditions of the recent past of the British Medical Association. Their candidates have safe nominations: no great demand on their purses, time, or personal canvass. The *Journal* and a host of officials in all the branches and divisions are at their service free of expense. Before this policy was adopted the elections were full of interest and keen rivalry, but at the last election in 1911 the lowest successful candidate only received 7113 votes. This was less than one-third of the electors, proving that their action is causing widespread apathy, which will increase. This will be a pity.

I am, Sir, yours faithfully,
JOHN BROWN, M.D.,
Late M.O.H., Bacup.
Blackpool, Oct. 20th, 1919.

A PROTEST.

To the Editor of THE LANCET.

SIR,—I recently had occasion to send a patient to a consulting surgeon for his opinion. Instead of receiving it I learn that the surgeon has "popped" the patient in a nursing home and is about to operate for a fee considerably higher than I should have allowed my patient to pay had I been consulted. While full of admiration for the surgeon's business instinct, I venture to remind him, and those similarly gifted, that this method of rescuing patients from the hands of their own doctors is not without drawbacks; of which one, which may appeal to this sort of specialist most acutely, is that in the long run it does not pay. These specialists must not expect the general practitioner to go on sending them cases or to speak nicely of them to his colleagues and friends. In the present instance the probability of my utilising this surgeon's services in the future is, perhaps, somewhat remote; the probability of my mentioning the incident as widely as possible is perhaps less remote.

I should not venture to appeal to this class of consultant (fortunately still in the minority) on any other ground than one of plain business. Therefore, may I put it to them, say as one tradesman to another, does their method pay them in the long run?—I am, Sir, yours faithfully.

C. WILLETT CUNNINGTON, M.B.
Church End, Finchley, Oct. 21st, 1919.

ANKYLOSTOMA DUODENALE WITH PYLORIC OBSTRUCTION.

To the Editor of THE LANCET.

SIR,—In THE LANCET of Oct. 18th appears a paper by Captain H. K. V. Soltan, with an introductory note by Sir Charters Symonds, on the above subject, in which it is concluded that the association of hookworm eggs with dysenteric symptoms and an inflammatory pyloric tumour offers presumptive evidence that the hookworm was the cause of both; in other words, that symptoms referable to the colon and pylorus were directly caused by a parasite which, in spite of its specific name, inhabits, with possible but at the very best rare exceptions, neither of these regions.

In view of the fact that from 60 to 100 per cent. of the rural population of the tropics are infected with hookworms, medical men who have had much to do with these infections are more and more finding themselves unable to accept any causal relationship between infection and illness unless such relationship be capable of satisfactory proof. In the case under consideration the probabilities appear to be definitely against the validity of such connexion. That the infection had its usual definite but indirect effect upon this man (as it is doubtless having upon thousands of other Englishmen demobilised from the tropics and subtropics) cannot be doubted. The excuse for this criticism is that the proved losses of life, health, wealth, and happiness due to even light infections with these parasites are in the aggregate so terrible, and in the individual so definitely harmful, that it is little less than a calamity to risk the weakening of a strong case for the necessity, wherever possible, of their extermination, by attributing to them any damage which cannot be substantiated.—I am, Sir, yours faithfully,

CLAYTON LANE, Lieut.-Col., I.M.S.

Guildford, Oct. 18th, 1919.

THE CONTROL OF VENEREAL DISEASE.

To the Editor of THE LANCET.

SIR,—In your article on the control of venereal disease appearing in your issue of Oct. 18th you point out the insufficiency of definite and convincing information advanced by either party to the controversy on prophylaxis. It is now possible to draw your attention to the authentic figures with regard to venereal disease in the Army, of which I have been some time cognisant but unable to use because they were not public property.

If you will refer to the report of the Sanitary Congress held at Newcastle in July, which is published in the September report of the Royal Sanitary Institute, you will find there that Lieutenant-Colonel L. W. Harrison states that the number of cases per 1000 of venereal disease in the Army remained practically constant during the whole of the war, notwithstanding the fact that during its latter years most strenuous efforts were made to diminish the number of such cases of illness both by the use of "packets" and by inculcating the necessity for prompt and early disinfection. He also shows that the number of cases per 1000 was considerably less among the British, Scottish, and Irish troops than among the colonial and overseas contingents, although among the latter a most energetic propaganda, including disciplinary measures, was carried on, more especially among the Australians, with regard to prophylaxis. Notwithstanding this, the gross ratio of cases, Australians especially, exceeded by far that which prevailed in the purely British Army. Doubtless these facts were before the Departmental Committee when Major Astor issued his report to the Minister of Health. This being so, surely it is possible for those of the medical profession, who, whatever views they may hold on this particular controversy, are absolutely united in their wish to do their utmost to combat and prevent these diseases, to avoid the infliction of an infinite injury on the community by insisting on the very small differences which now remain between the great majority of those ranged on either side of this controversy.

I am, Sir, yours faithfully,

E. B. TURNER, F.R.C.S.,

Chairman, Medical Committee, National Council for Combating Venereal Diseases.

81, Avenue Chambers, Southampton-row, London, W.C.,
Oct. 22nd, 1919.

THE EUGENICS EDUCATION SOCIETY.—The Permanent International Eugenics Committee was to have met at Brussels on August 5th, 1914, to consider the arrangements for an International Congress of Eugenics in the United States. The meeting did not take place, but the same subject has now been discussed at a meeting of the committee held at the Royal Society, and arrangements may be made for an eugenic congress to be held next year in New York. Seven years have elapsed since the holding of the first International Eugenic Congress in London, 1912, and during this interval the war has brought out the need for more knowledge and for a wider appreciation of the facts already known. The address of the Eugenic Society in England is 11, Lincoln's Inn-fields, London, W.C. 2., General Secretary, Miss Constance Brown.

The Services.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonels relinquish the temporary rank of Colonel: W. P Gwynn, J. H. R. Bond.

Lieut.-Col. H. Simson relinquishes the acting rank of Colonel.

The undermentioned relinquish the acting rank of Lieutenant-Colonel: Major and Bt. Lieut.-Col. A. W. Sampey; Majors W. MacD. MacDowall, H. G. Sherren, A. S. Williams; Temp. Major G. D. Gray; Capts. G. O. Chambers, A. H. T. Davis, J. H. Ward; Temp. Capt. H. E. Stiven.

To be acting Lieutenant-Colonels: Major T. H. Scott; Capts. P. Carney, A. J Hickey, J. R. Hill; Temp. Capts. F. D. Johnson, A. J. Blake (acting Major).

To be acting Major: A. L. Aymer.

The undermentioned relinquish the acting rank of Major: Capts. (Bt. Major) J. D. Bowie, F. S. Tamplin, P. G. M. Elvery; Temp. Capts. C. E. Dukes, J. B. Alexander, W. A. Hotson, J. J. Gibb, C. M. Geddie, C. Averill, F. G. Milne, A. G. Troup, J. S. Williamson, H. G. Joyce, A. Dick, A. Mathieson, W. S Perrin, H. H. Hepburn, W. H. D. Smith, J. Morrison, R. G. Riches, E. S. Marshall.

To be acting Majors: Capt. F. R. H. Mollan; Temp. Capts. W. B. Swete-Evans, A. W. Comber, W. S Perrin, F. D. Saner, A. C. Lambert, F. D. Johnson, A. G. Howson, A. A. Wilson, J. W. Simon, A. R. Esler, R. B. Wallace, S H. Pitcairn, O. de B. Burgh.

Major G. W. Heron is restored to the establishment.

To be Captains: Capt. K. L. O'Sullivan (from Special Reserve); Temp. Capt. D. G. Yates.

To be temporary Captains: J. Maguire (late temporary Captain), B. P. Hynes.

Temp. Lieut. B. D. Merrin to be temporary Captain.

M. J. Woodberg to be temporary Lieutenant.

Officers relinquishing their commissions: Temp. and acting Major H. D. Gillies (retains the rank of Major): Temp. Major T. C. Squance (retains the rank of Major); Temp. Capt. and Brevet Major H. F. Marris (retains the brevet rank of Major); Temp. Capts. (granted the rank of Major) R. G. Riches, A. G. Hamilton, R. Charles, A. Mathieson; Temp. Capts. (retaining the rank of Captain) W. Lock, P. Donald, A. W. McGregor, A. E. Finney, H. I. Pinches, J. B. Tombleson, F. W. McMillan, R. G. Meyer, A. J. Brock, W. Parker, F. Morres, J. McCausland, D. L. Sewell, P. W. M. Curry, P. R. Lowe, H. Archer, S. F. McDonald. W. D. Sammon, J. B. McDougall, F. C. Mason, O S. Kellett, J. E. Rees, G. P. B. Huddy, E. W. H. Cruickshank, E. C. Tamplin, W. D. Allan. W. Lessey, F. Bryan, R. C. Coatsworth, G. M. Grant, A. Crawford, W. R. Logan, G. M. Jackson, P. A. Sarjeant, J. Finnegan, L G. Brown, B. D. Merrin, J. T. H. Madill, C. C. C. K. White; Temp. Hon. Capt. F. J. Caldwell; Temp. Lieut. (retaining the rank of Lieutenant) E. W. Sharp, W. G. Cook, D. Ferguson.

Canadian Army Medical Corps.

Temp. Lieut.-Col. (acting Col.) P. Burnett to be temporary Colonel.

Hon. Major H. J. Testar retires in the British Isles.

Temporary Captains (acting Majors) to be temporary Majors: J. R. McRae, A. C. C. Johnston, C. M. Strong.

SPECIAL RESERVE OF OFFICERS.

Major S. G. McAllum relinquishes the acting rank of Lieutenant-Colonel.

Captains relinquishing the acting rank of Major: A. R. F. Clarke, S. W. M. Jones, E. Watson-Williams, A. Wilson.

Capt. T. C. Storey to be acting Major.

Capt. O. C. S. Tandy relinquishes his commission and retains the rank of Captain.

Lieutenants to be Captains: D. A. Dyer, E. S. Gawne, F. L. Whincup, J. H. E. Moore, B. Sergeant, F. Holmes, G. P. N. Richardson, W. G. Burns.

TERRITORIAL FORCE.

The undermentioned relinquish their acting rank on ceasing to be specially employed: Majors (acting Lieut.-Cols.) F. Gracie, J. F. Crombie; Capt. (acting Lieut.-Col.) H. Paterson; Capts. (acting Majors) H. R. Dive, C. B. Johnstone, J. Everidge, K. D. Wilkinson, F. S. Bedale, J. F. Edmiston, E. W. Matthews.

Capt. F. W. K. Tough to be acting Major whilst specially employed.

Capt. H. A. B. Whitelocke is restored to the establishment on ceasing to be employed with the Egyptian Army.

Capt. A. Scott-Turner is restored to the establishment.

2nd Northern General Hospital: Capt. (acting Major) L. R. Braithwaite relinquishes the acting rank of Major on ceasing to be specially employed.

3rd Western General Hospital: Capt. (acting Major) T. M. Thomas relinquishes the acting rank of Major on ceasing to be specially employed.

2nd Southern General Hospital: Lieut.-Col. (Brevet Col.) J. P. Bush is restored to the establishment on vacating appointment as Assistant Director of Medical Services.

ROYAL AIR FORCE.

Medical Branch.—Lieut.-Col. G. N. Biggs (Major, R.A.M.C., T.F.), from unemployed list, to be restored to establishment. Flying Officer R. G. J. McCullagh to be Flight-Lieutenant. Capt. H. Harvey to be acting Major whilst employed as Major. The undermentioned are transferred to unemployed list:—Majors (acting Lieut.-Cols.) J. L. Birley, H. C. T. Langdon; Capts. W. P. Whippell, R. B. Lilly.

Dental Branch.—Flying Officer L. Wigoder to be Flight Lieutenant. Capt. R. Fyson is transferred to unemployed list.

INDIAN MEDICAL SERVICE.

Temporary Lieutenants to be temporary Captains:—G. P. de Sibra, Jugal Kishor Adhya.

The King has approved the retirement of Lieutenant-Colonel Sir W. J. Buchanan, K.C.I.E.

DEATHS IN THE SERVICES.

Surg.-Gen. Charles James, R.N., of St. Just in Penwith, Cornwall, died at a nursing home in London on Oct. 7th, in his 65th year. The deceased officer, who qualified M R.C.S. and L.R.C.P. Edin., entered the Royal Navy as surgeon in 1877. He served on H M. *Tenedos* in the Zulu War of 1879 for which he was awarded the medal. In 1882 he was attached to the Hospital at Jamaica during an epidemic of yellow fever, and received the thanks of the Lords of the Admiralty for his zeal and devotion to duty during the outbreak. In 1909 he attained the rank of Surgeon-General. The deceased will be greatly missed at St. Just, and much sympathy is felt there for his widow.

THE HONOURS LIST.

The following awards for distinguished service rendered during the War are announced:—

C.B.E.—Miss J. L. D. Fairfeld. M.D.

O.B.E.—Maj. E. C. Clements, R.A.M.C. (T.F.).

Foreign Decorations.

French.

Légion d'Honneur—Commandeur: Lt.-Gen. C. H. Burtchaell, K.C.B., C.M.G., R.H.S.

Croix de Guerre.—Col. C. M. Begg, C.B., C.M.G., New Zealand M.C.; Capt. and Brev. Maj. (acting Lt.-Col.) G. H. Dive, D.S.O , R A.M C.; Capt. S. M. Hattersley, M.C., R.A.M.C.: Capt. T. R. Kenworthy. M.C., R.A.M.C. (T F.): Temp. Capt. A. C. Ling, R.A.M.C.; Maj. G. W. Miller, D.S.O., T.D., R.A.M.C. (T.F.); Temp. Capt. E. F. O'Connor, R.A.M.C.; Capt. H. B. Pope, M.C., R.A.M.C. (T.F.); Capt. F. Wigglesworth, M.C., R.A.M.C. (T.F.); Maj. G. F. Whyte, R.A.M.C. (T.F.).

Ordre du Mérite Agricole.—Officier: Maj. A. E. S. Irvine, D.S.O., R.A.M.C.

Médaille des Epedémies.—D'Or: Temp. Capt. W. A. Anderson, R.A.M.C.; Capt. C. F. M. Saint, C.B.E., R.A.M.C. (T.F.); Capt. R. W. Swayne, O.B.E., R.A.M C. (T.F.).—*En Vermeil:* Capt. J. Dale O.B.E., R.A.M.C. (T F.) —*En Argent:* Col. G. Dansey-Browning, C.B E., late R.A.M.C.; Capt. and Brev. Maj. (acting Lt.-Col.) G. H. Dive, D.S O., R.A.M.C.; Capt. R. D. Goldie, R A.M.C. (S.R.); Temp. Capt. (acting Maj.) T. C. Ritchie, O.B.E., R.A.M.C.

Médaille de l'Assistance Publique en Argent: Temp. Capt. C. Aldis, R A.M.C.; Temp. Capt. A. Baldie, R.A.M.C.; Col. A. L. F. Bate, C.M.G.; Maj. G. E. Ferguson, R.A.M.C.; Capt. W. Fitzpatrick, R.A.M.C. (T.F.); Capt. T. J. Kelly, M.C., R.A.M.C.; Temp. Capt. H. C. Semon, R.A.M.C.

Hellenic.

Greek Military Cross.—2nd Class: Capt. (temp. Maj.) T. H. Peyton, D.S.O., R.A.M.C. (T.F.R.); Capt. and Brev. Maj. (acting Lt.-Col.) M. J. Williamson, M.C., R.A.M.C. *3rd Class:* Temp. Capt. W. H. Hooton, R.A.M.C.

Portuguese.

Military Order of Avis.—Grand Officer: Maj.-Gen J. J. Gerrard, C.B., C.M G. *Commander:* Maj. J. H. Barbour, R.A.M.C.; Col. A. B. Soltau, C.M.G., O.B.E., R.A.M.C. (T.F.).

URBAN VITAL STATISTICS.

VITAL STATISTICS OF LONDON DURING SEPTEMBER, 1919.

IN the accompanying table will be found summarised statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious disease it appears that the number of persons reported to be suffering from one or other of the ten diseases specified in the table was equal to an annual rate of 6·6 per 1000 of the population, estimated at 4,026.901 persons; in the three preceding months the rates had been 4·7, 5·9, and 4·9 per 1000. Among the metropolitan boroughs the lowest rates from these notified diseases were recorded in Kensington, Hammersmith, Chelsea, the City of Westminster, St. Marylebone, Hampstead, and the City of London; and the highest in Hackney, Finsbury, Shoreditch, Bethnal Green, Stepney, and Poplar. The prevalence of scarlet fever showed a marked increase—42 per cent.—over that recorded in the preceding month; this disease was proportionally most prevalent in Finsbury, Shoreditch, Bethnal Green, Stepney, Southwark, and Bermondsey. The Metropolitan Asylums Hospitals contained 1633 scarlet fever patients at the end of the month, against 1132, 1516, and 1409 at the end of the three preceding months; the weekly admissions averaged 265, against 157, 236, and 184 in the three preceding months. Diphtheria also was considerably more prevalent—36 per cent.—than it had been in the preceding month; the greatest proportional prevalence of this disease was recorded last month in Hackney, Shoreditch, Bethnal Green, Stepney, Poplar, and Woolwich. The number of diphtheria patients under treatment in the Metropolitan Asylums Hospitals, which had been 1021, 1108, and 1001 at the end of the three preceding months, rose to 1168 at the end of September; the weekly admissions averaged 180, against 138, 153, and 125 in the three preceding months. The prevalence of enteric fever was also considerably greater—42 per cent.—in September than in August; the 44 cases notified last month included 6 in Stepney, 4 in Greenwich, 4 in Woolwich, and 3 each in Islington, Hackney, Poplar, Lambeth, and Wandsworth. Erysipelas was proportionally most prevalent in Stoke Newington, Shoreditch, Bethnal Green, Stepney, and Poplar. The 31 cases of puerperal fever notified during the month included 8 in Wandsworth, 4 in Fulham, 3 in Camberwell, and 2 each in Paddington, Islington, Hackney, Finsbury, Southwark, Lambeth, and Battersea. Of the 10 cases of cerebro-spinal meningitis, 3 belonged to Wandsworth and 2 to Hackney; while of the 22 cases of poliomyelitis 4 belonged to Poplar, 3 to Battersea, 2 to St. Marylebone, 2 to Hackney, and 2 to Camberwell.

The mortality statistics in the table relate to the deaths of civilians actually belonging to the several boroughs, the deaths occurring in institutions having been distributed among the boroughs in which the deceased persons had previously resided. During the four weeks ended Sept. 27th the deaths of 3462 London residents were registered, equal to an annual rate of 11·2 per 1000; in the three preceding months the rates had been 9·7, 9 8, and 9·9 per 1000. The death-rates last month ranged from 5·7 in the City of London, 7·9 in Hampstead, 8·0 in Wandsworth, 8·4 in Chelsea, 8·7 in Lewisham, and

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING SEPTEMBER, 1919.

(*Specially compiled for* THE LANCET.)

CITIES AND BOROUGHS.	Estimated civil population, 1917.	Notified Cases of Infectious Disease.												Deaths from Principal Infectious Diseases.									Deaths from all causes.	Death-rate per 1000 living.
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cerebro-spinal meningitis.	Poliomyelitis.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Enteric fever.	Diarrhœa and enteritis (under 2 years).	Total.	Annual rate per 1000 persons living.		
LONDON...	4,026,901	—	1043	677	—	44	1	31	199	10	22	2027	6·6	—	17	14	51	23	3	336	494	1·6	3462	11·2
West Districts:																								
Paddington	122,507	—	12	21	—	—	—	2	7	—	—	42	4·5	—	—	—	1	—	—	14	15	1·6	114	12·1
Kensington	151,535	—	9	17	—	2	—	—	4	—	1	33	2·8	—	—	—	—	—	—	23	23	2 0	138	11·9
Hammersmith	114,952	—	6	10	—	2	—	1	4	—	1	24	2·7	—	—	—	2	—	—	21	23	2·6	104	11·8
Fulham	145,186	—	16	23	—	1	—	4	3	—	1	48	4·3	—	—	—	2	—	—	16	18	1 6	122	11·0
Chelsea	57,368	—	10	3	—	—	—	—	1	—	1	15	3·4	—	—	1	—	—	—	3	4	0·9	37	8·4
City of Westminster	122,046	—	24	6	—	2	—	—	3	—	—	35	3·7	—	—	—	2	—	—	6	8	0·9	89	9·5
North Districts:																								
St. Marylebone	92,796	—	9	6	—	1	—	—	6	1	2	25	3·5	—	—	1	—	—	—	7	8	1·1	85	11·9
Hampstead	75,649	—	7	5	—	—	—	—	3	—	1	16	2·8	—	1	—	1	—	—	2	4	0·7	45	7·9
St. Pancras	186,600	—	36	20	—	—	—	—	11		1	68	4·8	—	1	1	1	—	—	17	20	1·4	167	11·7
Islington	297,102	—	96	47	—	3	1	2	14	1	1	165	7·2	—	1	—	3	1	—	22	27	1·2	284	12·5
Stoke Newington	47,426	—	9	4	—	—	—	—	5	—	—	18	4·9	—	—	—	—	1	—	—	1	0·3	40	11·0
Hackney	196,598	—	62	62	—	3	—	2	7	2	2	140	9·3	—	—	2	4	2	—	16	24	1·6	161	10 7
Central Districts:																								
Holborn	35,303	—	4	7	—	—	—	—	2	—	—	13	4·8	—	—	—	—	—	—	1	1	0·4	36	13·3
Finsbury	68,011	—	30	13	—	1	—	2	3	—	—	49	9·4	—	—	—	1	—	—	3	4	0·8	58	11·1
City of London	16,138	—	1	—	—	—	—	—	—	—	—	1	0·8	—	—	—	—	—	—	—	—	—	7	5·7
East Districts:																								
Shoreditch	89,675	—	35	22	—	—	—	—	9	—	—	66	9·6	—	—	—	2	1	—	18	21	3·1	99	14 4
Bethnal Green	107,362	—	49	36	—	1	—	1	22	—	—	109	13·2	—	1	—	4	1	—	21	27	3·3	104	12·6
Stepney	232,010	—	120	59	—	6	—	—	19	—	—	204	11·5	—	3	3	3	—	1	33	43	2·4	223	12·5
Poplar	143,443	—	50	34	—	3	—	—	13	—	4	104	9·5	—	1	1	2	6	—	18	28	2·5	137	12·5
South Districts:																								
Southwark	167,936	—	68	34	—	—	—	2	11	—	—	115	8·9	—	2	1	4	—	—	35	42	3·3	172	13·4
Bermondsey	107,635	—	44	18	—	—	—	—	6	—	—	68	8·2	—	—	—	4	—	1	16	21	2·5	116	14·0
Lambeth	272,038	—	58	59	—	3	—	2	10	1	—	133	6·4	—	—	2	3	4	—	22	31	1·5	246	11·8
Battersea	150,023	—	33	19	—	1	—	2	3	1	3	62	5·4	—	—	1	5	1	—	9	16	1·4	117	10·2
Wandsworth	300,787	—	81	34	—	3	—	8	11	3	—	140	6·1	—	—	—	4	2	1	11	18	0·8	184	8 0
Camberwell	239,461	—	51	31	—	1	—	3	7	—	2	95	5·2	—	5	—	—	—	—	27	32	1·7	194	10·6
Deptford	103,527	—	37	12	—	1	—	—	5	1	1	57	7·2	—	2	—	—	—	—	11	13	1·6	85	10·8
Greenwich	90,440	—	31	14	—	4	—	—	2	—	—	51	7·3	—	—	—	—	4	—	4	8	1·2	80	11·5
Lewisham	161,405	—	39	29	—	—	—	—	7	—	1	76	6·1	—	—	1	2	—	—	5	8	0·6	108	8·7
Woolwich	131,942	—	15	32	—	4	—	—	1	—	—	52	5·1	—	—	—	1	—	—	5	6	0·6	103	10·7
Port of London	—	—	1	—	—	2	—	—	—	—	—	3	—	—	—	—	—	—	—	—	—	—	—	—

* Including membranous croup.

9·5 in the City of Westminster, to 12·6 in Bethnal Green, 13·3 in Holborn, 13·4 in Southwark, 14·0 in Bermondsey, and 14·4 in Shoreditch. The 3462 deaths from all causes included 494 which were referred to the principal infectious diseases; of these, 17 resulted from measles, 14 from scarlet fever, 51 from diphtheria, 23 from whooping-cough, 3 from enteric fever, and 386 from diarrhœa and enteritis among children under 2 years of age. No death from any of these diseases was recorded last month in the City of London. Among the metropolitan boroughs they caused the lowest death-rates in Hampstead, Stoke Newington, Holborn, Lewisham, and Woolwich; and the highest in Hammersmith, Shoreditch, Bethnal Green, Stepney, Poplar, Southwark, and Bermondsey. The 17 deaths from measles were 21 fewer than the average number in the corresponding period of the five preceding years; of these 5 belonged to Camberwell, 3 to Stepney, 2 to Southwark, and 2 to Deptford. The 14 fatal cases of scarlet fever were 2 in excess of the average, and included 3 in Stepney, 2 in Hackney, and 2 in Lambeth. The 51 deaths from diphtheria exceeded the average by 12; the greatest proportional mortality from this disease occurred in Hackney, Shoreditch, Bethnal Green, Southwark, Bermondsey, and Battersea. The 23 fatal cases of whooping-cough were 18 below the average, and included 6 in Poplar, 4 in Lambeth, 4 in Lewisham, 2 in Hackney, and 2 in Wandsworth. Three deaths from enteric fever were registered during the month, against an average of 8. The 386 fatal cases of infantile diarrhœa were 175 less than the average number; the greatest proportional mortality from this disease last month was recorded in Kensington, Hammersmith, Shoreditch, Bethnal Green, Stepney, Southwark, and Bermondsey. In conclusion, it may be stated that the aggregate mortality in London in September from these principal infectious diseases was 29·4 per cent. below the average.

(Week ended Oct. 18th, 1919.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at 16,500,000 persons, the annual rate of mortality, which had increased from 10·4 to 12·2 in the five preceding weeks, further rose to 12·5 per 1000. In London, with a population slightly exceeding 4,000,000 persons, the annual death-rate was 14·7, or 1·7 per 1000 above that recorded in the previous week, while among the remaining towns the rates ranged from 6·3 in Newport (Mon.), 6·4 in Blackpool, and 6·6 in Waithamstow and in Gloucester, to 17·1 in Grimshy, 17·2 in Hastings, and 17·6 in Wigan. The principal epidemic diseases caused 270 deaths, which corresponded to an annual rate of 0·8 per 1000, and comprised 157 from infantile diarrhœa, 51 from diphtheria, 27 from measles, 20 from scarlet fever, 9 from whooping-cough, and 6 from enteric fever. Measles caused a death-rate of 2·0 in South Shields and 2·7 in Tynemouth, and scarlet fever of 1·2 in Stoke-on-Trent. The deaths from diarrhœa were 66 below the number in the previous week, and included 69 in London, 9 in Liverpool, and 5 each in Birmingham, Sunderland, and Newcastle-upon-Tyne. There were 2120 cases of scarlet fever and 1320 of diphtheria under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, against 1968 and 1290 respectively at the end of the previous week. The causes of 27 deaths in the 96 towns were uncertified, of which 4 were registered in Leicester, 3 in London, and 2 in Birmingham.

Scotch Towns.—In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2,500,000 persons, the annual rate of mortality, which had been 11·9, 10·8, and 10·2 in the three preceding weeks, rose to 12·3 per 1000. The 245 deaths in Glasgow corresponded to an annual rate of 11·4 per 1000, and included 7 from infantile diarrhœa, 2 from diphtheria, and 1 each from enteric fever, measles, and scarlet fever. The 97 deaths in Edinburgh were equal to a rate of 15·0 per 1000, and included 3 from scarlet fever, 2 from diphtheria, and 1 each from measles, whooping-cough, and infantile diarrhœa.

Irish Towns.—The 121 deaths in Dublin corresponded to an annual rate of 15·6, or 1·2 per 1000 above that recorded in the previous week, and included 8 from infantile diarrhœa. The 104 deaths in Belfast were equal to a rate of 13·5 per 1000, and included 9 from scarlet fever, 7 from infantile diarrhœa, and 1 from enteric fever.

Medical News.

PARLIAMENT reassembled on Wednesday, Oct. 22nd, for the Autumn Session.

UNIVERSITY OF CAMBRIDGE.—The following candidates have satisfied the examiners in both parts of the Examination in Sanitary Science:—

Mark Avent, Arthur Cecil Barker Biggs, Philip Cyril Powter Cloake, Max Everard Delafield, James Angus Doull (Major, R.A.M.C.), Arthur Alvin Martin, Robert William Meller, Alan Filmer Rook (Captain, R.A.F.M.C.), and Edward Newbury Thornton (Lieut.-Colonel, S.A.M.C.).

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.—At a meeting of the College held on Oct. 15th the following gentlemen, having passed the requisite examinations between June 30th and July 5th, were admitted Fellows:—

David Aiken, George Herbert Alabaster, Robert Marshall Allan, John Anderson, Ralph Campbell Lindsay Batchelor, William George Bendle, Herbert Alfred Bodkin, Theodore Chalmers, Louis David Cohen, James Reid Dick, Louis Daniel Englerth, William Dawson Galloway, Howard Vivian Alexander Gatchell, John Guthrie, Howard Havelock Hepburn, Pow-Kan Liang, Keith Shelley Parker, William James Porteous, John Joseph Power, Robert Vachell De Acton Redwood, Andrew Stewart, John Arthur West, Ernest Gotshall Williamson, and Douglas Wood.

MR. E. HURRY FENWICK, consulting surgeon to the London Hospital, has been elected President of the Société Internationale d'Urologie, in succession to Professor Guyon, of Paris.

THE festival dinner in aid of the Great Northern Central Hospital, at which the Prince of Wales is to preside, will be held at the Connaught Rooms, Great Queen-street, on Dec. 12th.

CONFÉRENCES DE RADIOLOGIE, DE RADIUMLOGIE, ET D'ELECTROLOGIE, PARIS.—The Director of the Assistance Publique at Paris announces that from Monday, Nov. 3rd, to Dec. 2nd, 1919, a series of lectures and demonstrations will be given at the Hôtel-Dieu, Place du Parvis Notre Dame (Amphithéâtre Trousseau), Paris, on Radium, Radiology, and Electrotherapeutics. They are organised by the Society of Principal Medical Officers of the Laboratories of Radiology and Electrotherapy of the Paris Hospitals each year in May and November, but were suspended during the war. The practical demonstrations are given at the various hospitals in parties of ten at the most. Application for enrolment, which is gratuitous, should be made to Dr. Delherm, Hôpital de la Pitié, Boulevard de l'Hôpital, 83, Paris (XIII.). The names of the lecturers are, alphabetically—Drs. Beaujard, Bourguignon, Charlier, Darbois, Delherm, Ehrmann, Gastou, Guilleminot, Grunspan, Haret, Jaugeas, Lehon, Maingot.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC.—On Founder's Day, Nov. 3rd, the feature of the celebration will be a short thanksgiving service in chapel at 3 P.M., with an address by the Rev. J. V. Macmillan, and tea in the board room and hall, after which the wards of the hospital will be open for inspection. The hospital is the oldest and largest hospital in the country for the treatment of diseases of the nervous system, and has many other organisations under its board of management. A country branch at East Finchley of 40 beds is for men, women, and children in a convalescent stage. Bray Court, Maidenhead, where extension is in contemplation, provides 50 beds for discharged sailors and soldiers suffering from shell shock and neurasthenia. Lonsdale House, Clapham Park, contains 32 beds for discharged paralysed sailors and soldiers. These are in connexion with the Ministry of Pensions. The annexe in Queen-square, of 32 beds, is for discharged sailors and soldiers suffering from paralysis and epilepsy. There is a pension fund for the incurable, from £10 to £22 10*s.* annually, a school of massage and one of electrical treatment, and a hostel in Queen-square for workers in above schools. A sum of £30,000 is required annually from voluntary sources for this necessary and extensive work.

LEEDS AND WEST RIDING MEDICO-CHIRURGICAL SOCIETY.—The first meeting of the session was held on Oct. 17th at the General Infirmary, Leeds.—The opening address was given by Sir T. Clifford Allhutt, who sketched the early history of the society, which he was instrumental in founding, and reviewed the present position of the medical profession, particularly as it affects the general practitioner, making a strong appeal for the retention of that intimate relation with his patients which is such an important factor in the work of the family doctor.—A vote of thanks to Sir Clifford Allhutt, proposed by Sir Berkeley Moynihan, seconded by Dr. J. E. Eddison, was carried with acclamation.—Among the cases and specimens shown at the meeting were the following:—Dr. T. Wardrop Griffith: A case of Cerebral Embolism in a young man, with rheumatic aortic and mitral valve disease. There was left hemiplegia associated with left hemianæsthesia. The hemianæsthesia was not of that transient character which often accompanies hemiplegia, and it was therefore concluded that it could not be attributed merely to an arrest of cortical circulation. The circulation in the middle cerebral was arrested either by a block in that vessel or the internal carotid, at a point on the proximal side of the antero-lateral group of perforating arteries, so that both the lenticulo-striate and the lenticulo-optic arteries had their circulation arrested. It was noteworthy that there was no hemianopic defect; the middle cerebral or internal carotid block would leave intact the optic radiolations which lie behind the sensory tract of the internal capsule, and are within the sphere of posterior cerebral supply.—Dr. L. A. Rowden: Radiographs taken on Eastman's Dupli-tised Films. A kidney case which could not be radiographed in the ordinary way showed two calculi quite plainly. The exposures of all were very rapid.—Professor J. B. Hellier: A woman suffering from Osteomalacia. Her age was 36, and the disease had developed during the last 5½ years. There were marked rostration of the pubes, and several spontaneous fractures of the bones. Her fourth child had been delivered by craniotomy. The case had been treated by oöphorectomy, performed on Sept. 13th. There was already considerable improvement. The bones showed unusual transparency to X rays.

Sir Henry Alexander Miers, D.Sc., F.R.S., Vice-Chancellor of the University of Manchester, has been appointed by an Order of Council, dated Oct. 16th, 1919, to be a member of the Advisory Council to the Committee of the Privy Council for Scientific and Industrial Research.

In connexion with the International Economic Conference convened by the Fight the Famine Council, a public meeting will be held at the Central Hall, Westminster, on Wednesday, Nov. 5th, at 8 P.M., to consider the economic condition of Europe, when Dr. L. Haden Guest, among others, will speak. Dr. Guest has recently returned from Vienna.

Plague on a Troopship.—The 2nd Leicestershire Regiment has arrived at Bombay and entrained for Secunderabad, where they are to be stationed. The voyage of the *Moora* was eventful; plague broke out on board, and the vessel was put in quarantine at Malta. The troops were disembarked and placed in segregation camps for about a month. The voyage out from Tilbury took a little over two months.

Medical Magistrates.—Dr. William Bragg Addison, of the Isles of Scilly, and Dr. William Fookes Thompson, of Launceston, have been placed on the commission of the peace for the County of Cornwall. Dr. Leonard Molloy has been placed on the commission of the peace for the Borough of Blackpool.

The William Tait Sewell Memorial Fund.—The fund instituted to perpetuate the memory of the late Major W. T. Sewell, M.D., D.P.H., Royal Inniskilling Fusiliers, formerly demonstrator of bacteriology and lecturer in pathology in the University of Durham College of Medicine, who fell on active service in France on July 1st, 1916, closes at the end of this month. Some £125 has been contributed by friends and colleagues to the number of 30 or more. Any others wishing to subscribe should forward their contributions without delay to the honorary treasurer of the fund, Mr. Thomas Dunn, University of Durham College of Medicine, Newcastle-on-Tyne. A meeting of the subscribers will be called to determine what form the memorial should take.

University of London: William Julius Mickle Fellowship.—The last date for the receipt of applications for this prize has been extended to Nov. 15th. The Fellowship, which is of the value of £200, is awarded annually by the Senate to the man or woman who, being resident in London and a graduate of the University, has in the opinion of the Senate done most to advance medical art or science within the preceding five years, and has therein shown conspicuous merit. Further details can be obtained on application to the Academic Registrar, University of London, South Kensington, S.W. 7.

The Society of Medical Officers of Health: Annual Dinner.—The annual dinner of the Society of Medical Officers of Health was held at the Café Royal on Oct. 17th, Professor Henry Kenwood, C.M.G., the President, occupying the chair. In proposing the toast of "His Majesty's Forces" Professor A. Bostock Hill referred to the remarkable advances made in surgery and medicine called into being by the war. Never before in the history of the world's battles had there been such efficient and effective medical administration. Lieut.-General Sir John Goodwin, in replying, said that there was no doubt that the war was won by preventive medicine, and that the country owed much to the finely equipped and organised medical service. The lesson of it all was the value of prevention. He had definitely asserted that in the second year of the war the end would have been in sight within six weeks if one side or the other had decided to stop its preventive measures of disease. The President, in proposing "The Ministry of Health," in an interesting speech remarked upon the wonderful development of medical administration. He considered that the public health service of this country was the finest in the world. There was still much to be done, particularly in getting public bodies to realise the value of efficient public health measures. Great problems were in front of them and the coöperation of the medical man with the layman was essential. In responding, in the absence through illness of Dr. Addison, the Minister of Health, Sir Robert Morant took up much the same theme. Future progress, he said, meant patient, painstaking work—there was no short cut, and sound organisation meant the work of medical service going on hand-in-hand with the intelligent lay class. Sir George Newman proposed the toast of "The Society of Medical Officers of Health," which was ably responded to by the President, who gave a short history of the society and paid a great tribute to its founder, Sir John Simon. The toast of "The Guests" was proposed by Dr. G. F. Buchan, and the Dean of St. Paul's replied in a speech including a tribute to the noble work of the medical profession.

Cambridge Graduates' Medical Club.—There will be a general meeting of this club at 1, Wimpole-street, W. (the house of the Royal Society of Medicine), on Monday, Nov. 3rd, at 5 P.M. It is hoped that there will be a large attendance, as this is the first meeting to be held since 1914, and there are important questions to be discussed.

The late Dr. Joseph Wiglesworth's Library.—The late Dr. J. Wiglesworth, formerly of Liverpool, who on his retirement resided at Wiscombe, Somerset, has bequeathed his ornithological library to Bristol University. The library, which is probably one of the best special collections in the kingdom, consists of over 1000 volumes, and will be placed in a separate room in the University buildings.

St. Bartholomew's Hospital.—The Lord Mayor of London presided on Oct. 21st at a Mansion House luncheon to open the People's Peace Year Commemoration Fund in aid of St. Bartholomew's Hospital. He stated that since 1914 the annual cost of maintenance had risen by £30,000, and that the management was now faced with a deficit of £20,000, and the prospect of curtailment of the work of the hospital. Telegrams were read from the King and the Prince of Wales. Dr. Addison, speaking as a member of the Government and a former student of the hospital, said that the grant in aid of the organisation and support of a medical and surgical unit would be first claimed by this hospital. At the close of the proceedings an inaugural fund of £18,000 was announced.

University of Manchester.—The University of Manchester, like other seats of instruction, appears to have a record entry of students. Already 2500 students of all years have entered, as compared with 1537 in 1913, last year 1036, and 931 in 1917, so that there is an increase of 1000 on the highest pre-war year. The faculties which show the greatest increase are medicine and technology, with science. The medical students this year are 700, as against 270 in the year before the war. The women medical students now number 100, more than three times the figure of any pre-war year. The departments of dentistry and pharmacy are almost equally crowded. The authorities of the Manchester Royal Infirmary have presented the infirmary medical library to the medical library of the University, and Mrs. Arnold W. W. Lea has presented a collection of books from the library of her late husband, Dr. A. W. W. Lea, formerly lecturer in obstetrics and gynæcology in the University.

Royal Medical Benevolent Fund.—At the last meeting of the committee on Oct. 14th 27 cases were considered and £313 2*s.* voted to 23 of the applicants. The following is a summary of some of the cases relieved:—

Widow, aged 53, of L.R.C.P. & S. Edin. who was a fleet surgeon, R.N., and died in 1905. Applicant finds it necessary to apply for help owing to the death of her mother, who lived with her, and whose pension died with her. Receives £36 from dividends, and £4 per week from letting rooms. Has one daughter who helps at home. Pays £2 per week rent. Voted £10.—Daughter, aged 69, of M.R.C.S. Eng. who practised in London and died in 1877. Has lost her income owing to the mismanagement of her own and late brother's affairs and lawyer's expenses. Owns two small shops, which are continually under repair. Receives a little help from friends and relations, and has £15 from another charity. Voted £18 in 12 instalments.—Widow, aged 34, of F.R.C.S. Eng. who practised at Southport and died in May, 1919. Income about £125, part of which is income on funds which belong to the children, and will be payable to them on coming of age. Has three children, ages 12–4 years. House lent by a doctor in respect of services. Voted £10.—Daughter, aged 62, of M.R.C.S. Eng. who practised at Lostwithiel and died in 1887. Applicant earns £1 per week by working on the land, and a little extra by needlework. Receives £20 at Christmas. Pays 6*s.* a week rent. Her property has been sold to pay debts. Voted £18 in 12 instalments.—Widow, aged 70, of M.B. Lond. who practised at Bargoed and died in 1915. Applicant has no income. Lives in own house, which has £75 mortgage on it. Rates £15 a year. Suffers from ill-health. Has one daughter, aged 44, who helps in the home. Voted £18 in 12 instalments.—Widow, aged 75, of M.R.C.S. Eng. who practised in London and died in 1882. Only income £50 pension from another charity. Has four children, and they pay the rent, 9*s.* a week. Applicant is too old to work and suffers from ill-health. Cannot manage owing to the high cost of living. Voted £18 in 12 instalments.—Daughter, aged 63, of M.R.C.S. who practised at Sudbury, Suffolk, and died in 1880. Has no income. Applicant is obliged to apply for help owing to the death of her brother-in-law, to whom she acted as housekeeper. Now living with her niece. Voted £18 in 12 instalments.—Daughter, aged 83, of M.R.C.S. who practised at Derby and died in 1855. Applicant cannot make ends meet owing to the high cost of living and through the death of her brothers, who used to help her. She pays £104 for board and lodging. Voted £18 in 12 instalments.—Widow, aged 51, of L.F.P. & S. Glasg. who practised in Glasgow and died in 1875. Has no income except a little from needlework when obtainable. Pays 4*s.* a week rent for one room. Has one son, aged 33, who is a journalist since being demobilised and is married and now unable to help applicant. Was helped by the Fund 20 years ago. Voted £12 in 12 instalments.

Subscriptions may be sent to the acting honorary treasurer, Dr. Samuel West, at 11, Chandos-street, Cavendish-square, London, W. 1.

DEATH OF DR. F. M. MACKENZIE.—The death occurred on Oct. 11th of Dr. F. M. Mackenzie, of Inverness, at the age of nearly 80 years. Up to within a few days of his death Dr. Mackenzie was leading an active life, being still in practice. He was known as a keen politician, being president of the Inverness-shire Liberal Association.

PRESENTATIONS TO MEDICAL MEN.—At the last meeting of the Taunton Town Council the mayor, on behalf of the council, presented Dr. Henry James Alford with a silver cigarette-box and a cheque, as a mark of appreciation on his resignation of the post of medical officer of health after 46 years' service.—Mr. Daniel Herbert Forty, of Wotton-under-Edge, Gloucestershire, has been presented with a silver inkstand, suitably inscribed, together with a cheque for £100, as a mark of esteem on his retirement after over 40 years' practice in the town and district.

THE King, on the recommendation of the Home Secretary, has been pleased to appoint Mr. Digby Cotes-Preedy, M.A., LL.M. Cantab., Barrister-at-Law, to be the first Recorder of Smethwick. During the war Mr. Cotes-Preedy assisted to take evidence for the Royal Commission on Belgian Atrocities, and was secretary to the committee appointed under the chairmanship of Mr. Justice Bailhache to inquire into the charges made in connexion with the Royal Flying Corps. Later, he was secretary to the Select Committee of the House of Commons which inquired into the working of the Military Service (Review of Exceptions) Act, and the allegations made concerning the examinations by the Medical Boards. Prior to his call to the Bar in 1904, Mr. Cotes-Preedy qualified as a medical man, and in 1903 was house physician to St. George's Hospital under Sir Isambard Owen.

MIDDLESEX HOSPITAL MEDICAL SCHOOL: ANNUAL DINNER.—The annual dinner of the past and present students of the Middlesex Hospital Medical School was held on Oct. 15th at the Holborn Restaurant, Kingsway, Colonel the Earl of Athlone, chairman of the weekly board of the hospital, presiding. The dinner, being the first for six years, proved to be a very successful reunion, and was attended by numerous members and guests, though not a few Middlesex men who had promised to attend on the date originally fixed were unable to be present. After the usual loyal toasts the success of the Middlesex Hospital and its medical school was proposed by Sir John Bland-Sutton, the senior surgeon. He referred with admiration to the work of the chairman and weekly board on behalf of the hospital. The chairman responded on behalf of the hospital. He referred to the necessity which had arisen of closing the hospital during the summer months in order to carry out certain important repairs and alterations. He also mentioned the arrangements which it was hoped to make to improve the accommodation for the nurses and to modernise and extend the out-patient department. Mr. A. E. Webb-Johnson, the Dean, alluded to the large entry at the school and to the work done during the war by past and present students of the hospital, making especial reference to the excellent work of the members of the O.T.C., many of whom had received decorations, while not a few had been killed. Surgeon Rear-Admiral Sir Robert Hill, a distinguished former student, who had distributed the prizes at the school in the afternoon, replied on behalf of the past students and referred to the *esprit de corps* of the school, and to the value of games to the students and to the school. Mr. H. W. Breeze, captain of the cricket eleven which had won the Inter-Hospital Challege Cup for the school in the past session, responded on behalf of the present students. The toast of "The Visitors" was proposed by Dr. W. Essex Wynter, the senior physician, and replied to by Lieutenant-General Sir Arthur T. Sloggett, who spoke in terms of strong appreciation of the work done by members of the Middlesex Hospital in connexion with the R.A.M.C. during the war. The toast of the "Chairman" was proposed by Dr. William Pasteur and responded to by the Chairman, who alluded to various projects for increasing the usefulness of the hospital and helping its funds, among them the festival dinner, at which H.R.H. the Prince of Wales has consented to preside.

BOOKS, ETC., RECEIVED.

LEWIS, H. K., AND CO., LIMITED, London.
- Elementary Organic Chemistry. By F. P. Sargeant, Fellow of the Chemical Society. 2nd ed. Pp. 100. 4*s*.

LIVINGSTONE, E. AND S., Edinburgh.
- Dementia Præcox and Paraphrenia. By Prof. E. Kraepelin, of Munich. Translated by R. Mary Barclay, M.B., and edited by G. M. Robertson, M.D. Pp. 331. 15*s*.

LONGMANS, GREEN, AND CO., London, New York, and India.
- The Essentials of Chemical Physiology for the Use of Students. By W. D. Halliburton, M.D. 10th ed. Pp. 324. 7*s*. 6*d*.
- The Nature of Enzyme Action. By W. M. Bayliss, D.Sc. Pp. 190. 7*s*. 6*d*.
- Stereochemistry. By A. W. Stewart, D.Sc. 2nd ed. Pp. 277. 12*s*. 6*d*.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

ANDREW, E. G., M.D. Brux., L.R.C.P., M.R.C.S., has been appointed Medical Officer of Health for the St. Austell (Cornwall) Rural District, the St. Austell Workhouse and Scattered Homes.

BRODRICK, C. C., L.R.C.P. & S., L.M. Edin., Medical Officer of Health for the Tavistock (Devon) Rural District.

GALBRAITH, C. J., M.B., B.S. Lond., M.R.C.S., L.R.C.P., D.P.H., Tuberculosis Officer to the Barnstaple Area of Devon.

KEITH, W. B., M.C., M.D., Senior Assistant Medical Officer at the Surrey County Asylum, Brookwood.

MACLEOD, G., M.B., District Medical Officer by the Long Ashton (Somerset) Board of Guardians.

SUTHERLAND, R., M.B., Ch.B. Vict., Medical Officer of Health for Chard (Somerset).

THOMAS, F. L., M.B., B.S. Lond., L.R.C.P., M.R.C.S., Medical Officer for the No. 2 District by the Barnstaple (Devon) Board of Guardians.

VINER, G., F.R.C.S. Eng., Ophthalmic Surgeon to the Hospital for Epilepsy and Paralysis, Maida Vale, W.

Certifying Surgeons under the Factory and Workshop Acts: SQUARE, A. P., L.M.S.S.A. (Hanley); FARTHING, T., M.B., C.M. Edin. (Dartford); STANFELD, R. (Hailsham); FELTHAM, H. G., M.B., Ch.B. Edin. (Ulceby); OGILVY, C. S., L.R.C.P. & S. Edin., L.F.P.S. Glasg. (Luddenden).

Vacancies.

For further information refer to the advertisement columns.

Battersea General Hospital, Battersea Park, S.W.—Res. M.O. £200.

Beckenham Education Committee.—School Dent. £400.

Bedford County Hospital.—Res. M.O. £150

Birkenhead Borough Hospital.—Hon. Gynæcologist.

Birkenhead and Wirral Children's Hospital, Woodchurch-road.—H.S. £150.

Brentwood Mental Hospital, Brentwood.—Fourth Asst. M.O. £510,

Burnley, Victoria Hospital.—H.S. £250.

Canning Town Women's Settlement Hospital, Plaistow, E.—Female Hon. Asst. S.

Carlisle, Cumberland and Westmorland Mental Hospital, Garlands.—Jun. Asst. M.O. £300.

Central London Ophthalmic Hospital, Judd-street, W.C.—Hon. P. Asst. S.

Charing Cross Hospital, Agar-street, W.C.—Dent. S.

City of London Hospital for Diseases of the Chest, Victoria Park, E.—P. Also Half-time M.O. £200.

Dorchester. Dorset County Council Education Committee.—School Dentists. £400.

Dorset Mental Hospital, Herrison, near Dorchester.—Sec. Asst. M.O. £340.

Dumfries, Crichton Royal.—Asst. P. £350.

Ealing Borough.—Asst. M.O.H. £500.

East London Hospital for Children and Dispensary for Women, Shadwell, E.—H.P. £125. Res. M.O. £200. Radiologist. £100. Also Two Asst. P.'s, Two Asst. S.'s, Oph. S., and Throat and Ear S.

East Riding Education Authority.—School Dent. £400.

Exeter City.—Asst. M.O.H. and Asst. Sch. M.O. £400.

Exeter, Royal Devon and Exeter Hospital.—M.O. for Treatment of Venereal Diseases. £300.

Glasgow, Lightburn Joint Hospital, Shettleston.—Res. Phys.-Supt. £300.

Glasgow Mental Hospital, Gartloch, Gartcosh.—Asst. M.O. £300.

Gibraltar.—Asst. Colonial S. £450.

Hospital for Sick Children, Great Ormond-street W.C.—Cas. M.O. £200. Also Two Anæs. £15 15*s*.

Hull Royal Infirmary.—Venereal Disease and Cas. O. £250. Also Asst. H.S. £150.

Huntingdon County Hospital.—H.S. £150.

Leeds City.—Asst. M.O.H. £600.

Leeds General Infirmary.—Res. M.O. £150.

Leyton Urban District Council Education Committee.—Asst. M.O. £350.

London Society for Promoting Christianity amongst the Jews, 16, Lincoln's Inn-fields, W.C.—Missionary for Palestine. £350.

London Temperance Hospital, Hampstead road, N.W.—Clin. Asst.

Manchester Children's Hospital, Pendlebury.—Anæsth. £1 1*s*. per visit.

Manchester Hospital for Consumption and Diseases of the Throat and Chest.—Hon. Asst. P.

Manchester and Salford Hospital for Skin Diseases.—H.S. £100.

Metropolitan Hospital, Kingsland-road, E.—Asst. S. Also Pathologist and Registrar. £120.

Miller General Hospital for South-East London, Greenwich-road, S.E.—Hon. Asst. Oph. S.

Monmouthshire Education Committee.—Asst. M.O.'s. £500. Also School Dentist. £400.

Mount Vernon Hospital for Consumption and Diseases of the Chest, Northwood, Middlesex.—Asst. P.

National Hospital for the Paralysed and Epileptic, Queen-square, W.C.—Hon. Dent. S. Also H.P.

Newport, Mon., Royal Gwent Hospital.—Three Res. M.O.'s £225, £200, and £160 respectively.

Northampton General Hospital.—H.P. £150.

North Riding of Yorkshire County Council Education Committee.—Asst. Sch. M.O. £450.

Nottingham General Dispensary.—Res. S. £300.

Poplar Hospital for Accidents, E.—Jun. Res. S. £120.

Portsmouth Corporation Mental Hospital.—Asst. M.O. £300.

Prince of Wales's General Hospital, Tottenham, N.—Hon. Ophth. S.

Queen's Hospital for Children, Hackney-road, Bethnal Green, E.—Asst. P., Ophth. S., and Asst. S.

Rochdale Infirmary and Dispensary.—Junior H.S. £125.
Royal Chest Hospital, City-road, E.C.—Two Asst. M.O.'s for Tuberc. Disp. £350. Also Clin. Assts.
Royal London Ophthalmic Hospital, City-road, E.C.—M.O. to X Ray Dept. £120.
Royal Waterloo Hospital for Children and Women, S.E.—Hon. Ophth. S.
St. Bartholomew's Hospital.—Asst. Director of Surgical Unit. £750.
St. George's Hospital, S.W.—Path. and Curator. £400.
Southampton County Borough.—Asst. M.O.H. £500.
Spenborough Urban District.—M.O. and Sch. M.O. £600.
Stamford, Rutland and General Infirmary.—H.S. £200.
Sunderland Education Committee.—Asst. Sch. M.O. £500.
Torquay, Torbay Hospital.—H.S. £200.
Wakefield, West Riding County Council.—Dist. Tuberc. O.'s. £600.
Wolverhampton and Staffordshire General Hospital.—H.S. £200.

THE Secretary of State for the Home Department gives notice of a vacancy for a Medical Referee under the Workmen's Compensation Act for the Bury and Rochdale County Courts, in Circuit No. 5. Applications should be addressed to the Private Secretary, Home Office, not later than Nov. 8th, 1919.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Ashford, Ballyleeson, Cleator, and Hipperholme.

Births, Marriages, and Deaths.

BIRTHS.

ADAMSON.—On Oct. 17th, in Leeds, Rhoda Hicks Butler, M.D., B.S., the wife of Wallace Wright Adamson, M.B., Ch.B., D.P.H., of a son.

BLAKE.—On Oct. 16th, at Wade Cottage, Havant, Hants, the wife of Philip Blake, L.D.S. Eng., of a daughter.

BUCKLEY.—On Oct. 14th, at Meerut, India, the wife of Captain Leonard Buckley, R.A.M.C., of a son.

CALDWELL-SMITH.—On Oct. 8th, at 27, Cliveden-place, Eaton-square, S.W., the wife of E. L. Caldwell-Smith, M.B. Cantab., of a daughter.

CAMPBELL.—On Oct. 13th, at The Copse, Larbert, Stirlingshire, the wife of R. B. Campbell, M.D., F.R.C.P.E., of a daughter.

DERHAM-REID.—On Oct. 15th, at "Auchinellan," St. Helen's-road, Bolton-le-Moors, the wife of Captain James Derham-Reid, M.C., R.A.M.C. (T.F.), of a son.

FALLE.—On Oct. 16th, at 18, York House, W. 1, to H. de C. Falle, O.B.E., and Frances Mabel Falle (Dr. Frances Huxley, 4, Harley-street, W. 1)—a daughter.

FAIRHALL.—On Oct. 1st, at Algernon-road, Lewisham the wife of Dr. Hamlyn Fairhall, of a son.

FOXELL.—On Oct. 13th, at Wheeleys-road, Edgbaston, Birmingham, to Constance, the wife of Humphrey Foxell, M.B., B.S. Lond.—a daughter.

LEAKEY.—On Oct. 14th, at Heathside, Golders Green, the wife of Dr. A. B. Leakey, of a son (Edward Bazett).

MAWSON.—On Oct. 11th, at Carlton-crescent, Southampton, the wife of Owen B. Mawson, M.R.C.S., L.R.C.P., of a daughter.

MARRIAGES.

CLARKE—MARTIN.—On Oct. 18th, at St. Paul's Church, Clifton, Cecil Clarke, M.D., M.R.C.P., to Nora Kathleen, elder daughter of Mr. and Mrs. F. B. Martin, Clifton, Bristol.

MARTIN—SCAIFE.—On Sept. 30th, at St. Patrick's Church, Dalkey, Major Samuel Edgar Martin, M.B., of Lincoln's Inn, Barrister-at-Law, to Edith Gertrude, youngest daughter of J. Harper Scaife, LL.B., of the Middle Temple, Barrister-at-Law, and Mrs. Scaife, Clifton, Dalkey, Co. Dublin.

DEATHS.

JACKSON.—On Oct. 16th, of heart failure, while on leave at Melbourne, Surgeon-Colonel Thomas Jackson, I.M.S.

KERR.—On Oct. 14th, suddenly, at Camberwell New-road, London, D. Oliver Kerr, M.B., C.M., D.P.H., in his 60th year.

McLELLAN.—On Oct. 16th, at a nursing home in Liverpool, Dr. S. W. McLellan, M.C.

RENTON.—On Oct. 20th, at 80, Thirlestane-road, Edinburgh, James Crawford Renton, M.D., late of 1, Woodride-terrace, Glasgow.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

THE LANCET: SUBSCRIPTION RATES.

		£	s.	d.
INLAND	One Year	£1	16	0
	Six Months	0	18	0
	Three Months	0	9	0
ABROAD	One Year	£2	0	0
	Six Months	1	0	0
	Three Months	0	10	0

Subscriptions may commence at any time, and are payable in advance. Cheques and P.O.'s (crossed "London County Westminster and Parr's Bank, Covent Garden Branch") should be made payable to Mr. CHARLES GOOD, THE LANCET Offices, 423, Strand, London, W.C. 2.

ADVERTISEMENT RATES.

Books and Publications Official and General Announcements Trade and Miscellaneous Advertisements	Four lines and under ... ... 4s. 0d.

Every additional line, 9d.

Quarter Page, £2. Half a Page, £4. Entire Page, £8.
Special Terms for Position Pages.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

Friday, Oct. 31st.

OCCASIONAL LECTURE: at 5.30 P.M.
Lieut.-Col. Hamilton Fairley, A.A.M.C.: Egyptian Bilharzlasis its Recent Pathology, Symptomatology, and Treatment.

MEETINGS OF SECTIONS.

Monday, Oct. 27th.

ODONTOLOGY (Hon. Secretaries—G. Paton Pollitt, W. Kelsey Fr J. Howard Mummery): at 8 P.M.
Presidential Address:
Mr. J. F. Colyer: The Debt of the Dental Profession to John Hunte
Casual Communications:
Mr. G. C. Chubb: Ankylosis of Mandible and its Operative Treatmen
Mr. W. Kelsey Fry: A Case to Demonstrate the Movements of th Soft Palate.

Tuesday, Oct. 23th.

MEDICINE (Hon. Secretaries—W. Cecil Bosanquet, J. H. Thursfield at 5.30 P.M.
Paper:
Dr. Gordon Ward: Anæmias of the Hæmolytic Jaundice Group.

Thursday, Oct. 30th.

BALNEOLOGY AND CLIMATOLOGY (Hon. Secretaries—J. Campbe McClure, C. F. Sonntag, F. G. Thomson): at 5.30 P.M.
Paper:
Dr. F. Parkes Weber: The Position of Health Resorts in Regard the State

Members will dine at Pagani's Restaurant, at 7 P.M. Price p head 6s. 6d. Those desiring to attend should send their names Dr. Charles F. Sonntag, 80A, Belsize Park-gardens, N.W. 3.

MEDICAL SOCIETY OF LONDON, 11, Chandos-st., Cavendish-sq., W.
MONDAY, Oct. 27th.—8.30 P.M., Discussion on the Reclassificati and Treatment of Pensioners, to be introduced by Col. A. L. Webb, C.B., C.M.G., A.M.S., to be followed by Lieut.-Col. S Alfred Pearce Gould, K.C.V.O., R.A.M.C.(T.), Lieut.-Col. E. Gowlland, R.A.M.C., Capt. R. McNair Wilson, R.A.M.C., a others.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c

LONDON HOSPITAL MEDICAL COLLEGE, in the Clinical Theatr of the Hospital.
A Special Course of Instruction in the Surgical Dyspepsias will given by Mr. A. J. Walton:—
MONDAY, Oct. 27th.—4.30 P.M., Lecture XXV.:—The Differenti Diagnosis of Surgical Dyspepsias.

ROYAL INSTITUTE OF PUBLIC HEALTH, in the Lecture Room the Institute, 37, Russell-square, W.C.
Course of Instruction for Candidates as Tuberculosis Officers, Gener Practitioners and others. Bacteriological Demonstrations will given in the Laboratories of the Institute, and visits arranged Sanatoriums, Tuberculosis Dispensaries, &c.
THURSDAY, Oct. 30th.—5 P.M., Lecture IV.:—Miss Jane Walke M.D.: The Training of the Tuberculous Sufferer.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHES Brompton, S.W.
WEDNESDAY, Oct. 29th.—4.30 P.M., Lecture:—Dr. H. B. Sha Some Facts Connected with Pulmonary Tuberculosis.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTI Queen-square, W.C. 1.

MEDICAL SCHOOL.

MONDAY, Oct. 27th.—2–3.30 P.M., Out-patient Clinic: Dr. Collie 3.30 P.M., Lecture:—Dr. Tooth: Tabes Dorsalis.
TUESDAY, Oct. 28th.—2–3.30 P.M., Out-patient Clinic: Dr. Graing Stewart. 3.30 P.M., Ward Cases: Dr. Risien Russell.
WEDNESDAY, Oct. 29th.—2 P.M., Lecture:—Mr. Sargent: Surgery the Brain. 3.30 P.M., Lecture:—Dr. Hinds Howell: Senso Disturbances of Nervous System.
THURSDAY, Oct. 30th.—2–3.30 P.M., Out-patient Clinic: Dr. Farquh Buzzard. 3.30 P.M., Lecture:—Dr. Risien Russell: Subacu Combine Degeneration.
FRIDAY, Oct. 31st.—2–3.30 P.M., Out-patient Clinic: Dr. Gord Holmes. 3.30 P.M., Ward Cases: Dr. Aldren Turner.
Fee for Post-Graduate Course £5 5s. C. M. Hinds Howell, Dea

NATIONAL HOSPITAL FOR DISEASES OF THE HEART POS GRADUATE COURSE, Westmoreland-street, W.
MONDAY, Oct. 27th.—11 A.M., Out Patients: Dr. Goodall. 2 P. In-patients: Dr. Moon.
TUESDAY.—2 P.M., Out-Patients: Dr. R. Wells. 2.30 P.M., I patients: Dr. Gibbes.
WEDNESDAY.—2 P.M., Out-patients: Dr. Moon. 5.30 P.M., Lecture Dr. Gibbes: Mitral Stenosis.
THURSDAY.—10 A.M., In-patients: Dr. Hamill. 2 P.M., Out-patient Dr. Price.
FRIDAY.—2 P.M., Out-patients: Dr. Gibbes. 2.30 P.M., In-patient Dr. Wells.
SATURDAY.—10 A.M., Out-patients: Dr. Hamill.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, 49, Leicest square, W.C.
THURSDAY, Oct. 30th.—5 P.M., Chesterfield Lecture:—Dr. Dockrell: The Ringed Eruptions of the Skin.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE CLINIC
TUESDAY, Oct. 28th.—Lecture:—Mr. J. W. Smith: Inflammation the Appendix in the Pelvis or less Usual Positions.

Notes, Short Comments, and Answers to Correspondents.

THE OFFICER IN CHARGE OF A MEDICAL DIVISION.

BY ADOLPHE ABRAHAMS, M.D., M.R.C.P.,
MAJOR, R.A.M.C.; OFFICER I/C. MEDICAL DIVISION, THE CONNAUGHT HOSPITAL, ALDERSHOT; ASSISTANT CONSULTING PHYSICIAN TO THE ALDERSHOT COMMAND.

PART II.

A Question of Responsibility.

IN civilian life the services of a specialist are called upon for the consideration of some obscure condition upon which the general practitioner has expended some time and thought and yet is in a state of uncertainty. There is no doubt that a similar principle should guide the medical officer in charge of a battalion or other unit, but owing to certain regulations he is encouraged, and occasionally compelled, to hurl at the specialist a variety of cases which connote the very A B C of medicine. His responsibility begins and ends with providing an ambulance for the removal of a case to hospital. It is sufficient that he transfers it, and no responsibility attaches to him as to its suitability or unsuitability for hospital treatment. It is an unfortunate corollary of this rule that if through an error of judgment he has unlawfully detained a patient in quarters, he may be mercilessly criticised for acting outside his jurisdiction. There is no premium on hits, there is an overwhelming discount upon misses, and an officer who erred in a single case would derive no credit for a thousand previous accurate diagnoses. Where, then, mistakes are penalised and successes not approbated, it is small wonder that he is soon persuaded to repudiate any sense of responsibility, and hastily to select some outstanding symptom and send the patient straight off to the so-called specialist in the hospital.

And so one sees cases of albuminuria sent to the renal specialist, when a few minutes' examination would have detected a gonorrhœal discharge, or even merely prostatic secretion. Has the man a pain in the back he goes to the nerve specialist, and does he complain that he feels nervous or trembles he must consult the neurotic specialist (sic). Any reference to the chest brings him up to the chest specialist, who is therefore patronised by a remarkable potpourri, including indigestion, aneurysm, chronic bronchitis, muscular rheumatism, arterio-sclerosis, pleurisy, intercostal neuralgia, tabes, and a host of other things. But occasionally the chest pain is localised to the præcordial region, and so the heart specialist must be consulted. This gentleman is usually prepared to encounter almost any condition other than a disease of the heart. You will readily understand, therefore, how an enormous preponderance of what, pathologically considered, is rubbish reaches the "medical specialist," and yet the delight of the game is that he must be ever on the *qui vive* lest he overlook some serious abnormality. In one evening I remember seeing a case of œsophageal carcinoma labelled "This man is always complaining," a case of gastric crises who presented himself as "gastritis," and one of Addison's disease as "abdominal pain."

But the enormous majority of cases sent up fall under three heads. "Is this man ill at all?" "What category is he fit for?" And, "Is his disability due to military service?"

The Advantages of Sickness in the Army.

According to the "yellow" press, a doctor who cannot tell when a man is ill is only fit to be hanged. As a matter of fact, in many cases nothing is more difficult, and a great part of one's day in a military hospital is spent in struggling perpetually to prove a negative. In civil life, of course, the average man neither goes sick unnecessarily nor does he tend to exaggerate his disability. Save in those comparatively rare instances when, owing to insurance mismanagement, a man is better off sick than at work, illness means at least considerable discomfort and possibly serious hardship. But in the Army sickness means not only no disadvantage but positive advantages, and, hard as it may sound, every man who presents himself without obvious and unmistakable evidence of illness must be regarded as a potential humbug. But, as a matter of fact, the genuine malingerer is rare. Our clientèle is largely supplied by the type of man who in civilian life was never able to maintain any sustained interest or exertion, who says that he is "not used to being 'urried." To this type routine is abhorrent. The idea of being compelled to rise at a fixed hour and perform duties unremittingly at regular times is sufficient to drive him to go sick. In the second place, we meet the type which appeals more to our sympathy, the middle-aged conscript who does not easily assimilate an entirely strange environment. Such men, who are aged about 45, look about 65, and behave as if they were 85, have a curious propensity to develop an asthenia, but baffle every attempt at investigation to discover any kind of lesion. One is driven to call these cases "debility," a term rightly deprecated for its indefinite nature. Then there are men sent to the hospital by medical officers who mistake misery for illness. Of all ages and classes, these men are only affected with home-sickness or the results of brooding upon their change of station and the shipwreck of their future. It is manifest that medicine can do nothing for these; generally the medical specialist is obliged to return a report that this man's symptoms will persist so long as he is in the army. Last of all is the man who is merely war-weary, and whose symptoms appear to be the accompaniment of some grave disorder. Very often I have seen phenomenal improvement, with a gain in weight of perhaps 20 lb., arise simply from the rest which a few weeks in hospital confer.

The question of accurately categorising a man needs very little discussion. It is a tempting compliment to the medical man to provide him with a variable number of classes into which he is supposed to drop any man whose capabilities he is required to grade; but nobody can possibly measure what in a large number of instances is the vital factor, the man's willingness to perform duties. The question of what diseases are due to or aggravated by military service is another and a more interesting subject. The broad principle laid down seems childishly simple: Can you say with confidence that the man would not have acquired this disease if he had remained a civilian? In practice you cannot, for our knowledge of pathology is too inexact to define dogmatically what influence may or may not be added by the circumstances of military service. I know one eminent physician who holds that, for social reasons, venereal disease can be regarded as due to military service.

Complaints against Hospitals.

Another feature which I cannot entirely neglect is the matter of complaints directed against a hospital. I have never quite understood why, but there exists in a certain section of the population a rooted mistrust of hospitals in general, and they are regarded as institutions where experiments are practised upon the unfortunate inmates entirely for the doctors' benefit. In war time and when the hospital is a military one a charge is still more easy to elaborate. For example, the bewildering difference of opinion expressed by doctors will never be comprehended by the layman. A man will protest that it is courting death for him to engage in the ordinary activity of an A 1 man, and will produce certificates from doctors who have interpreted some slight peculiarity in the sounds of the heart to indicate serious heart disease. In the hospital cardiologist's view this peculiarity no more affects the working of the heart than the squeak of a spring in a motor-car affects the efficiency of the engine. Yet the patient who prefers to believe himself a C3 man will fight, and demand board after board, and even get his case taken up by an M.P., and finally brought before the military House of Lords, before he will take his proper place in the ranks.

Furthermore, the patient having lost his case abandons legitimate weapons, and out of sheer spite proceeds to elaborate wholly fictitious charges. You would not believe me were I to describe the preposterous complaints which have occurred in my own experience, and which have to be met and denied categorically, item by item, with such proof as one can produce against a monstrous exaggeration or a deliberate lie. I am not, of course, suggesting that complaints need not be investigated. It is best for an institution that the efficiency of its working should be subject to supervision. But it ought to be possible to penalise the slanderer if his charge is found to be wholly unwarranted or based upon unverified evidence. At present there is nothing to prevent anybody from throwing stones or flinging mud and enjoying complete immunity from retaliation when the grossness of his action is thoroughly demonstrated.

Professional Relationship.

Finally, I would like to deal with the subject of professional relationship as it exists in the army. A middle-aged and highly successful general practitioner finds himself in charge of patients for whom he naturally regards himself as entirely responsible. It is with difficulty that he can learn to realise that in practically no respect is he left an absolutely free hand, but that his judgment and opinion must be subjected to the criticism of his superior officer, who may be many years his junior. This diagnosis must first of all stand the test of reference to official nomenclature, quite apart from its pathological correctness or incorrectness. The patient's dietary is strictly regulated by A. C. I., and the M.O. must be prepared to defend the urgent necessity of any extras if, as not infrequently happens, his hospital is called upon to sustain the charge of extravagance. Again, prescription of his favourite remedies may be rudely refused if their departure from orthodox hospital mixtures is not considered to be justified. Even the disposal of his patient is no longer in his hands. Any tendency to advise prolonged stay in hospital must be checked owing to the demands which frequently arise for beds for urgent expeditionary cases. All such restrictions will come most heavily upon the older men, partly because of a natural resentment towards interference of any kind, and partly because, with the best of intentions on their part, long acquaintance with civilian patients unfits them for regarding the sick in a military hospital from an entirely different standpoint.

Now, in all these circumstances the divisional officer is the *Deus ex machina*, and he is ever coming to grief in his attempt to steer a middle course between the Scylla of professional discourtesy and the Charybdis of incapacity to realise military exigencies. His failure to produce a large number of empty beds will call forth the wrath of his seniors. On the other hand, his purely impersonal action in exercising an official control may be misconstrued as the interference of a conceited young Jack-in-office.

But he has his compensations; his position is a fine training-ground, not only to learn his profession, but for the good of his soul, the education of his sense of proportion, and development of that breadth of mind which results from a realisation that there is method in other people's madness.

THE BATHS OF BATH.

THE Board of Education has approved the scheme of spray baths and mineral water treatment, in suitable cases, for children in the Bath elementary schools for one year.

COLONIAL HEALTH REPORTS.

A REPORT on the Gold Coast Blue-book for 1917, signed by Mr. W. H. S. Truell, Acting Assistant Colonial Secretary, has recently been issued. It states, inter alia, that the population of the Gold Coast and its dependencies amounted at the last Census to 1,503,386. The number of Europeans resident in the colony during 1917 was 2172. Of these, 27 died and 114 were invalided, the death-rate being 12·43 and the invaliding rate 52·49 per 1000. Of 9 deaths which occurred amongst European officials in the colony and its dependencies, 3 were due to yellow fever, 2 to blackwater fever, 1 to malarial fever and pneumonia, 1 to chronic malaria, and 2 to other diseases. Six deaths from blackwater fever occurred amongst Europeans and non-officials. The average daily number of European officials on the sick list compared to the average daily number resident in the colony was 2 55 per cent., as against 1·66 per cent. in 1916 and 1·10 per cent. in 1915. On the whole the sick returns for 1917, amongst natives as well as among Europeans, indicate that the year was an exceptionally bad one. No means exist whereby accurate statistics relating to the health of natives can be obtained.

Plague and Other Diseases.

Treatment was given in 3507 cases of malaria, 519 cases of dysentery, 236 cases of pneumonia, 261 cases of tuberculosis, and in a large number of cases of minor complaints. In all, 52,150 cases of disease were treated during the year, of which 281 proved fatal; the figures for 1916 were 43,155 and 282 respectively. In March, 1917, an outbreak of pneumonic plague occurred in the Accra district. Six cases came under the observation of the medical authorities, all of which proved fatal; it is estimated that in all there were at least 39 deaths. As was the case with regard to the outbreak of plague in 1908, it was not found possible to trace the origin of the outbreak of 1917, nor to prove that it had been introduced from without. Outbreaks of small-pox were reported from Ashanti and the Northern Territories. 358 cases came under observation, and there were 62 deaths. 15,619 successful vaccinations were performed, as compared with 7848 in 1916. Thirteen cases of sleeping sickness were treated during the year, whereof six terminated fatally.

Rainfall and Climate.

The rainfall of 1917 was even heavier than that of 1916, which was considerably in excess of the average; this necessarily acted as a stimulus to the breeding of mosquitoes, although vigorous combative measures were, as usual, taken at all the principal stations. The climate, though hot and damp, is cooler than that of most tropical countries situated in the same latitudes. It is not in itself unhealthy; but an evil reputation has been earned for it in the past by the prevalence of mosquito-borne diseases, against which all possible precautions have constantly to be taken. The Gold Coast is peculiarly free from many of the discomforts associated with tropical countries; hot nights and intense heat by day are the exception rather than the rule, while insects are comparatively unobtrusive. The rainfall varies with the physical configuration of the country, and is highest at Axim and in the mining districts of Tarquah, Upper and Lower Wassaw, &c. The first rains, or rainy season proper, begin in March and end in July; the later rains are spread over the months of September and October. The rainy season is marked by a considerable fall in the temperature, which is found to be refreshing to many Europeans, but proves trying to some. The Harmattan season begins in December and ends in February.

The efforts of the sanitary and medical authorities in promoting hygiene and treatment of disease continue to exercise a beneficial effect on the general health of Europeans.

THE DECIMAL ASSOCIATION.

IN connexion with the Decimal Association's agitation for counting coins in tens, it is interesting to note that, including Egypt, already ten British colonies have adopted decimal currency—Canada, Newfoundland, British Honduras (dollar), Ceylon, Mauritius, East Africa (rupee-cent), British North Borneo, Straits Settlements (S.S. dollar of 2*s.* 4*d.*), Hong-Kong (Mexican dollar), and Egypt (£E—millieme). Egypt is interesting, for the Egyptian £ very closely approximates to our sovereign, and is divided into 1000 milliemes, while Lord Southwark's Bill proposes to substitute 1000 mils. for our present 960 farthings. The experience of Egypt should be valuable in deciding this question now so much before the public.

SCIENCE IN A NEW REPUBLIC.

WITHOUT wishing to enter rashly into the thorny paths of politics, we would suggest to any of our readers who may have revolutionary proclivities the study of a paragraph from a German newspaper, of which we append a translation.. The paragraph, which is headed "A Valuation of Intellectual Work," is as follows:—

> The assistant surgeons of the Vienna hospitals have submitted a petition asking that their salaries may be made equal to those of the charwomen. The request has been refused on the ground that the work of the charwomen is so monotonous and wearing (eintönig und aufreibend) that they have a claim for higher remuneration than the assistant staff, whose duties are varied and interesting (abwechstungsreich und anregend).

This appears to indicate an opinion as to the value of science on the part of the democracy in Austria which must render the lot of the medical staff of a State or municipal hospital unenviable.

CONVERTING OUNCES INTO GRAMMES.

To the Editor of THE LANCET.

SIR,—This is the age of mnemonics and of entente with France and the spread of the metric system. Therefore more avoirdupois ounces will be converted to grammes. A mnemonic for this purpose is, "It converts one ounce." Counting the number of letters in each word gives 2-8-3-5, recalling 28·35, the conversion factor and number of grammes to an ounce avoirdupois. To those who want a mnemonic to remember the mnemonic it is given in "I coo" or "Gramercy, I coo," recalling the initial letters of the mnemonic itself. I do not know of any collection of mnemonics for the metric system, but it might be useful.

I am, Sir, yours faithfully,

F.

Oct. 22nd, 1919.

Communications, Letters, &c., to the Editor have been received from—

A.—Capt. Attwater, R.A.M.C.; Messrs. Arnold and Sons, Lond.

B.—Mrs. H. E. Burnside, Lond; Dr. J. C. Boyd, Dunoon; Dr J. Brown, Lond.; Dr. R. Burges, Hartley Wintney; Mr. C. Brown, Lond.; Board of Education, Lond; Brayton Galleries, Lond., Sec. of; Borstal Association, Lond; Dr. G. S. Buchanan, C.B, Lond.

C.—Mrs. K. D. Crofton, Lond.; Dr. E. L. Collis, Cardiff; Mr. H. Collinson, C.M.G., D S.O., Leeds; Conjoint Board of Scientific Societies, Lond.; Dr. A. Compton, Lond.; Mr. D. Cotes-Preedy, Gerrard's Cross; Dr. J. S. Crawford, Ben Rhydding.

D.—Mr. R. Davies-Colley, C.M.G., Lond.; Dr. E. Duncan, Glasgow.

E.—Mr. D. L. Eadie, Edinburgh; *The Egyptian Gazette*, Alexandria, Editor of.

F.—Mr. E. H. Fenwick, C.B.E., Lond.; Factories, Chief Inspector of, Lond.; Capt. H. Fraser, R.A.M.C.; Dr. R. F. Fox, Enham; Food Education Society, Lond., Hon. Sec. of; Mr. H. Francis, Lond.

G.—Mr. S. Griffiths, Goodmayes; Great Northern Central Hospital, Lond., Sec. of; Mrs. Grieve, Chalfont St. Peter.

H.—Mr. J. T. Henderson, Pietermaritzburg; Mr. T. D. Harries, Aberystwyth; Dr. C. O. Hawthorne, Lond.; Mr. F. Hall, Oxford; Home Secretary, Lond.; Mr. C. E. Hecht, Lond.; Dr. J. Haddon, Hawick; Capt. J. M. Hollis, Lond.

I.—Iglodine Co., Ltd., Newcastle-on-Tyne; Insurance Committee for the County of London.

J.—Miss M. Jones, Pangbourne; Dr. G. Jessel, Leigh; Prof. F Wood Jones Lond.

L.—Mr. S. S. Lipovsky, Lond.

M.—Prof. S. McDonald, Newcastle on-Tyne; Dr. S. Melville, Lond. Sir B. Moynihan, K.C.M.G. C.B., Leeds; Miss S. MacCormac Lond.; Middlesex Hospital Medical School, Chairman and Counci of; Ministry of Health, Lond. Dr. J. McIntosh, Lond.; Dr H A. Macewen, Lond.; Si Malcolm Morris, K C.V.O.; Dr W. Makeig-Jones, Torquay; Dr L. Molloy, Blackpool; Medica Research Committee, Lond.; Dr R. Morton, Lond.

N.—Sir G. Newman, K.C.B., Lonc

P.—Surg.-Lieut.-Commdr. R. J. G Parnell, R.N.; Dr. E. Playfai Lond.; Mr. H. J. Patersor Lond.

R.—Mr. H. M. Rainsford, Lond Royal College of Physicians Ireland, Dublin, Registrar o Dr. Regnault, Toulon; Dr. W. Rivers, Worsboro' Dale; Roy Medical Benevolent Fund, Lond Sec. of; Dr. J. D. Rollesto Lond.; Royal Society of Medicin Lond.

S.—Sir G. H. Savage, Lond.; M A. W. Sheen, Lond; Scotti Board of Health, Edinburgh.

T.—Mrs. M. Taylor, Lond.; D F. E. Tylecote, Manchester; D A. H. Thompson, Lond.; Dr. Tatham, Oxted.

U.—University of Durham, Facul of Medicine; University London, Academic Registrar o

W.—Dr. F. P. Wigfield, Lon Dr. J. D. Wynne, Norwich; L A. M. Wilson, Cape Town; D H. Williamson, Lond.; Mrs. T. Ward, Slough.

The Harveian Oration

ON

FORERUNNERS OF HARVEY IN ANTIQUITY.

Delivered before the Royal College of Physicians of London on St. Luke's Day (Oct. 18th),

BY RAYMOND CRAWFURD, M.A., M.D.OXON., F.R.C.P.LOND.,

PHYSICIAN AND LECTURER ON CLINICAL MEDICINE, KING'S COLLEGE HOSPITAL; CENSOR, ROYAL COLLEGE OF PHYSICIANS.

MR. PRESIDENT AND GENTLEMEN,—When, Sir, you entrusted to me the honourable duty of delivering this annual address, it seemed idle to suppose that I could add to the central theme, which has inspired this occasion now for more than 250 years, anything that had not been said by one or other of the long line of my predecessors in the post. But when I came to examine some of the outstanding accounts of the history of the discovery of the circulation I could not but feel that the fuller knowledge we now possess of the writings of the men of science of ancient days demanded a readjustment of traditional beliefs; we have claimed too much for the ardent anatomists of the Renaissance; we have conceded too little to the master minds of antiquity; in particular, I venture to think that the claims of Aristotle have not received their due meed of recognition.

THE WORK OF THE LATE DR. WILLIAM OGLE.

It will be consonant to the directions of Harvey's testament that I should testify to-day how great a part of our present-day knowledge of the scientific works of Aristotle is due to a late Fellow of this College, and that I should commemorate him by name. I refer, of course, to the late Dr. William Ogle. His translation of the treatise, "On the Parts of Animals," with commentary and copious annotation, were first published in 1882, and rewritten with diligent revision in 1911, when the hand of death was hard upon him. I had the privilege of discussing with him many points of his work, and I desire therefore that he, being dead, may yet speak to you through the medium of my lips. In 1897 this first essay was followed by a second dealing in similar manner with the conjoint treatises on Youth and Old Age, Life and Death, and on Respiration. Every page of these volumes is instinct with refined scholarship linked to a wide knowledge of biology. If there be any here who meditate a like venture into the by-ways of ancient science, I cannot do better than adopt the words of the great man we commemorate to-day, and exhort them to imitate this benefactor, and contribute their endeavours for the advancement of this society according to the example of this deceased benefactor. These volumes will survive as memorials of an age of British medicine in which Science and Literature walked hand in hand, side by side with a few more, of which it is meet that on this occasion I should name those monumental volumes, in which you, Mr. President, have enshrined the life-history of that great seat of medical learning, which bears the name of Harvey on its roll of honour.

HARVEY'S DEBT TO ARISTOTLE.

It has been alleged, in reproach of Harvey, that he withheld due recognition of the contributions of his immediate predecessors to the subject-matter of his discovery. It is no part of my thesis to represent Harvey as immune to human frailty: the blind eye he turned to Aselli's demonstration of the lacteals and their function forbids this. But in the matter of the circulation of the blood it is permissible to say that his indebtedness to any but Aristotle is almost negligible. The starting point and the central theme of the whole of Harvey's exposition is his conception of the heart as a muscular pump forcibly propelling the blood to the furthest limits of the vascular system, and this conception is built directly on Aristotle's doctrine of the primacy of the heart. Harvey's own quantitative estimates of the output of the ventricle at each systole supplied the single other factor that was needed to compel the conclusion that the same blood was passing time after time through the heart in the course of a circular movement. Others had set out detached fragments of the truth, but it is only when these are regarded with twentieth-century vision, wise after the event, that they become essential antecedents of the discovery. Harvey is never tired of insisting on his great debt to Aristotle in every branch of his researches; he quotes him far oftener than any other writer, and next to him Galen, largely disregarding the great anatomists of the Renaissance.

There is an interesting parallelism between Aristotle and Harvey in the circumstances of their lives; each was attached to the Court, and each enjoyed royal patronage of his work. Aristotle's father, Nicomachus, was Court physician to King Amyntas, father of Philip of Macedonia; it was probably from his father that Aristotle imbibed his taste for biology. Philip appointed him tutor to his son, Alexander the Great, and the friendship of tutor and pupil ended only at death. It was Alexander who supplied the money that enabled Aristotle to make important collections of zoological specimens, and also secured him the great variety of animals that he dissected. The Macedonian kings were no undiscriminating patrons of medical science, for both Philip and Alexander on occasion summarily put to death Court physicians who were convicted by the event of ineffectual therapeutics. Harvey likewise, as is generally known, was attached to the Court of Charles I., and acted as mentor to his sons. It was the same king that supplied Harvey from the royal herd with the does which played so useful a part in his embryological investigations. Charles's interest in Harvey's work was direct and personal; he showed keen interest in Harvey's demonstration of the *punctum saliens*, the first rudiment of the fœtal heart. He was not satisfied till Harvey had repeated in his presence the experiments by which he proved the circulation of the blood, in a very different spirit from that of Louis Quatorze, who used them to afford a fresh sensation to the jaded minds of himself and his courtiers; and everyone knows the tale of King Charles inspecting and fingering the exposed heart of Harvey's patient, the son of the Lord Montgomery, and detecting its insensitiveness. For his enlightened patronage of science and much more so of art the Stuart monarch deserves the tribute of kindly reminiscence.

ARISTOTLE'S RESEARCHES.

Aristotle, whose life extended from 384–321 B.C., was the first worker to present anything in the nature of a coherent account of the vascular system, and of the purpose it was designed to serve in the animal economy. This alone was a remarkable achievement, when we reflect that prior to him, with insignificant exceptions, the whole corpus of anatomy consisted of crude observations of some of the principal organs, gleaned from the hasty inspection of the slaughtered bodies of sacrificial animals. In assessing Aristotle's knowledge of anatomy, we must not forget that the treatises specially devoted to anatomy are lost; what a treasure-trove for some future archæologist! Aristotle himself tells us that they were illustrated by drawings, and if these were drawn, as seems probable, from actual dissections, and were not mere fanciful representations, they will have antedated by some 1800 years any subsequent similar attempt. In the absence of these treatises we are dependent in the main on such anatomical details as can be derived from his treatises on "The History of Animals" and "The Parts of Animals."

What facilities were available to Aristotle for his researches? For human anatomy none, for Greek religious feeling was wholly repugnant to the desecration of the tabernacle in which the human soul found earthly tenement. All his dissections were carried out on the bodies of animals so varied in character that he may justly be designated the Father of Comparative Anatomy. In so far as he was an anatomist, Aristotle's feet were set on firm ground to the extent that the general plan of human and animal structure is interchangeable; in so far as he was a physiologist, his feet were still embedded in the shifting sands of speculation inherited from the early Greek physical philosophers. But even here his eyes were set towards the dawn, for he did at least test the abstract speculations of philosophers by the touchstone of anatomical structure. He saw that the endeavour to explain bodily

No. 5018.

function without a knowledge of bodily structure was an idle quest, and it was in this faith that he laid well and true the foundations of descriptive anatomy, which awaited elevation to the dignity of a science at the hands of Vesalius in his *Fabrica Humani Corporis*. So with Aristotle hypothesis began to give place to understanding. Had he but realised the necessity of testing by means of experiment the inferences drawn from observation, as Galen did, he might have been acclaimed the Father of Physiology as well. Fidelity to the principles he professed saved him from the glaring and gratuitous fallacies such as the presence of air in the arteries, the origin of the veins in the liver, and the existence of pores in the septum, with which his successors, Erasistratus and Galen, obstructed the elucidation of the circulatory system, and therewith the birth of modern physiology.

A Primitive Physiological Axiom.

The problem that confronted Aristotle was a far wider one than that of which Harvey furnished the solution. The chapter of accidents that constitutes human existence was proof positive of some intimate relation between the life of a man and the blood that coursed in his vessels; when Cain shed Abel's blood upon the ground he established the axiom of primitive physiology that the blood is the life; it was manifest that warmth was inherent in the living human body, and that when warmth left the body life departed also; and that in some way or other life was dependent on the food we consume and the air we breathe. The task Aristotle set himself to accomplish was the blending of these elemental principles into a rational system of physiology, and one compatible with the anatomy of the vascular system as he knew it. Harvey was well aware that his great discovery touched only the fringe of this wider problem, for in his *De Motu Cordis* he made promise of further treatises on Nutrition and Respiration, neither of which was destined to see the light. Rightly, too, Harvey described his exposition as an anatomical exercise, and expressly stated that the question of the purpose of the circulation of the blood stood over for future consideration. The history of the discovery is like some great picture puzzle; Aristotle, with rare skill, figured out large but detached fragments of the picture, but left it incomplete; interested onlookers—Erasistratus, Galen, Stephanus, Columbus, Fabricius—picked up stray pieces, now one and now another, and laid them in their places; Harvey, by a splendid effort of genius and industry, mapped out the central theme of the puzzle, thereby supplying the key to the completion of the pattern; it was left to Aselli, who discovered the lacteals and so guided Pecquet to the discovery of the thoracic duct, and to the long line of physiologists, mainly British, who worked out in detail the physiology of respiration, to fill in the uncompleted picture.

Aristotle's Knowledge of the Structure of the Heart.

Some outline sketch of the knowledge of the anatomy of the heart and blood-vessels, derived by Aristotle from his dissections, is a necessary prelude to any attempt to appraise his value as a physiologist. But for the omission of the valves, Aristotle's description of the structure of the heart is reasonably correct. He describes the membrane around the heart, which we call the pericardium, and states that the mammalian heart has three chambers. There can be little doubt that he indicates the right and left ventricles and the left auricle, for such details as he gives harmonise with no other identification. This is the view expressed by Harvey in his *Praelectiones*, but in the *De Motu Cordis*, following Columbus and Cesalpinus, he puts forward the suggestion that Aristotle may have regarded the left ventricle as divided into two parts by the mitral valve. Right down to Harvey's time it was customary to speak of the ventricles only as "the heart"; the auricles were regarded merely as convenient ante-chambers. Aristotle, however, seems to have regarded the left auricle as part and parcel of the heart. On the other hand, he looked upon the right auricle as merely the meeting place of the two venæ cavæ, and termed the three together the "Great Vessel." His conception of the essential continuity of the three parts of the great vessel will be best understood by opening the thorax of an asphyxiated animal, when the right auricle and the two venæ cavæ will be seen to stand out replete and turgid with blood in contrast to the rest of the heart and vessels. Aristotle calls the left ventricle the middle chamber, and so, positionally, it is, lying between the right ventricle in front and the left auricle behind. He says that the great vessel is attached to the largest chamber—that is to say, to the right ventricle—and the aorta to the middle chamber or left ventricle. Again, he says that all these chambers are connected with passages leading in the direction of the lung, but that all these communications are indistinctly discernible by reason of their smallness, except one. This last is, of course, the pulmonary artery, and the two others the pulmonary veins and ductus arteriosus, though the latter is not functional normally for more than a few days after birth. Again, he says that the right cavity contains more blood and less pure than the middle and left, and this would be so in the case of a strangled animal, a mode of killing that Aristotle recommends for animals that are to be dissected. Galen scoffs at Aristotle's assertion that the mammalian heart has three chambers; he himself always describes two ventricles and assigns a very subordinate rôle to the two auricles. In the revival of anatomy, however, Aristotle's view triumphed over that of Galen, and we find anatomist after anatomist mistaking Aristotle's meaning and insisting on the existence of a third ventricle, in verbal agreement with Aristotle. To effect this it was necessary to conceive the ventricular septum to be a porous spongy structure, comparable to a ventricle, formed for the elaboration of the blood in its supposed passage from the right to the left side of the heart. This was the third ventricle of Mondino, Manfredi, Leonardo da Vinci, and others, which only disappeared from text-books of anatomy when Vesalius, following, as some will have it, the lead of Servetus, boldly declared that the septum was solid and its porosity a myth.

Aristotle felt that some explanation was necessary of the thickness of the walls of the heart, for he had no idea of the nature of muscular contraction and the energy produced in the process; he had no doubt that its purpose was to protect the innate heat which, we shall see, he conceived to reside in the heart.

The Circulation of the Blood.

Aristotle says that the chief blood-vessels are two in number, because every animal is bilateral; each arises from the heart, and all other vessels are branches of these, and carry nutritive blood to every part of the body. These two chief vessels are the great vessels, already described, which is the source of all the veins, and the aorta which is the source of all the arteries. Aristotle appears to be the first to restrict the name "aorta" to this vessel, which Diocles had called the "thick artery." Aristotle held that the blood, when endued with heat from the heart, was carried by both arteries and veins from the heart, not propelled, however, by any output of cardiac energy, to do its work in the distant parts of the body. In essence, the discovery of the circulation of the blood by Harvey consisted of a modification of this idea, whereby the blood left the heart by the arteries and returned to it by the veins.

Though Aristotle gives no specific names to either pulmonary artery or pulmonary vein, he describes them both; the former he regards as the great vessel continued back through the right ventricle, and the latter as the aorta continued back through the left ventricle. This conception is the necessary consequence of his assertion that the chief blood-vessels are two, and that all others are branches of these. It is also a reason why he gives no names to so many of the vessels he describes, because he considers them merely branches of the two to which he has assigned names; we can only identify them, as a rule, by the organ to which he accredits them. One may accurately liken the Aristotelian heart to two Higginson's syringes, with their bulbs in intimate apposition, side by side. The long tube of the one is the great vessel and its short tube the pulmonary artery; the long tube of the other is the aorta and the short tube the pulmonary vein. Between the two collateral systems there exists no communication whatever.

In his *De Partibus Animalium*, Aristotle roughly sketches the superior vena cava as passing up towards the brain, and terminating in branches in its membranes. He regards it merely as an upward extension of the great vessel. But in the *Historia Animalium* he gives a much fuller, and reasonably correct, description of its innominate and jugular tributaries. Similarly he describes the aorta as terminating in its upward extension in branches supplying the membranes of the brain. Though the whole of the anatomy of the vascular system as given by Aristotle is full of interest, despite its inaccuracies, it is beside the present purpose to describe the branches he assigns to each of his two chief vessels. It is necessary, however, to give a thought to the breach of continuity which he leaves between the pulmonary arterioles and venules in the lung and the systemic arterioles and venules in the rest of the body, for until these gaps were bridged no demonstration of the circular movement of the blood was possible. Harvey, indeed, did not demonstrate the circulation, for he was in his grave when the movement of the blood through the capillaries was first made visible to human eyes. What he did was to establish by the strongest experimental evidence the certainty of the movement of the blood in a circle.

The Germ of the Modern Doctrine of Respiration.

Aristotle's description of the anatomical distribution of artery, vein, and bronchus in the lung not only bears witness to the meticulous care of his dissection, but implicitly it formulates the germ of the modern doctrine of respiration, in so far as the air is said to reach the blood through the unbroken walls of blood passages and air passages. "Canals," he says, "lead from the heart into the lung and branch off, just as the windpipe does, running all over the lung parallel with the passages from the windpipe. The canals from the heart are uppermost; there is no actual coalescence of the passages, but by their close contact they receive the air breathed and pass it on to the heart; and one of the passages conveys it to the right chamber of the heart, and the other to the left." The admission of air from the lung to each side of the heart by way of both pulmonary artery and pulmonary veins is a necessary consequence of the complete separation of the two sides of the Aristotelian vascular system. Aristotle has no use for this inspired air beyond the limits of the heart, and returns it to the lung by the self-same channels of entry as soon as it has done its work in the heart. Erasistratus and Galen, however, both retained some part of the air for further use in the body. To appreciate the pulmonary physiology of the ancients it is important to bear in mind that they thought and wrote of the lung as single, if bipartite; not as we do, as double.

As in the pulmonary so in the systemic system. Aristotle suggests no communication, direct or indirect, between arteries and veins; he does not even postulate distal anastomoses between them, as his immediate successors do; yet he does vaguely foreshadow the existence of capillary vessels, which were not observed and described till 2000 years later by Malpighi. "As the blood-vessels advance," he says, "they become gradually smaller and smaller, until at last their tubes are too fine to admit the blood." And again: "The smallest vessels are converted actually into flesh, though potentially they are no whit less vessels than before. This explains why, so long as the flesh of an animal is in its integrity, blood will flow from any part whatsoever that is cut, though no vessel, however small, be visible in it. Yet there can be no blood unless there be a blood-vessel."

The Vital Principle in the Heart.

For reasons that seemed good to him, and which, viewed by the standard of the knowledge of his time, were by no means unreasonable, Aristotle located the vital principle in the heart. By it the heat, constantly generated in the heart from combustion of food carried to it in the blood, is so vitalised as to afford nutrition and functional activity to the body. Without heat all the functions of the body are in abeyance, and life is impossible. He traces the origin of the blood to the fluid portion of the food absorbed by the blood-vessels from the intestine through invisible pores; the fluid passes in the form of an ichor or plasma to the heart. The route by which it passes is the mesenteric vessels, the arteries conveying it to the aorta and left side of the heart, and the veins to the right side of the heart by way of the portal vein and inferior vena cava.

Just as the absence of any communication, direct or indirect, between the two sides of the Aristotelian heart necessitated the admission of air to both side by pulmonary artery and veins alike, so now food ichor is admitted to both sides of the heart also. The venous channels clearly are the mesenteric tributaries of the portal vein, for Aristotle describes them as spread over the surface of stomach and intestine, like the roots of a plant, a life-like picture of the portal tributaries that will command itself to every anatomist. The hepatic vein he regards as a continuation of the portal vein, for he speaks of a short and wide branch of the great vessel, or vena cava, that runs through the liver. Under the heating influence of the heart the ichor is converted into blood, which is the material from which the whole body is made. This same heat induces expansion of the blood in the heart and lifts up its muscular containing wall, and so excites its pulsation. This elaboration of heat within the heart is not only the cause of the heart beat, but is also the cause of the respiratory movements, for heat derived from the heart causes the lung, and with it the thorax, to expand, so that the air rushes in and reduces the heat, whereupon lung and thorax collapse and expire the air. Such is the mechanism of respiration, and its purpose is to temper the heat of the heart, which threatens ever to become excessive; thus is equilibrium of body temperature automatically regulated. The food is the means of maintaining the heat of the heart and the body, and the air inspired is the means of keeping it within physiological limits. Diastole is the expansion of the heart caused by the combustion of food ichor within it, and systole is the subsidence resulting from condensation of the heated blood by the inspiration of cool air. Thus pulsation of the heart is a mere by-product of metabolic changes occurring within its cavities. Diastole and systole do but represent the alternating interplay of thermogenesis and thermolysis, and rhythm is the expression of the regularity of these phenomena. Pulsation is maintained continuously throughout life, because the influx of expansible food ichor into the heart and the ingress of cool air are also continuous.

Diastole an Essential Prelude of Systole.

To modern ears, wise with the wisdom of knowledge revealed, such physiology may seem archaic balderdash; for all that Harvey, to the end of his days, deviated no more than a hair's breath from the standpoint of Aristotle. Like him he conceived diastole to be an essential prelude of systole. At the entrance of the vena cava into the right auricle, just, in fact, where Keith and Flack located the sinus node, Harvey conceived a sudden expansion of the inflowing blood to take place, under the influence of its own innate heat, for late in life he transferred the seat of the innate heat from the heart to the blood itself. In his view this sudden expansion of the blood excited expansion of the right auricle in diastole, and diastole was the efficient stimulus of systole, which was no more and no less than a simple muscular contraction. To Aristotle, who knew nothing of the nature of muscular contraction, systole was, as we have seen, a passive subsidence due to condensation of hot blood in the heart by the cool air inspired; Harvey rejected the last vestige of passivity and established systole as the motor power activating the circulation. To Aristotle the heat of the blood in the heart, alternately increased by consumption of food ichor and decreased by entry of cool inspired air, is the efficient cause of pulsation; to Harvey the innate heat of the blood just before it enters the heart. It is strange that Harvey, who was well aware that the excised heart may maintain its pulsation, and who demonstrated on the exposed heart of the snake the effect of compression of the vena cava in emptying the still pulsating heart, should have adhered to this idea of expansion of the blood, which his own experiments negatived. All men have blind spots in their field of mental vision, and the reasonable remedy would seem to be that research workers should hunt in pairs or in packs.

Following Aristotle, Harvey at first conceived that the purpose of the passage of blood through the lungs is to reduce its heat. Aristotle effected this reduction of heat within the heart; he knew that air was essential to the maintenance of a flame, and he conceived that it acted by cooling the flame, so that it did not burn itself out precipitately. Similarly the inspired air hindered the innate heat of the heart from causing its own destruction. Galen accepted Aristotle's teaching thus far, but in addition to its cooling function held that some of the air inspired is retained in the blood and has important functions to perform in the general economy of the body. Harvey, however, reverted to the simpler teaching of Aristotle, and thereby moved further away from the modern doctrine of respiration. Late in life Harvey rejected the cooling theory as well, and frankly confessed himself at a loss to explain the purpose of respiration. It remained for Borelli, Boyle, Hooke, Lower, Mayow, Black, Priestley, and Lavoisier by successive stages to attain this goal. I commend this list of names to those who have no pride in British achievements in scientific research.

It is matter for surprise that so keenly observant a mind as that of Aristotle should have overlooked the different rate of the pulse-beat and respiration, which cuts at the root of his doctrine of the synchronous expansion of heart and lung. On that point his treatise on "Respiration" is silent; but we cannot presume that he tacitly conceived a greater degree or a fuller supply of heat to be necessary to cause expansion of the lung than to cause expansion of the heart, for he makes it clear that in his view subsidence of the heart at each systole depends on the inrush of cool air during inspiration.

To Aristotle, then, the heart is a bellows, not a pump, and diastole is the active phase, not systole. Right down to Harvey, suction not propulsion was regarded as the essential activity of the heart. This necessarily precluded any satisfactory explanation of the arterial pulse, which Aristotle referred to the movements of the blood in the heart transmitted to the blood in the arteries, diastole of the heart synchronising with diastole of artery. If we would understand his physiology we must purge from our minds any conception of the heart as a muscular organ propelling the blood; we must think of it rather as a laboratory, introduced into the vascular system, within which food and air play their respective parts in maintaining the vital heat in such a state of stable equilibrium as is most suitable to the requirements of the body.

The Primacy of the Heart.

Such, then, were the foundations in anatomy and physiology on which rested the Aristotelian doctrine of the primacy of the heart. Its dominating position, too, in the centre and forefront of the body seemed to mark it out as its acropolis, and his observations of the developing embryo assured him that it was the first organ to be formed, preceding even the appearance of the blood. In his earlier work Harvey followed obediently the lead of Aristotle, but in his later years transferred both the primacy and the seat of innate heat from the heart to the blood. This doctrine had found favour in Greece before the time of Aristotle, but he himself expressly repudiates it, for his observations seemed to show beyond question that the heart was the first part to live and the last to die. Indications are not wanting that even in his early years Harvey halted between the heart and the blood, and it was Aristotle's dictum that inclined him to declare for the heart; but his bosom's lord sat lightly in his throne, till his own researches in embryology and his own observations of the dying heart led to its ultimate dethronement in favour of the blood. Harvey fancied that he had perceived a residual flicker of movement in the blood after the substance of the heart was dead; had he referred this movement to its real cause he would never have strayed from the Aristotelian fold.

The primacy of the heart among the organs of the body was of first importance as the starting point for a rational explanation of the circulatory system, for it established the position of the heart as the source of the blood-vessels. Before Aristotle the Hippocratic School had asserted their origin in the head, and Galen's first master, Pelops, sustained this belief. It was a sad falling away from the standpoint of Aristotle when Erasistratus and Galen referred the origin of the veins to the liver.

The Vascular System as an Irrigation Supply.

Aristotle had no notion of the movement of the blood in a circle, though he believed that it supplied nutriment to every part of the body. Following the lead of Plato, he looked on the vascular system as an irrigation supply, and compared it to "water-courses in gardens, so constructed as to distribute water from one single source or fount into numerous channels, which divide and subdivide, so as to convey it to all parts." He conceived the main flow of blood to be from heart to blood-vessels, and so to all parts of the body, where much of it was used up; but he admits flow in the opposite direction also, for he says that the heart received blood both from the great vessel and the aorta; what was used up at the far end of the blood-vessels in the needs of the body was restored to the heart by the food ichor conveyed to it. The continuous supply of ichor, derived from the intestine, to the heart would seem to demand a continuous current in the mesenteric veins and arteries towards the heart; on the other hand, the needs of nutrition postulated a current in the opposite direction from the heart towards the stomach and intestine. So keen a mind as Aristotle's must have envisaged this contradiction, and one can only imagine that he conceived something in the nature of a general diffusion to take place. Galen faced the difficulty squarely, and cited as a parallel occurrence the flow of bile in opposite directions in the cystic duct. Harvey, who still, however, in spite of Aselli's demonstration of the lacteals, believed in absorption of chyle by the portal radicles, triumphantly removed the difficulty by showing that the blood left the heart by one set of vessels and returned to it by the other.

At times Aristotle lends himself to the belief of an alternating flux and reflux in the blood-vessels, in accordance with the teaching of Empedocles, who, two centuries before him, had laid it down that "it is the nature of blood to move backwards and forwards." Aristotle compares the blood flow to the current in the Strait of Euripus, which sets once a day in each direction; the ebb and flow of the tide is translated from the macrocosm to the human microcosm. He gives us no idea of what he conceived to be the motive force, but was satisfied with the fact that such a to-and-fro current did demonstrably occur in nature within his own experience. These more extensive movements of the blood must not be confounded with the local movements induced by diastole of the heart and its ensuing systole; they are smaller movements, as it were, within these larger movements.

To us who know that, under the impetus of the ventricular systole, blood flows from where the pressure is high to where the pressure is low, the conception may seem puerile; but in the absence of that knowledge and in the presence of spontaneous movements in the arteries, which seemed for all the world like the progress of a tidal wave, it was not unnatural to conclude that the movement was of the same nature as the ebb and flow of the tide. In our evaluation of the scientific ideas of antiquity we must beware of confusing ignorance—which is the common lot of mortals—with stupidity, which Nature, in regard for human progress, has wisely distributed on a basis of selection. It is as difficult to assume the mental attitude of 2000 years ago as it is easy to relapse into one that is 20 years behind the times. To men who had been accustomed to regard the tissues as lapping leisurely at the nutrient blood the very idea of the rapid movement of the blood in a circle would have seemed as irrational as the antics of a puppy dog in hot pursuit of its own tail round a flower-bed. Just as it was incomprehensible to Aristotle, so it was unintelligible to Harvey, even when he had established its existence. So imbued was Harvey's mind with the thoughts of his predecessors in antiquity that the very rapidity of the circulation convinced him that its purpose could not be the nourishment of the tissues.

Aristotle's Belief in Two Kinds of Blood.

Aristotle was aware that the blood differed on the two sides of the vascular system, but he had no notion of the cause of the difference; naturally, therefore, he concluded that there were two kinds of blood. He describes the blood on the right side as more abundant, less pure, and denser than on the left. No doubt he derived this belief from finding the venous side of the circulation charged with dark blood in the bodies of the strangled animals that he dissected. His belief in the complete separation of the two sides of the vascular system precluded any idea of the difference being due to the action of inspired air on the blood, for it compelled him to admit air to both sides of the heart by pulmonary artery and vein alike. The cause of the change was not known till after Harvey's time; indeed, the difference of the blood on the two sides of the circulation was used as an argument against Harvey's doctrine of a rapid circular movement, for it seemed incredible that the same blood should be constantly changing from one state to the other.

THE TEACHING OF ERASISTRATUS.

Passing from Aristotle to Erasistratus, we quit the clear crisp air of Hellas, that lent to Hellenic thought full measure of its own clarity, for the heavy exotic atmosphere of Lower Egypt, in which men seemed to see the truth as it were through a glass darkly.

In Erasistratus is focused the contribution of the great Alexandrian school to the knowledge of the vascular system. His lifetime is vaguely assigned to the 85 years between 330 and 245 B.C. Born on the island of Ceos, it is uncertain where he received his medical education, but probably most of his anatomical work was carried out at Alexandria, for there alone existed facilities for the dissection of the human subject such as his knowledge attests; there he must have imbibed to the full the scientific teaching of Aristotle. Celsus and Tertullian have branded him as a dissector of living criminals, and Galen has fallen under the same imputation, though his dissections were almost, if not entirely, confined to animals. Even in Alexandria Greek religious sentiment retained its repugnance to human anatomy, so that the practice soon died out, even in the place of its first flourishing. If Erasistratus had ever dissected a criminal alive, it is difficult to believe that he would have described the arteries as containing only air.

The only real contribution of Erasistratus to the anatomy of the vascular system is his description of the auriculo-ventricular valves of the heart and chordæ tendineæ; the semilunar valves had been already described in the "De Corde" of the Hippocratic Corpus. Erasistratus also pointed out the mode of closure of the valves and its purpose, but so wedded was he to belief in flux and reflux of the blood stream that he is constantly compelled to ignore their competence. Unlike Aristotle, he believed the whole of the food to be absorbed from the intestine by the portal vein, which carried it to the liver for conversion into blood. He stood on the brink of a great discovery, for he described the lacteals in sucking kids but believed them to be mesenteric arteries.

Erasistratus's Vascular Anatomy.

It is wellnigh impossible to gather together a complete account of the teaching of Erasistratus, for knowledge of his work is derived almost entirely from excerpts of Galen and other authors, so that lacunæ are inevitable, but clearly he regarded the liver as the starting point of the blood stream. From the liver the blood pursued in the main the route of the venæ cavæ and their tributaries to the most distant parts of the body, but in its course a portion passed on into the right ventricle, and thence, by the harmonious coöperation of tricuspid and pulmonary valves, was guided to the lung. Flux and reflux in venæ cavæ and their branches, flux and reflux between right ventricle and lung—that was his conception of the distribution of the blood, a distribution, too, confined exclusively to the veins. Side by side with this sanguineous circulation in the right side of the heart and veins is a circulation of spiritualised air or pneuma in the left side of the heart and arteries. The mistake of Erasistratus in making the arteries carriers only of air—a mistake which he is said to have inherited from Praxagoras of Cos—was the outcome of a correct observation incorrectly interpreted. Just as Aristotle had been impressed by the fullness of the veins after death by asphyxia, so Erasistratus was impressed by the emptiness of the arteries, and he seemed to find confirmation of his belief in the close anatomical relationship of the bronchi and branches of the pulmonary vein, from which he inferred that they were in actual open communication. Erasistratus discarded the Aristotelian belief in the cooling function of respiration, and propagated one more in harmony with modern physiology, that the inspired air is, in part, retained and has important duties to perform in the most distant parts of the body. This would have been a notable advance but for his absurd separation of the blood and the air in veins and arteries respectively. Most of the air, or pneuma, drawn in in inspiration through the trachea passes from the extremities of the bronchi in the lungs by direct communications into the pulmonary veins, whence it reaches the left ventricle, and is distributed by the aorta and its branches, the arteries or air-carriers, to all parts of the body. The simple primitive pneuma (πνεῦμα ζωτικόν, or vital spirit) animates all vital processes throughout the body, but in the process of respiration it undergoes also in the left ventricle a peculiar refining, with formation of soul pneuma (πνεῦμα ψυχικόν, or animal spirit), which is carried in the arteries to the brain, and there, by the agency of the emergent nerves, produces motion and sensation. To Erasistratus the purpose of respiration is the spiritualising of the pneuma and its carriage into the arteries; the pulsation of the heart is due to expansion of the pneuma in presence of the innate heat of the heart, on the principle of an internal combustion engine. Like Aristotle, he had failed to detect the different rate of respiration and the pulse. The surplus air is returned from the lung and discharged by the mouth and nostrils. Erasistratus attributed different properties to blood and pneuma; blood is the prime constituent of the organs and sustains the simple vegetative processes of living bodies, but all the higher functions depend on the activity of pneuma.

Conflicting Opinions.

So much for the vascular anatomy of Erasistratus, but Erasistratus the anatomist finds himself in conflict with Erasistratus the surgeon, whose experience has taught him that when an artery is severed blood flows from the wounded artery. To meet this discrepancy the anatomy of the body calls for revision, so the terminations of the arteries are made to anastomose with the terminations of the veins by little communications which, under normal conditions are closed, but in the case of a wound of the artery become open. This he attributes to the escape of pneuma or air from the arteries, whereupon, in abhorrence of a vacuum, blood passes over from veins to arteries and streams out of the wound. His suggestion of anastomoses between veins and arteries is not prompted by observation or experiment, but by the necessity of bolstering up an indefensible theory. It is matter for regret that the exotic term "pneuma" should have been adopted into English diction, for it represents primarily simply the inspired air. Viewed thus the physiology of Erasistratus is simplicity itself; the air we breathe passes directly from the bronchi by the pulmonary veins into the left ventricle; there it undergoes some subtle refinement before it is distributed by the arteries to all parts of the body, enduing them with function, just as the blood affords them life and the faculty of growth.

GALEN AS A MEDICAL ENCYCLOPÆDIST.

After Erasistratus, Galen. His anatomy was based almost exclusively on dissection of animals, living or dead. On rare occasions he had the good fortune of a hasty inspection of a human body, some dead highwayman, some victim of the arena, some decomposing body washed up on the river bank. In Alexandria the human skeleton was set up for demonstration, and disused burial grounds yielded up their bones to him, as they did to Vesalius. Like Harvey, Galen had on one occasion the opportunity of watching the movements of the heart in a living boy, who as the result of an accident had his heart exposed to view.

We shall understand Galen best if we think of him as a medical encyclopædist bent on gathering up into one all-embracing system all the lore of all his scientific predecessors: the Hippocratic school, Aristotle, and Erasistratus meet and blend in him. He likened the portal vein and its tributaries to the roots of a tree, of which the inferior vena cava is the trunk and the systemic veins the branches. Just as the roots of a plant attract nourishment from the soil, so the roots of the portal vein attract food chyme from the intestine and stomach and conduct it to the liver, whence it passes to the right side of the heart. But in the liver the chyme is transformed into blood and endowed with natural spirit (πνεῦμα φυσικόν); this low-grade blood is only adequate for *nutrition*, and the veins are the channels by which it reaches its destination. The blood from the liver, as soon as it reaches the inferior vena cava, divides into an upward and a downward stream. The latter passes by the descending part of the cava and its branches to the lower part of the body; the former passes up to the right auricle and there divides into two, part continuing its upward course by the superior vena cava to the upper part of the body and head and part passing into the right ventricle. Here, under the influence of the innate heat of the heart, some purification is effected, and the fumes or sooty excreta pass through the pulmonary valves to the lung and are voided in expiration. From the right ventricle a stream passes by way of the pulmonary artery to the lung, giving nutrition to it, a very small amount finding its way from pulmonary arterioles to pulmonary venules by way of their mutual anastomoses. Yet another moiety filters by innumerable invisible pores through the muscular septum from the right ventricle to the left; these pores are seen with difficulty in the dead body, because the heart muscle, being then cold, is stiff and hard; still, reason assures us that they are there. In the left ventricle this blood is mixed with air drawn in from the lung by the active traction of ventricular diastole by way of the pulmonary vein, and undergoes concoction under the influence of the innate heat and engenders vital spirit (πνεῦμα ζωτικόν).

The heat is kept from becoming excessive by the cooling influence of the air drawn into the ventricle; this, indeed, is the main purpose of respiration, and when the air has effected this it is returned again to the lung. This higher-grade blood charged with vital spirit undergoes an ebb and flow, in part by way of the pulmonary vein between the left ventricle and the lung, the imperfect closure of the mitral valve permitting this and also allowing the escape of waste fumes, and in part by way of the systemic arteries between the left ventricle and the most distant parts of the body, endowing them with *function* Within the brain it engenders animal spirit (πνεῦμα ψυχικόν = breath of the soul): this subtle essence, distilled as it were from the blood, is carried outward from the brain by the nerves, initiates motion and sensation, and subserves the *highest functions* of the organism.

An Anatomical Error.

Such in outline is the ground plan of Galen's physiology of the vascular system; his belief in the existence of permeable foramina in the septum of the heart, borrowed seemingly from the post-Hippocratic school, placed one more obstacle in the way of the elucidation of the circulation. The belief was not a mere gratuitous figment in an age when dissection was almost exclusively confined to the lower animals. The heart of the amphibious frog has but one ventricle, and the reptiles afford numerous instances of incomplete division, the complete septum being constantly found not till we reach the bird level. Again, patent foramen ovale is constant in the human fœtus and not rare throughout life, while minute defects, such as to permit the passage of a bristle, are common. Such conditions as these may well have lent a semblance of likelihood to a false anatomical preconception.

As against this capital anatomical error we must set to the credit of Galen his reiterated assertion of the existence of anastomoses between the terminal ramifications of arteries and veins, both systemic and pulmonary. The bridging of these gaps, speculatively at least, was a condition precedent to the discovery of the circulation. Erasistratus had stood sponsor for potential anastomoses, those of Galen are actual, and he claimed to have proved their existence experimentally, by showing that it was possible to drain all the blood out of the body by a wound in a single artery. He explains exactly how the interchange of arterial and venous blood takes place, diastole of the artery drawing blood out of the vein and systole letting it back.

A Step towards the Discovery of Pulmonary Circulation.

As in the systemic system, so in the pulmonary, Galen asserts the existence of anastomoses, by which some small amount of the blood brought by the pulmonary artery to the lung finds its way directly into the pulmonary veins and so into the left ventricle. He was confirmed in his belief by the consideration that the pulmonary artery is far larger than would be necessary if its purpose were merely to give nourishment to the lung. The mechanism of transference he explains thus:—

> When the thorax contracts the pulmonary veins within the lung are driven in and compressed on every side, and force out very speedily the inspired air that is in them, and at the same time take up a certain amount of blood by these tiny communications. Now this could never happen were the blood able to flow back into the heart through the orifice of the pulmonary artery. But its return through this great opening being prevented, a certain portion of it distils into the pulmonary veins by the minute orifices mentioned.

Thus Galen, building on anatomical foundations laid by Aristotle, made one step onward towards the discovery of the pulmonary circulation, though he shows no sign whatever of understanding its fundamental importance. In effecting this pulmonary transit of a small quantity of blood, Galen makes its clear that the motive power is derived from thoracic compression of the pulmonary vessels, and not from the muscle of the right ventricle; indeed, he decides definitely that the heart wall is not muscular.

Galen is well-nigh as vague as Aristotle as to the source from which the blood derives its motion; sometimes he asserts the movement and seems to regard explanation as superfluous or impossible; at another time he seems to regard alternating diastole and systole as the efficient cause of flux and reflux, not only locally, but throughout the vascular system. Inconsistencies are frequent in Galen's physiology, because he does not hesitate to manipulate it so as to establish a thesis; but we shall not condemn him overmuch if we bear in mind how few years separated him from the time when the whole of physiology was armchair speculation.

If Galen had not decided that the heart was not muscular he might well be acclaimed the first exponent of the myogenic theory of its activity, for he locates the stimulus to activity in the heart itself; he attributes to it an inherent tendency to pulsate (δύναμις σφυγμική), which is equivalent to saying that the heart pulsates because it pulsates. It was impossible for him to refer the cause of the heart beat to the blood, as Aristotle had done, for he knew that rhythmic activity may persist for a while in the excised mammalian heart; he was driven, therefore, to make it inherent in the heart. It cannot be said that even now we are provided with a much more satisfying answer, though splendid additions have been made in recent years to our knowledge of the site of origin and the route of propagation of the impulse through the heart, mainly by the work of Gaskell, Kent, Keith, and Flack, who have worthily maintained the pre-eminence won by Harvey for this country in the domain of the physiology of the vascular system. In recognising the primacy of the right auricle, as the first part to live and the last part to die, they were following in the footsteps of Galen, though for the auricles generally Galen had scant respect, regarding them as introduced into the vascular system as a provision against the too violent strain of ventricular diastole on the veins that open into them. Galen also knew that contact with cold water tended to arrest pulsation.

Galen performed just the same experiment as Harvey in opening the pericardium and observing the movements of the heart, but failed entirely to draw the same conclusions as to the orderly sequence of movements in the various chambers of the heart; he did not even perceive that auricles, like ventricles, have both a systole and a diastole.

Galen proved by a vivisection experiment that Aristotle was right in saying that the arteries contained blood and not air. He placed two ligatures upon an artery and divided the vessel between them, when it was found to contain only blood; corroboration was afforded by plunging a cannula into the left ventricle, when blood flowed out instantaneously without any escape of air.

A Good Story.

Galen tells a delightful story of such a demonstration of the presence of blood in the aorta, which shows incidentally that the medical student has remained true to type for some 1800 years. Some ignorant anatomist repeatedly promised to demonstrate that the aorta contained no blood, but never got beyond promises, though Galen's students brought him animals and begged him to show them; the man, however, took refuge in demanding payment for the task. Thereupon the young men put down between them some 1000 denarii, for him to pocket if he was successful, but this only produced a further crop of excuses. At last, however, their persistence prevailed, and he summoned up courage to take a scalpel and open the left side of the chest, where he fancied he would get the best view of the aorta, but he exposed his ignorance of anatomy by cutting down upon a bone. Then the young men, who had tabled the stakes, jeered at him, and undertook to carry out his demonstration for him. Opening the mediastinum, as they had seen Galen do, without wounding any of the vessels, they quickly passed two ligatures round the aorta, one near its origin from the heart and the other close to where it meets the spine; then they confidently promised that when the animal was dead, they would show that the part between the two ligatures contained no blood. But lo! and behold! when it was opened, there was blood in the vessel.

An Address
ON
HYSTERIA
IN THE LIGHT OF THE EXPERIENCE OF WAR.

Delivered before the American Neurological Association at Atlantic City, June 17th, 1919,

BY ARTHUR F. HURST, M.A., M.D. OXON., F.R.C.P.,
LIEUTENANT-COLONEL, R.A.M.C.; PHYSICIAN AND NEUROLOGIST TO GUY'S HOSPITAL, LONDON.

MR. PRESIDENT AND GENTLEMEN,—The war afforded an opportunity of investigating hysteria in men such as had never occurred before. The lessons we have learnt can be applied to the elucidation of many of the problems presented by the hysteria of civil life. In my remarks this morning I shall attempt to explain the new conception of hysteria which I have been led to adopt as a result of three years of intensive study of the war neuroses.

I shall begin by proposing to you a new definition of hysteria.

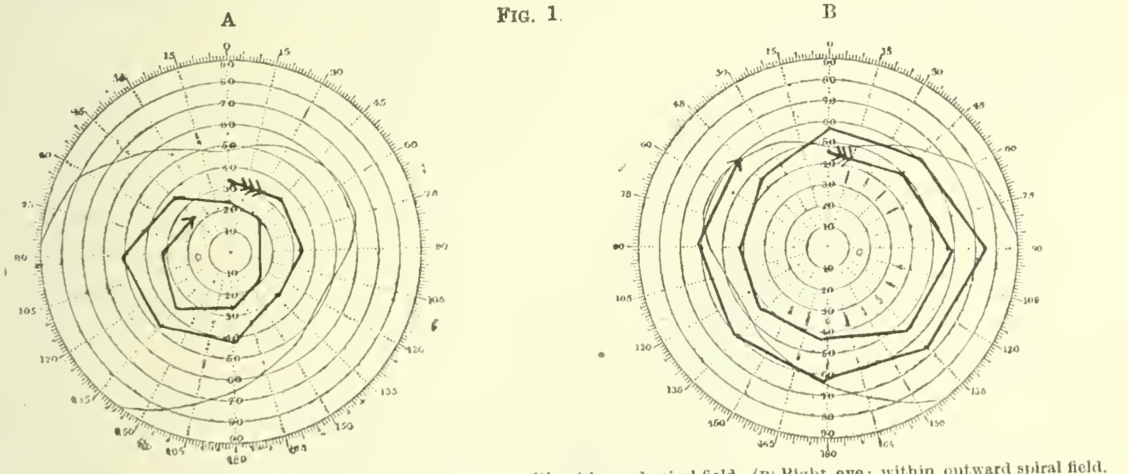
Hysteria is a condition in which symptoms are present which have been produced by suggestion and are curable by psychotherapy.

This definition differs from all others in not recognising an hysterical condition apart from the presence of definite hysterical symptoms. Charcot believed that hysteria manifested itself in two ways: by the symptoms which were obvious to the patient and about which he complained, and by physical and mental stigmata which were present before the obvious symptoms appeared, and which persisted after their removal.

PHYSICAL AND MENTAL STIGMATA AS ARTEFACTS.

A characteristic feature of the physical stigmata he described, the chief of which were certain forms of anæsthesia and narrow fields of vision, was that the patient never complained about them and did not, indeed, become aware of their existence until they had been demonstrated to him by the physician. Babinski showed that this was due to the fact that they did not exist until the physician found them, as they were actually produced by him unconsciously in the course of his examination. In a series of 100 consecutive cases of hysteria, which he examined in such a way that no suggestion could occur, neither anæsthesia nor a narrow field of vision was ever found.

FIG. 1.



Spiral fields in case of hysterical mutism and tremor. (A) Left eye: without inward spiral field. (B) Right eye: within outward spiral field.

My investigations carried on during the past 12 years entirely confirm Babinski, and we have recently extended our observations still further. A spiral field of vision has often been described as even more characteristic of hysteria than the simple narrowed field described by Charcot, which Babinski proved was only the result of the suggestion involved in using a perimeter. When, after the first examination of the field was completed, second and third examinations were made without interruption, the field was found to become steadily smaller, this being due, it was supposed, to the abnormal fatigability in such cases. Major J. L. M. Symns and I[1] found, however, that it was simply due to the method commonly used, in which the white disc of the perimeter is brought from without inwards at each examination. When it was moved in the opposite direction an outward spiral instead of an inward spiral field was obtained, the field becoming steadily larger until it reached the normal instead of becoming steadily smaller. By varying the method used it was possible to obtain an inward spiral with one eye and an outward spiral with the other (Fig. 1), or an inward spiral followed by an outward spiral with the same eye.

Accurate measurements made with J. L. M. Symns proved also that the supposed pharyngeal anæsthesia of hysteria is a fallacy,[2] and that the percentage frequency of deficient, average, and increased sensibility is exactly the same in patients suffering from hysteria, and even from such hysterical symptoms as aphonia and mutism, as in normal individuals.

The areas of cutaneous anæsthesia which have been regarded as characteristic of hysteria were shown [3] to be simply those areas which an average layman would expect to be anæsthetic if he were paralysed, and which would therefore be likely to develop directly he is questioned on the subject and his cutaneous sensibility is investigated.

Having disposed of the physical stigmata of hysteria, it now becomes necessary to examine the mental stigmata. A study of the literature reveals a great diversity of opinion as to their nature. The stigma which is accepted by the largest number of writers, and which is the only one accepted by Babinski, is abnormal suggestibility. But our investigations have proved conclusively that, although abnormal suggestibility renders a man unusually prone to develop hysterical symptoms, there is no one who is so devoid of suggestibility that he may not develop them if the suggestive influence is sufficiently powerful. Whether a given individual will develop hysterical symptoms under given conditions depends upon the degree of his suggestibility and the strength of the suggestion. It is clear, therefore, that abnormal suggestibility is simply a predisposing factor, and is no more a part of hysteria than a tuberculous family history is a part of tuberculosis. Many cases of gross hysterical symptoms occurred in soldiers who had no family or personal history of neuroses, and who were perfectly fit until the moment that one of the exceptionally powerful exciting causes, such as occur comparatively rarely apart from war, suggested some hysterical symptom; and after its disappearance as a result of psycho-therapy the man was once more perfectly fit, and his subsequent history showed that he remained no more liable than any of his companions to develop new symptoms.

SUGGESTIBILITY OF THE NORMAL INDIVIDUAL.

The following experiments made with Major J. L. M. Symns and Dr. R. Gainsborough [4] show how unexpectedly suggestible the average normal individual is. We examined 28 men who were perfectly healthy and suffering from no kind of nervous disorder, but who were attending an aural out-patient department for deafness, which was either unilateral or more severe in one ear than the other. Both ears were lightly touched, sometimes by ourselves, sometimes by others who did not know what we were investigating, and the men were then asked which side they felt more clearly. Eighteen replied at once that the ear in which the hearing was less impaired was more sensitive to touch than the other; the hysterical anæsthesia which had been suggested by this simple examination was so marked in one case that the man was seen a few minutes afterwards putting a pin through the lobe of his ear to amuse his companions. In 1859 Briquet stated that hysterical deafness is associated with anæsthesia of the external ear, and this has ever since been regarded as an almost constant phenomenon, which was supposed to help in the diagnosis of hysterical from organic deafness. The experiment just described throws light on the origin of this deeply rooted fallacy.

As soon as it is recognised that, although certain mental stigmata predispose to the development of hysteria, they are not themselves a part of hysteria, it becomes obvious that many cases of hysteria will be missed if it is only looked for in so-called hysterical individuals. When, on the other hand, it is remembered that there is nobody who may not develop hysteria if the provocation is sufficiently great, it must follow that hysteria is infinitely more widespread than has generally been supposed.

HYSTERIA FOLLOWING TERROR.

In the majority of cases very little difficulty is experienced in discovering the nature of the suggestion which gives rise to hysterical symptoms. The chief varieties seen in soldiers may be taken as examples, though each has a much wider application to the hysteria of civil life. In the first place there are the symptoms which follow the condition of fear. Extreme terror gives rise to certain very familiar physical symptoms, the individual becoming shaky, "paralysed with fear," and unable to speak—"his tongue cleaves to the roof of his mouth." Under ordinary conditions the cause of fear is momentary, and the physical results disappear in a few seconds. But during a heavy bombardment a man often remained terrified for hours together. If the tremor, inability to move the legs, and speechlessness, persisted all this time, it was natural that these symptoms of fear, which were not in any way hysterical, should so greatly impress the soldier's mind that the idea of a permanent condition of tremor, paraplegia, and mutism suggested itself to him, with the result that when the original emotion had disappeared its physical expression persisted as hysteria.

In the first two years of the war cases of this kind were given the unfortunate name of "shell shock" in the belief that they were organic in origin and due to actual concussion caused by the explosion of powerful shells. Consequently no attempt was made to cure them by psycho-therapy, and the treatment by rest and sympathy helped to perpetuate them; this unfortunate result was increased by the use of the words "shell shock," which gave the patient the idea that he was suffering from some new and terrible disease. When at last the true nature of the condition was recognised, it was found that psychotherapy not only resulted in the immediate disappearance of the symptoms, when they were treated in the special advanced hospitals opened for the purpose by the British and French, and later by the Americans, but cases of two and three years' standing were also frequently cured at a single sitting in hospitals in England, such as Seale Hayne. Although this form of hysteria was not common in neurotic individuals, a large proportion of the cases treated within the first 48 hours recovered so completely that they were able to return to the fighting line and showed no tendency to relapse. A few of the cases which had persisted for many months before coming under treatment could not return to France, but such men were always able to go back to their old civil occupation and often had no underlying mental condition requiring further treatment, although in some cases the hysteria was associated with neurasthenia or psychasthenia, or both. Indeed, many patients at once lost such symptoms as headache, depression, insomnia, and nightmares, which had troubled them for months, or even years, directly the obvious physical symptoms, such as mutism or stammering, tremor, and paraplegia, were removed by explanation, persuasion, and re-education.

HYSTERIA FOLLOWING GASSING.

The second great group of hysterical symptoms in soldiers resulted from gassing. The irritation of the eyes, throat, and stomach caused conjunctivitis, laryngitis, and gastritis, the latter being due to the swallowing of saliva in which the gas was dissolved. The pain caused by the conjunctivitis induced the patient to refrain from opening his eyes with his levator palpebræ superioris; if, however, he tried to open them his attempt was frustrated by a reflex protective spasm of his orbicularis palpebrarum. Under ordinary conditions the conjunctivitis had improved sufficiently at the end of three weeks for the eyes to be opened without difficulty, but if the patient was led to fear for his vision on account of previous weakness of the eyes, the previous loss of one eye, as in two of our cases, or too prolonged treatment with local applications, bandages, dark spectacles, or eye-shades, the voluntary inhibition of the levator might be perpetuated as hysterical ptosis and the reflex spasm of the orbicularis as hysterical blepharospasm. As the uneducated layman associates the idea of blindness with inability to open the eyes many of these patients thought they were blind. Consequently when they were taught to open their eyes it was found that they could only see indistinctly, as they had hysterical paralysis of accommodation, or less frequently they could not see at all, as they had become so convinced that they were blind that they had ceased to look, and, not looking, they could not see. Simple explanation followed by re-education in looking resulted in permanent recovery. Similar cases, generally of much less severity and often consisting of nothing more than frequent blinking, are not uncommon in civil life.

In the same way the whispering in cases of laryngitis, which was originally in part voluntary to avoid pain and in part due to a protective reflex, was frequently perpetuated as hysterical aphonia. This was most commonly the case when an expert laryngoscopic examination had revealed the presence of some abnormal congestion or secretion, which led to intra-laryngeal medication, as both the diagnosis and treatment afforded the necessary suggestion to perpetuate the idea in the patient's mind that his voice was permanently lost. When these cases were taken away from their unfavourable surroundings and treated by explanation, persuasion, and re-education, without any recourse to suggestion by electricity, anæsthetics, or other means, they invariably recovered. A series of a hundred cases treated at Seale Hayne Hospital were cured at a single sitting, although the average duration of the aphonia before admission was 205 days. About one-third of these cases were not caused by gassing, but by the same suggestive influences as those which give rise to hysterical aphonia in civil life. We believe that the liability to relapse is greatly reduced by our simple method of treatment and the avoidance of suggestion.

The gastritis caused by gassing resulted in vomiting—a protective reflex which fulfilled its object by removing the irritant from the stomach. The actual gastritis rapidly disappeared, and whenever the vomiting persisted for more than three or four weeks it was always hysterical. A very large number of soldiers were invalided from the service for so-called gastritis, the only symptom of which was vomiting. We found that cases of this sort could invariably be cured by a single conversation, if this was continued until the patient was obviously quite convinced that he was no longer suffering from gastritis; and that he could eat anything without fear of vomiting, even if he had vomited after every meal for many months and had been kept on a strictly fluid diet.

Hysterical vomiting is much more common in civil life than is generally supposed. I believe that all cases of the so-called pernicious vomiting of pregnancy are really due to the hysterical perpetuation of the vomiting, which is physiological during the first few weeks. Similarly, the persistent vomiting, which is a common symptom in young anæmic women and was formerly regarded as evidence of gastric ulcer, is generally hysterical, and is due, like the vomiting in soldiers after gassing, to the perpetuation of a symptom produced originally by an acute attack of gastritis. The vomiting in chronic appendicitis, which may continue even after the removal of the diseased appendix, and of phthisis, and the cyclic vomiting in children, are in great part hysterical. All these varieties of hysterical vomiting can be cured by simple explanation, generally at a single sitting, just as in soldiers, and require none of the treatment by isolation, dieting, and drugs which is commonly given, even by those who suspect that there is a nervous element in the condition.

HYSTERICAL PARALYSES AND CONTRACTURES FOLLOWING TRIVIAL WOUNDS.

Perhaps the most common of the hysterical conditions in soldiers were the paralyses and contractures [5] which followed comparatively trivial wounds of the limbs. A great many different forms were observed, and in many cases the paralysis and contracture were associated with marked vaso-motor disturbances, including cyanosis or pallor, a pulse of small amplitude, and œdema, and trophic changes in the skin, nails, and bones. At the same time the muscles showed a moderate degree of atrophy, accompanied by an increased irritability to mechanical stimulation and certain changes in electrical reactions, which did not, however, amount to the reaction of degeneration. These changes were often most easily observed under a general anæsthetic, which did not result in complete relaxation of the spasm until a stage of anæsthesia beyond that in which consciousness is first lost. Babinski and Froment experienced considerable difficulty in producing any improvement in the paralysis and contracture by psycho-therapy. Impressed by this and by the fact that the associated vaso-motor and trophic conditions could not possibly be hysterical, as they were obviously neither capable of being produced by suggestion nor cured by psycho-therapy, they concluded that the paralysis and contracture were also not hysterical. They revived the old theory of reflex nervous disorders, with which Vulpian and Charcot had sought to explain the muscular atrophy and spasm which often accompany diseases of joints. They ascribed both the muscular symptoms and the associated vaso-motor and trophic disturbances to some obscure form of reflex action.

Our experience has led us to believe that there is no foundation for this theory of Babinski and Froment, and that all the cases they describe as reflex are really hysterical. The immobility and spasm may arise as a voluntary or reflex response to pain, or they may be due to localised tetanus, or to the application of splints or bandages, the abnormal posture assumed and the immobility and spasm being perpetuated by auto-suggestion after the primary cause has disappeared, to which very often is added the hetero-suggestion involved in treatment by electricity and massage when this is not really required. The hysterical paralysis and contracture which result could invariably have been prevented by persuasion and re-education directly the condition of the wound made active movement permissible.

The hysterical nature of the paralysis and contracture is proved by their rapid cure with psycho-therapy, as has also been shown by Roussy and others in France, and Colin Russell in Canada. In a series of 100 consecutive cases treated at the Seale Hayne Hospital, the majority, if not all, of which might have been diagnosed as reflex, as each one of the cases shown in the illustrations of Babinski and Froment's book was represented in our series, 96 were cured at a single sitting of an average duration of 54 minutes, and the remainder were cured in 4 days, 2 weeks (two cases), and 4 weeks respectively, although the average duration of treatment before admission was 11 months. It is clear, therefore, that the paralysis and contracture are hysterical, as they are caused by suggestion and cured by psycho-therapy.

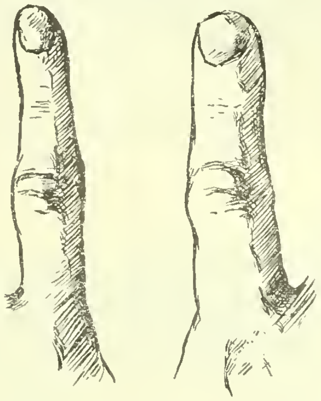
EXPLANATION OF ORIGIN OF SIGNS AND SYMPTOMS.

Disuse of a limb, whether this is due to organic disease or hysteria, leads to deficient circulation. This by itself is enough to explain the associated vaso-motor symptoms, as they are most marked in cold weather and in individuals who have always had a feeble peripheral circulation. They disappear temporarily, as Babinski and Froment showed, by artificially increasing the circulation by the application of heat, and permanently, as we have repeatedly observed, by restoring the power of movement by means of psycho-therapy.

Deficient circulation gives rise in turn to deficient nutrition, so that the skin and subcutaneous tissues become atrophied (Fig. 2), the bones decalcified as shown by the X rays, and the nails thin and brittle. In a striking case, in which some trophic changes had developed as a result of hysterical paralysis and contracture of over a year's duration, and in which the power of movement was restored at a single sitting, the nails subsequently showed a very definite horizontal line separating the opaque, vertically ridged, thin and brittle part, which grew during the period of disuse, from the pink, smooth, and otherwise normal part, which began to grow immediately recovery took place. (Fig. 3.)

The changes in mechanical and electrical reactions, and in the deep reflexes, were also shown by Babinski and Froment to disappear when the circulation was temporarily improved by immersion in hot water, and we found that immediate and permanent restoration followed recovery from the paralysis and spasm as a result of psycho-therapy. These changes, therefore, are nothing more than the functional effects on muscular tissue of deficient circulation.

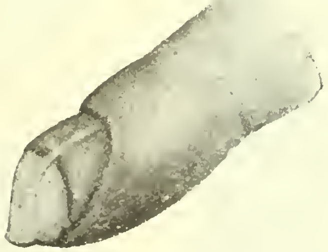
FIG. 2.



Atrophy of index finger of left hand, compared with normal finger of right hand, resulting from deficient circulation from disuse caused by hysterical contracture of 18 months' duration, drawn after recovery from contracture.

In the same way the rigidity of the finger-joints, observed both in cases of organic nerve injury and hysterical paralysis and contracture, which persists under deep anæsthesia, having always been regarded as due to adhesions or fibrous contractures, and which only gives way under forcible manipulation with sounds of tearing and resulting effusion, is really the result of some coagulative process in the fibrous tissue caused by the accumulation of products of metabolism, which are normally removed by the blood when the circulation is efficient. It is well known that a slight increase of mobility of such joints follows the application of warmth, which improves the circulation, and we have found that complete and immediate restoration of mobility followed the return of the natural circulation as a result of the rapid cure of the paralysis and contracture; this must have been due to the removal of waste products permitting the temporarily coagulated fibrous tissue to assume its normal fluid consistence.

FIG. 3.



Trophic changes in nail caused by deficient circulation from disuse through hysterical paralysis of over a year's duration, associated with normal nail grown since sudden cure six weeks earlier.

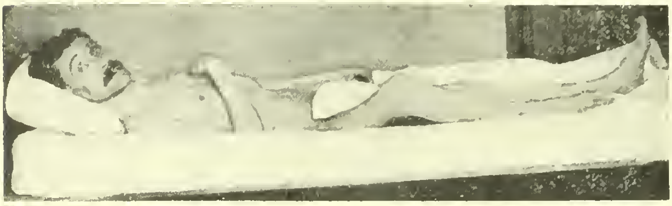
It is thus clear that the so-called reflex nervous disorders of Babinski and Froment are really hysterical, and that the associated vaso-motor and trophic disorders are caused by the resulting disuse.

HYSTERIA GRAFTED ON TO ORGANIC BASIS.

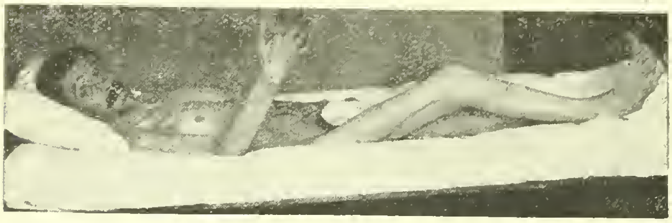
The last group of cases is, I think, the most important, because it is one which is very common both in soldiers and civilians, though its true nature is comparatively rarely

FIG. 4.

Combined Hysterical and Organic Hemiplegia of Two Years' Duration following Nephritis.

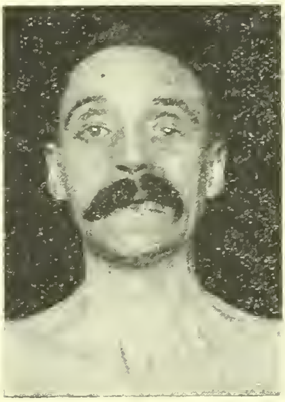


(A) Before treatment.

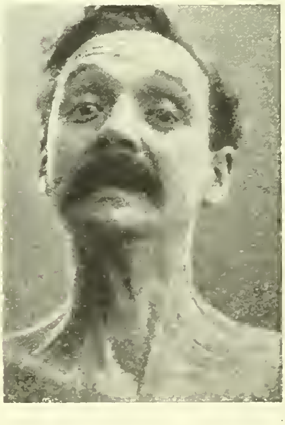


(B) After 2½ hours' treatment.

(C) After six months' treatment; organic signs still present.

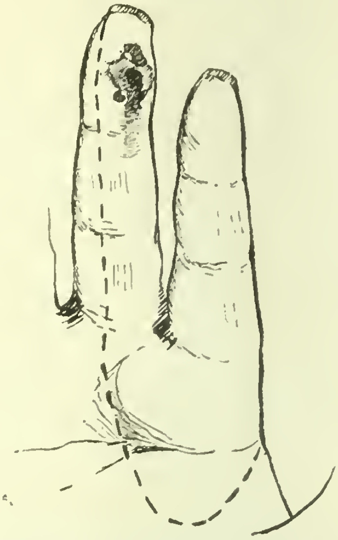


(D) Facial paralysis before treatment.



(E) After 45 minutes' treatment for face.

FIG. 5.



Hysterical anæsthesia in median nerve distribution, with unfelt accidental burn, cured by suggestion in less than one minute, ten months after injury to median nerve.

recognised. It consists of symptoms which are primarily organic and due to an injury or disease of the nervous system, but which are eventually in part or completely hysterical.[6] When the structural changes produced by an injury or acute disease of the nervous system gradually diminish in extent, owing to the disappearance of the vascular and other temporary changes which surround the comparatively small area of total destruction—if, indeed, such an area is present at all—the symptoms caused by the throwing out of action of the parts controlled by the nervous tissues primarily involved should disappear *pari passu*. Just as the physical signs in slowly progressive diseases, such as tabes and disseminated sclerosis, often precede the onset of symptoms, so in these cases the physical signs are generally still present when the functional capacity has returned to normal; and if the lesion does not disappear completely they may remain as permanent evidence of a past organic lesion.

In many cases, however, a man does not realise that his functional capacity is improving. If he has been hemiplegic, he has in the early days made repeated efforts to move his paralysed limbs, but without success, and he finally gives up the attempt and reconciles himself to the idea of permanent hemiplegia. If his physician is too much concerned with the possible dangers of early movement, he will exaggerate the patient's own fears of permanent disability, with the result that the organic hemiplegia is gradually replaced by hysterical hemiplegia instead of slowly disappearing as the organic lesion becomes more and more reduced in extent. A time may eventually arrive when the hemiplegia is entirely hysterical, but, as already pointed out, the physical signs of organic disease, such as extensor plantar reflex, ankle-clonus, exaggerated deep reflexes and lost abdominal reflex, may still be present on the affected side.

Many additional signs have been described, particularly by Babinski, which depend upon the fact that the behaviour of the paralysed muscles in organic hemiplegia differs in various respects from what an average layman would expect, so that a man with hysterical hemiplegia, the exact nature of which must depend on his own conception of how his muscles would behave if they were paralysed, fails to show these signs. But if the hysterical hemiplegia was suggested by an organic hemiplegia, these signs would be present, as the patient would be trained by his own organic symptoms to maintain them in an unaltered form when they were no longer organic. Thus, while the upper part of the face is unaffected, the lower, including the platysma (Babinski's platysma sign), would be paralysed; Babinski's pronation sign and the combined flexion of the thigh and pelvis (Babinski's "second sign") would be present. In the same way the characteristic posture of the arm and leg in organic hemiplegia would be perpetuated. We should thus be face to face with a case in which the symptoms had originated as a result of an injury or disease which is known to result in organic hemiplegia, and in which the incontestible physical signs of organic disease, such as the extensor plantar reflex and the other changes in deep and superficial reflexes, as well as the characteristic posture and the accessory signs described by Babinski and others, are present, although the hemiplegia is entirely hysterical. Such cases can only be diagnosed by experimental psycho-therapy; if, as occurred in numerous cases under our care, more or less complete recovery takes place—although, of course, the permanent physical signs of organic hemiplegia persist—it is clear that the paralysis is almost entirely hysterical, although grafted on an organic basis. (Fig. 4.)

The old method of diagnosing between organic and hysterical paralysis thus breaks down, as the physical signs of organic disease do not, as is too often assumed, indicate that the paralysis is entirely organic, but simply that there is an organic element in the case, which may be quite insignificant in proportion to the hysterical. Moreover, it is no help in such cases to consider whether the patient is or is not neurotic, as the large majority have no personal or family history of neuroses, and are in every way normal except for the particular symptom from which they are suffering. No more powerful suggestion of hysterical paralysis could be imagined than organic paralysis, and no abnormal degree of suggestibility is necessary for its development.

We have seen cases of homonymous hemianopia, which is commonly regarded as always organic, persistent headache, amnesia, and fits develop after head injuries; paraplegia and persistent incontinence of urine after spinal injuries; paralysis and anæsthesia after nerve injuries in the exact distribution of the nerves, the anæsthesia even resulting in accidental burns (Fig. 5); all these were primarily organic and showed the characteristic features of symptoms caused by an organic lesion, although the recovery with psycho-therapy proved that they were hysterical. In many cases, of course, recovery was incomplete, the proportion of hysterical to organic incapacity depending upon the extent of permanent damage done to the nervous tissues.

In the same way we have found that the well-recognised association of hysteria with disseminated sclerosis is even more common than is generally supposed; that an hysterical element is frequent in tabes and may even occur in such a disease as Friedreich's ataxy. A soldier suffering from the latter disease, who had been unable to walk or stand without assistance and had been unable to feed himself or write for several months on account of his extreme ataxy, improved to such an extent as a result of a week's psycho-therapy that he was able to walk steadily and use his hands for all ordinary purposes, although, of course, the physical signs remained unaltered, and the ultimate prognosis was as hopeless as before.

We believe that the same principle should be applied to all organic disease, whatever part of the body is affected, and that the possibility of an hysterical and therefore removable element should be considered, however normal the mentality of the patient may appear to be. Our experience further shows that the ideal method of treatment in such cases is a rapid one—by explanation in language suited to the intelligence of the individual, combined, when necessary, with persuasion and re-education.

References.

1. A. F. Hurst and J. L. M. Symns: Seale Hayne Neurological Studies, i., 15, 1919.
2. A. F Hurst and J. L. M. Symns: S.H.N.S., i., 1, 1919.
3. A. F Hurst: S.H.N.S., i., 7, 1919.
4. A. F. Hurst, J. L. M. Symns, and R. Gainsborough: S.H.N.S., i., 19. 1918.
5. A. F. Hurst: S.H.N.S., i., 43 and 244, 1919.
6. A. F. Hurst and J. L. M. Symns: S.H.N.S., i., 113, 1919, and THE LANCET, 1919, i , 369.

NOTES ON

THE SERUM TREATMENT OF BACILLARY DYSENTERY,

AND ON DYSENTERY ARTHRITIS.

BY BERNARD G. KLEIN, M.D. OXON.,
LATE TEMPORARY CAPTAIN, R.A.M.C.

FOR a period of a year and three months—September, 1917, to November, 1918—the writer had the opportunity of observing and treating a large number of cases of dysentery and dysentery suspects at No. 25 Stationary Hospital, Rouen. After excluding all cases of (1) amœbic dysentery; (2) acute enteritis or gastro-enteritis—generally diagnosed as "diarrhœa"; and (3) various intestinal disorders (many of them the sequelæ of old dysentery), collectively termed "colitis," there remain 973 cases which, on clinical or bacteriological grounds, or on both, were adjudged to be examples of bacillary dysentery.

In 412 of these cases dysentery bacilli were recovered from the stools. In 561 no dysentery bacilli were found, but the illness was in every instance marked by sudden acute onset, typical dysenteric symptoms and stools, and the absence on careful examination of *Entamœba hystolytica*. The evidence as to the character of the stools is deficient in 50 of the cases from which dysentery bacilli were isolated. In 44 no description of the dejecta during the acute stage was recorded, whilst in 6 it was definitely stated that the stools were not dysenteric in appearance. Some of these cases may have been therefore *apparently* simple diarrhœa. The presence of dysentery bacilli in cases of apparently simple diarrhœa is well recognised and has been recently emphasised [5] in France.

For convenience these 973 cases have been roughly classified as follows:—1. *Mild.* The characteristic symptoms and stools were observed in these cases (787 in number), but were not severe in degree and lasted at the most about a week. 2. *Typical average*, or what might be termed moderately severe; dysenteric symptoms lasting on the average rather over a fortnight from the onset of the illness. 3. *Severe*—with all the symptoms of the disease marked, but not to such a degree as to endanger life. 4. *Grave*—all showing, in addition to severe dysenteric features, marked constitutional disturbance with toxic symptoms, such patients being on the "dangerously ill" or "seriously ill" list.

Serum Treatment: Methods of Administration.

A complete record of 51 cases treated with anti-dysenteric serum will be found in tabular form in Table I. Naturally what appeared to be the worst cases were selected for serum treatment, the total of 51 so treated consisting of 7 "typical average," 22 "severe," and 22 "grave"—9 of the latter terminating fatally. Amongst cases classed as severe and grave—18 in number—not treated with anti-dysenteric serum, the majority had already been ill for nine or ten days when admitted, some for considerably longer. All the six grave cases, two of whom died, had already, when first seen, passed into a toxic collapsed state—a state well described in a recent account of a Shiga epidemic in France as one of dehydration and profound intoxication.[1]

Polyvalent serum was used, as supplied for the use of the army both by Burroughs and Wellcome and by the Lister Institute. In the earlier cases the ordinary injection into the tissues, subcutaneous or intramuscular, was practised. Later, as is shown in Table I., reliance was placed almost entirely on the intravenous method. A simple cylindrical glass vessel was used of about 50 c.cm. capacity, with 18 inches of rubber tubing attached to the outlet at its lower end. The whole apparatus was sterilised by dry heat. The serum was run in by gravity in about twice its bulk of normal saline at body temperature.

The intravenous method seems to possess advantages over the ordinary injection into the tissues, since: (*a*) it enables the serum to get to work at once; (*b*) the whole of the dose is available; whereas it is at least possible (cf. following paragraph re anaphylaxis) that some of the constituents of the serum introduced into the tissues are destroyed locally; (*c*) it is practically painless.

Against these advantages is to be set the possible danger of anaphylaxis. Of the 23 patients who received serum

TABLE I.—*Summary of 51 Cases Treated with Anti-Dysenteric Serum, in the Order in which they Occurred.*

Case, age, &c.	Day	Dose. c.cm.	Method	Remarks.
1. F. G. W., 21. Shi. Fatal.	10 13	25 25	Sc. ,,	No effect. Died of exhaustion on 31st day of disease.
2. B., 27. Shi. Fatal.	6 7	50 50	Sc. ,,	No effect. Died of exhaustion (complicated by sepsis and gas gangrene) on 12th day.
3. G. A., 32. Flex. Grave.	6	50	Sc.	Gradual recovery; acute stage lasting 3 weeks. Was in bed a month and resumed ordinary diet in 5 weeks.
4. A. C., 26. Shi. T.A.	10	40	Sc.	Improved in 3 days; acute stage lasting 2 weeks. Convalescent 3 weeks from onset.
5. W. B., 38. Flex. Severe.	6 10	60 50	Sc. ,,	Improved 3 days after second dose; stools normal 6 days after it. Good recovery.
6. O. G., 19. Shi. Severe.	7	40	Sc.	Began to improve in 48 hours. Able to eat ordinary food 10 days later.
7. A. E. F., 24. T.N.D. Severe	21	50	Sc.	No immediate effect. Prolonged illness. Stools still dysenteric on 34th day.
8. J. H. F., 20. Shi. Severe.	4	50	Sc.	Improved in 42 hours. Acute stage lasted another 2 days. Convalescent 2 weeks after onset.
9. J. M., 32. T.N.D. Severe	14 16	50 50	Sc. ,,	Recovery very slow. Was in bed 24 days after the second dose. Apparently cured.
10. F. M., 30. Flex. Severe	16	25	Sc.	Improved in 3 days; free from symptoms in 6 days.
11. H. C. J., 32. Flex. T.A.	9	25	Sc.	Started to improve in 48 hours. Stools normal 16 days from onset of illness.
12. A. T., 35. Flex. Severe.	9	25	Sc.	No marked effect. Acute stage ended 4 days later. Convalescent 1 month from onset.
13. W. J. H., 25. Flex. Grave.	11 14	50 50	Sc. ,,	No effect noticed. Started to improve 48 hours later. All acute symptoms gone in 10 days. Convalescent in 5 weeks.
14. A. B., 30. T.N.D. Grave.	10* 12*	50 50	Sc. ,,	Started to improve 3 days after second dose. Persistent colitis afterwards.
15. H. P., 20. T.N.D. Severe.	1	50	Sc.	Marked improvement in 48 hours. Formed stools on 8th day. Good recovery.
16. T. G. S., 19. Flex. Severe.	5	25	Sc.	Recovery gradual. Acute stage 14 days. Subsequent recovery excellent.
17. T. D., 22. T.N.D. Fatal.	19	50	Iv.	No effect. Died of exhaustion 34th day.
18. J. McC., 32. T.N.D. T.A.	5	25	Sc.	Improved in 48 hours. Stools normal in 6 days. Good recovery.
19. S. C., 25. Shi. Grave.	4 6	50 50	Iv. ,,	Marked change in 24 hours. Further improvement in 24 hours. Normal stools by 28th day.
20. W. S., 21. T.N.D. Severe.	7	25	Iv.	Abdominal pain and diarrhœa less next day. Acute symptoms ceased in 5 days.
21. E. H., 30. T.N.D. Grave.	5 6 9	25 25 50	Sc. ,, Iv.	Prior to admission. Very ill when admitted. Gradual recovery, lasting 1 month, but no persistent colitis.
22. W. S. S., 28. T.N.D. Severe.	11	25	Sc.	Effect only transitory. V. prolonged recovery with debility and myocarditis.
23. H. B., 19. Shi. Severe.	6	40	Im.	General condition much better in 3 days. Normal stools 10 days after treatment.
24. H. B., 31. Shi. Fatal.	6 9	40 80	Im. Iv.	No apparent effect. Temporary diminution of toxic symptoms. Severe hæmorrhage. Death on 14th day.
25. W. B. L., 24. T.N.D. Grave.	8 10	50 50	Iv. ,,	Slightly better in 24 hours. Improved in 48 hours. Excellent recovery.
26. J. C., 36. Shi. Fatal.	10 13	40 80	Iv. ,,	No effect. Died of exhaustion 24th day.
27. A. J. C., 22. T.N.D. Fatal.	7 10	60 80	Iv. ,,	Slight transient improvement after each dose. Died of exhaustion on 16th day.
28. R. T., 37. T.N.D. Severe.	11	50	Sc.	Improvement began a week later. Recovery unsatisfactory.
29. S. T., 29. Shi. Fatal.	3 6 10	40 100 50	Iv. ,, ,,	No effect. Toxic symptoms less for a time. Died of exhaustion 31st day.
30. A. F. M., 24. T.N.D. T.A.	6	40	Sc.	Better in 48 hours. All acute symptoms gone in 3 days.
31. F. P., 29. T.N.D. Severe.	9	40	Sc.	Typical dysenteric stools for 2 more days. Colitis lasted at least 16 days.
32. P. E. L., 47. T.N.D. Fatal.	5	100	Iv.	Diarrhœa and abdominal pain ceased by 12th day. Died 14th day (acute nephritis).
33. S. F. S., 20. Flex. Severe.	3 4	20 100	Sc. Iv.	To "desensitise." Marked improvement within 24 hours. Rapid recovery.
34. G. S., 28. T.N.D. Severe.	6	40	Sc.	(Prior to admission.) Dysenteri symptoms lasted 20 days. Slow recovery.
35. J. A. P., 25. T.N.D. Severe.	6	40	Im.	Diarrhœa less in 3 days. Dysenteric state lasted 3 weeks. Subsequent recovery satisfactory.
36. R. H. H. S., 23. Shi. Grave.	7 8	20 60	Sc. Iv.	To "desensitize." Marked improvement in 48 hours Severe hæmorrhage 16th day Eventually quite recovered.
37. E. H., 33. Shi. Grave.	6 8	60 60	Iv. ,,	No marked effect from first dose Started to improve a few hour after second. Excellent recovery
38. E. F. H., 38. Shi. Severe.	9	40	Iv.	No appreciable effect. Recovery slow (with arthritis of knee after 29 days.
39. H. T., 34. T.N.D. T.A.	6	40	Sc.	Better in 48 hours. Rapid recovery. Convalescent on 12th day.
40. J. F., 42. Flex. Severe.	10	100	Iv.	Marked improvement in 24 hours All symptoms gone in 16 days Rapid recovery.
41. T. W. B., 28. Shi. T.A.	3	40	Im.	Improved. Stools free from bloo in 48 hours. Colitis lasted weeks. Good recovery.
42. C. R., 27. Shi. Grave.	3	60	Iv.	Marked improvement in 48 hours Practically convalescent in weeks.
43. F. W. G., 19. Shi. Grave.	6 8	80 70	Iv. ,,	Slight improvement in 48 hours Marked improvement in 2 hours. Good recovery.
44. D. L., 26. Shi. Fatal.	7 10	40 80	Sc. Iv.	(Prior to admission.) No apparent effect. Temporary improvement. Died suddenly on 17th day of acute myocardial failure.
45. R. F., 22. Shi. Grave.	4 7	40 70	Sc. Iv.	(Prior to admission.) No apparent effect. Improved in 48 hours. Practically well in 3 weeks.
46. E. W., 22. Shi. T.A.	9	40	Sc.	(Prior to admission.) Colitis lasted 11 days. Dysentery arthritis began on 14th day.
47. H. R., 20. Shi. Severe.	6	40	Iv.	Started to improve in 24 hours Stools formed in 3 days. Excellent recovery.
48. C. F. C., 36. T.N.D. Severe.	19	60	Sc.	Gradual recovery. Colitis laste 3 weeks and probably persisted
49. C. M., 36. Shi. Grave.	4 6	80 120	Iv. ,,	Striking change in 24 hours Diarrhœa less in 48 hours Colitis lasted about a month.
50. H. S. M., 26. T.N.D. Severe	10	100	Iv.	Striking improvement in 2 hours. Diarrhœa ceased in 4 hours. Excellent recovery.
51. H., 20. T.N.D. Grave.	6	80	Iv.	Started to improve within 4 hours. Dysenteric stage abou 3 weeks. Good recovery.

Shi., Shiga. Flex., Flexner. T.A. = Typical average. T.N.D. = Typ not determined—i.e., no dysentery bacilli isolated from stools. Sc., Subcutem. Iv., Intravenous. Im., Intramuscular.

* Exact date of onset uncertain, but at least ten days prior to serum treatment, probably much more.

intravenously, 4 had been wounded and had antitetani serum some time previously during the war. Of these 4 "sensitised" men, one (Case 45, Table I.), on receiving serum intravenously, immediately developed anaphylactic shock and the injection had to be discontinued instantly. A secon patient, also "sensitised," had received serum by the intravenous method a few minutes before with no ill results Both these patients had had a subcutaneous injection o 40 c.cm. of anti-dysenteric serum three days previously; consequently, the possibility of anaphylaxis was not considered The two other cases in question (Nos. 33 and 36) ha occurred earlier in the series; they had been given 20 c.cm of serum subcutaneously 24 hours before receiving the intravenous dose, and neither of them suffered from anaphylacti shock. A desensitising effect, therefore, is not ensured i human beings by serum given *subcutaneously*. After the cas of anaphylaxis above described there were no more "sensitised" patients requiring serum treatment. Consequentl there was no opportunity of trying the method I ha intended to adopt—namely, to give quite a small quantity o serum (about 1 c.cm.)—intravenously, and follow this after a few hours by the main dose, also administered intravenousl in the manner already described.

The Dose of Serum: Its Value at Different Periods of Illness

As will be seen from Table I., there was a progressiv tendency towards larger doses of serum, the greatest singl dose being 120 c.cm. Opinions differ as to what constitute a large dose. Thus Cowan and Miller[2] say they "used serum fairly freely ......, giving 40, 60, or 80 c.c. as a dose and repeating it as seemed indicated ...." On the other hand, Castellani and Chalmers[3] say: "The serum, in our experience, should be given in large doses ...... 20 c.c. doses twice daily and in very severe cases 4 times daily."

The statement made by Cowan and Miller,[2] that "it seems probable that the value of serum is greatest in the first 3 or 4 days of the illness," is in harmony with the writer's experience; whilst the further statement, "that it is of less or little value in the second week," is more or less confirmed by the results obtained in this series of 51 cases. The 5th–6th days have generally seemed about the critical period for intravenous serum, at any rate in Shiga infections. One rather gained the impression that after that period a bad Shiga case was either going to get better or die, irrespective of serum treatment. This idea does not, of course, imply that serum is useless after the fifth or sixth day, since by it the manner and rate of recovery may be much influenced. Some of the cases recorded in Table I., especially Flexner infections, seem to provide exceptions to the general ill-success of serum treatment started in the second week—instance Case 40. In this patient it is hardly an exaggeration to say that the serum worked like a charm.

Table I. gives a summary of the 51 cases, with the degree of illness, type of infection, dose of serum and day on which it was given, the method, and the result.

Tables II. and III. are intended to show the effect of the time at which serum was given on the nature of the subsequent recovery.

TABLE II.—*51 Cases Treated with Anti-Dysenteric Serum.*

Day injected.	No. of cases.	Died.	Recovery unsatisfactory.
1st–4th	9	1	1
1st–5th	13	2	2
6th–9th	24	4	5
10th and over	14	3	6

TABLE III.—*23 Cases that Received Serum Intravenously.*

1st–5th	6	2	1
6th–9th	12	2	2
1st–6th	10	2	1
7th–9th	8	2	2
10th and over	5	3	—

The Value of Serum Treatment.

The value of anti-dysenteric serum may be considered from two aspects.

(1) *Its power to save life.*—The writer's experience suggests that such power is available only during the first few days of the attack—perhaps five days or even six days if the intravenous method be used.

(2) *Its effect on the rate and completeness of recovery.*—As is well known, in the more severe cases the initial dysenteric phase is succeeded by a state of profound prostration—the stage of "dehydration and profound intoxication"—characterised by rapid heart's action, great muscular weakness, tendency to vomit or hiccough, thirst, difficulty in swallowing, and in extreme cases the typical "abdominal" facies. Diarrhœa may or may not have ceased. Abdominal pain is generally absent. This stage generally makes its appearance some time about the tenth day. Once it is fully developed no serum treatment seems of benefit. Occasionally it is already present much earlier than the tenth day (Case 2, Table I.). Between the critical period of the 5th–6th days and the extreme toxic phase there is an intermediate stage about the 6th–9th day, during which anti-dysenteric may be given with a reasonable prospect of cutting short the attack and effecting a completer recovery than would otherwise have followed. To show this favourable effect of serum treatment the following table is given. In it are contrasted 47 serum-treated cases with 134 non-serum treated cases—fatal cases being excluded—to show the duration of the dysenteric stage and occurrence of sequelæ in the two groups.

The term "persistent colitis" is applied only to cases in which a dysenteric state continued for at least a month.

TABLE IV.—*Comparison between 47 Cases Treated with Serum and 134 Cases Not Treated with Serum.*

—	Class of case.	No. of cases.	Duration of dysenteric stage.	Recovery unsatisfactory.	
				Persistent colitis.	Other complications.
Serum treated.	T.A.	7	Average 11 days.	—	1 arthritis.
	Severe.	22	,, 20 ,,	1	2 (1 arthritis, 1 debility).
	Grave.	13	,, 23 ,, (2 uncertain.)	1	1 debility.
Not serum treated.	T.A.	118	88 cases averaged 16 days. (6 uncertain.)	24*	3 arthritis.
	Severe.	12	11 cases averaged 27 days. (1 exceeded 2 mths.)	4	2 (1 debility, 1 arthritis).
	Grave.	4	Average 24 days.	—	3 debility.

* Not included in the 88 in fourth column.

Table IV. shows this complication occurring twice in 51 serum-treated cases, as against 28 times in 134 cases not treated with serum. The two serum-treated cases that suffered from arthritis both received their serum as late as the ninth day of their illness. In an analysis of cases treated with anti-dysenteric serum it was stated recently[4] that "not a single case of dysenteric arthritis occurred amongst patients who were treated on or before the fifth day of illness."

Conclusions.

1. Anti-dysenteric serum should be given in large doses—about 60 to 100 c.cm.

2. It is best given intravenously.

3. It is most efficacious when given early in the disease.

4. From the point of view of serum treatment a severe case of bacillary dysentery may be considered in three stages: (*a*) From the onset of the illness to a period somewhere about the 5th–6th days. During this stage anti-dysenteric serum (especially if given intravenously) has a most favourable effect, both as regards averting a fatal result and hastening recovery. A minority of cases fail to respond even to this early treatment. (*b*) An intermediate stage, from about the 6th–10th day. A case having reached this stage is likely either to die or recover, irrespective of serum treatment. Nevertheless, the rate and completeness of recovery may be still affected by serum, especially if given in large doses, such as 100 c.cm. (*c*) A third stage—the stage of "dehydration and profound intoxication"—generally starting about the tenth day. During this phase of the disease serum treatment is practically useless. A minority of cases which have lasted to the tenth day or beyond it (without passing into the third stage) are still benefited by serum given in sufficient amount.

DYSENTERY ARTHRITIS.

In a series of 973 cases of bacillary dysentery, true dysentery arthritis occurred in eight instances. The particulars of these 8 cases are afforded by the following summary (Table V.).

I. *Clinical Features.*

(*a*) *Character of joint swellings.*—It will be seen from the accompanying table that the knee-joint was involved in every case, and that only two cases had other joints affected. One of these two had both temporo-maxillary joints involved in turn, the symptoms lasting only a few days. The other is described in the table as having arthritis of both ankles. In reality the fluid swelling was chiefly on the dorsal surface of the foot and ankle (with œdema of the foot) and appeared to be in the synovial sheaths of the extensor tendons. The fingers were affected at the proximal interphalangeal joints. The knee-joint swellings were all very similar. They were recognised about two days after the onset of pain, and gradually increased for a few days until the deformity of the part was obvious—the natural hollows being obliterated, with marked swelling of the subcrureus bursa. No reddening or flush of the skin or signs of peri-articular thickening were present.

(*b*) *Time of onset and course.*—The day of the disease on which arthritis began is shown in each case in the table. The commonest time was somewhere about the twentieth day, which is the day mentioned as the usual starting point

TABLE V.

Case and age.	Infection and severity.	Joints affected.	Day of onset.	(a) Duration. (b) Pyrexia	Stools at time of onset.	Nature of effusion.
1. A. E. W., 28.	Flexner (T.A.).	L. knee.	19th.	(a) 1 month at least; (b) 5 days.	Some mucus; trace of blood.	Not exam.
2. H. H., 19.	Shiga (T.A.).	R. knee.	About 20th.	(a) 3 weeks at least; (b) present*	Not known.	Not exam.
3. J. S. S., 31.	Shiga (mild).	Both knees and ankles, several fingers.	15th.	(a) 5 weeks; (b) present*	Simply loose.	Serous, sterile (test for agg. not made).
4. E. F. H., 38.	Shiga (severe)	R. knee.	24th.	(a) (b) At least 5 days.	Normal	Not exam.
5. C. A. G., 27.	Flexner (T.A.).	L. knee. Both jaw joints.	17th.	(a) 31 days. (b) 2 weeks.	,,	Serous, sterile, sp. agg. present.
6. W. P. B., 28.	T.N.D. (T.A.).	Both knees.	19th.	(a) 10 days. (b) 3 days.	Nearly all mucus.	Serous, sterile, no agg.
7. H. E. C., 19.	Shiga (severe)	One knee.	21st.	(a) 12 days. (b) 3 days.	Simply loose.	Serous, sterile, sp. agg. present.
8. E. W., 22.	Shiga (T.A.).	L. knee.	14th.	(a) 22 days. (b) 16 days.	Normal	Serous, sterile, sp. agg present (exam. twice)

* Duration uncertain.
T.A. = Typical average or moderately severe.
T.N.D. = Type not determined—i.e. no dysentery bacilli isolated from stools. Sp. agg. = Specific agglutinin.

of the arthritis in Cowan and Miller's cases, recently described by them.[2] A further point shown in the table is that the arthritis outlasted the pyrexia by which it was at first accompanied. Five of the cases were observed from start to finish, and in them all trace of fluid disappeared. No deformity of or thickening round the joint was apparent and there were no adhesions. The only abnormality was marked wasting of the muscles—the extensor muscles of the thigh and the calf muscles.

(c) *Treatment.*—The treatment consisted in immobilising the joint by the application of a McIntyre's splint and the removal of some of the fluid to relieve the pressure—60 to 100 c.cm. was removed, generally much to the relief of the patient.

(d) *Nature of the arthritis.*—It has no relation to the arthritis of serum sickness; 5 out of the 8 cases had received no serum. Neither had it any relation to previous injury in the 8 cases in question. Clinically it might have been mistaken for gonorrhœal arthritis, but in no case was there a history of such infection. From acute rheumatism it differed in the abundant effusion with absence of periarticular inflammation, by its limitation in most cases to the knee-joint, and by the absence of any cardiac manifestations. It seems probable, then, that this form of arthritis is a true complication of bacillary dysentery and merits the name "dysentery arthritis." It is clearly not confined to severe cases of the disease, but may equally well occur after mild attacks; nor does its onset coincide with any particular stage in the intestinal inflammation, as far as can be judged by the stools. Both these points are shown by Table V.

No dysentery bacilli were recovered from the joint fluid in the 5 cases examined. In the cases described in their paper by Cowan and Miller[2] the joint fluid was cultured in 2 cases, one proving sterile, the other containing only *B. coli*. These negative findings are in accordance with the commonly accepted view that the arthritis is due to toxins.

II. *Laboratory Findings.*

The joint fluid was taken for examination in 5 out of the 8 cases, in one case on two separate occasions nine days apart. All the samples were similar in character—namely, a viscous, straw-coloured liquid, slightly turbid, which clotted on standing. No micro-organisms were found by direct examination of smears from the clot or by culture.

Agglutination tests were made by Drever's macroscopic method with the standard types of dysentery bacilli, using both the blood serum and joint fluid. The details are given in Table VI.

TABLE VI.

Case.	Agglutination results.			
	Blood serum.		Joint fluid.	
3	18.8.18	36 units (Shiga).	22.8.18	Agglutinins not determined.
5	22.9.18	18 ,, (Flexner).	24.9.18	More than 50 units (Flexner).
7	10.10.18	More than 50 units (Shiga).	10.10.18	More than 50 units (Shiga).
8	23.10.18 1.11.18	48 units (Shiga). 50 ,, ,,	23.10.18 1.11.18	24 units (Shiga). 50 ,, ,,

In Cases 7 and 8 practically the same degree of agglutination was obtained both with the joint fluid and the blood serum. In the latter case, examined nine days later, the agglutinin content of the joint fluid had increased, whilst the blood serum remained at the same titre. In Case 6 neither the joint fluid nor blood serum showed any agglutinins. In this patient no dysentery bacilli had been found in the stools. In Case 5 the joint fluid was examined a few days after the blood serum and showed a higher agglutination than the latter with *B. dysenteriæ Flexner*.

The examinations of joint fluid and blood serum, both bacteriological and serological, were made in the laboratory of No. 25 Stationary Hospital by Captain P. Hartley, R.A.M.C. (T.), to whom the writer's thanks are due.

References.—1. MM. Florand, Bezançon et Paraf., Bull. et mem. Soc. Med. d'Hôp. de Paris, 1918, 3 S., xlii. 2. Dysentery: A Clinical Study, Lieutenant-Colonel Cowan and Captain Miller, Journal of the R.A.M.C., vol. xxxi., October, 1918. 3. Castellani and Chalmers: Manual of Tropical Medicine, 1391. 4. G. M. Dobrashian: Journal of the R.A.M.C., vol. xxx, 441, &c. 5. Major A. W. W. Ellis, C.A.M.C.: Personal communications as yet unpublished.

THE USE OF ANTI-DYSENTERY SERUM IN THE TREATMENT OF BACILLARY DYSENTERY.

A SERIES OF 341 CONSECUTIVE CASES TREATED IN MESOPOTAMIA, WITH TABULAR ACCOUNT OF THE INCIDENCE OF COMPLICATIONS.

BY W. E. WALLER, M.B., B.CH. OXON.,
CAPTAIN, R.A.M.C. (T.C.).

DURING the period from March 31st, 1918, to Dec. 31st, 1918, a total of 608 cases of dysentery passed through the wards of a stationary hospital in the forward area in Mesopotamia. Of these 140 were proved to be amœbic; of the remainder, 341 were either proved to be bacillary, or regarded as such on clinical grounds. The remaining 127 were mostly light and convalescent cases of a type too doubtful for special statistical purposes.

Table I. gives details of the bacteriological findings, and affords an index of their respective severity.

TABLE I.

Type.	No.	Treated by serum.	Not treated by serum.	Duration of acute stage.	Died.
Clinical	133	63	70	16·1	5
B. Shiga	117	69	48	16·7	4
B. Flexner	70	11	59	11·0	0
B. Hiss Y	21	5	16	9·2	0

In this and succeeding tables a double Shiga and Flexner infection is classed as Shiga. The end of the acute stage is expressed as the day of the disease on which the stools were wholly fæcal, and reduced permanently to one or two in number daily. Lister Institute polyvalent anti-dysentery serum was given in 148 cases in the series, in addition to sodium sulphate given orally and to a carefully chosen diet.

As a routine, in fairly severe cases as soon as the diagnosis had been made on clinical grounds, 140 c.cm. of serum was given in three subcutaneous injections at eight-hourly intervals during the first 24 hours, whilst in cases of less severity 100 c.cm. in two subcutaneous injections only was given during this period. In some cases serum had been given in the clearing station prior to admission to the stationary hospital, so that in Table II. the dosage and routine of administration are not uniform. In addition, owing to the comparatively short time during which patients can be kept under observation at a stationary hospital, statistics regarding the value of any special form of treatment are incomplete. Table II. is an analysis of all the serum-treated cases grouped according to the days of the disease when the initial dose of serum was given, the clinical and Shiga cases being considered separately, Flexner and Y together, and a summary including all the cases being appended. The column "Return to normal" indicates the number of days after the initial dose of serum to the end of the acute stage. The column "Unsatisfactory convalescence" indicates a tendency to chronicity or a failure to arrive at the stage referred to in the preceding two columns. Mortality is also indicated.

TABLE II.

Day of disease serum started.	No. of cases.	Return to normal.	Total duration acute stage.	Unsatisfactory convalescence.	Died.	No. of cases.	Return to normal.	Total duration acute stage.	Unsatisfactory convalescence	Died.
			Clinical.					*B. Flexner and Y.*		
1-3	3	9·0	12·0	0	0	5	5·0	8·6	0	0
4-6	17	10·1	15·0	2	0	5	5·9	9·6	0	0
7-10	26	9·6	18·1	2	1	2	4·5	13·0	0	0
11 onwards	17	13	29·05	1	2c	4	6·5	22·9	1	0
			B. Shiga.					*Summary.*		
1-3	7	7·6	10·4	0	0	15	7·2	10·3	0	0
4-6	30	9·5	15·5	1	0	52	8·5	13·3	3	0
7-10	22	12·0	19·5	2	3a	50	8·7	16·8	4	4
11 onwards	10	15·7	32·5	3	1b	31	11·7	28·1	5	3

(a) Two complicated cases, heat-stroke and uræmia. (b) Heat-stroke (c) Pneumonia complicated one case.

Table III. shows the same details in the 193 cases, nearly all of them much lighter in character than those described in Table II., in which dieting, and sodium sulphate given orally, alone were employed. The column "Return to normal" is omitted, since most of these cases had received treatment by non-specific methods from the start of their disease.

TABLE III.

Type.	No. of cases.	Duration of acute stage.	Unsatisfactory convalescence.	Died.
Clinical...	70	12·3	5	2
B. Shiga	48	14.0	4	0
B. Flexner and *Y* ...	75	9·8	5	0
Summary	193	12·03	14	2

TABLE IV.

Day of disease serum started.	No. of cases.	Return to normal.	Duration of acute stage.	Unsatisfactory convalescence.	Died.
1-3...	4	7·0	9·5	0	0
4-6...	19	8·2	13·4	0	0
7-10...	10	9·2	17·2	0	0
11 onwards ...	7	9·8	21·8	2	0
Not given ...	50	0	15	10	0

Table IV. gives details of 90 proved cases of bacillary dysentery, all of no great severity, not necessarily consecutive, but occurring throughout the main series. Of these, 50 were treated by dieting and saline purgation only. The remaining 40 received, in addition, 100 c.cm. anti-dysenteric serum shortly after admission to hospital, in the manner indicated above. All the cases were uncomplicated by other diseases, such as malaria, but the locality, previous history, and question of travel and exposure before admission to hospital remain inconstant factors. The 40 serum-treated cases comprised Shiga (32), Flexner (4), and Y (4), and were therefore, on an average, of more severe type than the remaining 50, which included Shiga (26), Flexner (19), and Y (4), and one combined Shiga and Flexner case.

Though admittedly incomplete, these statistics tend to show that, in cases treated early by serum, the acute stage is of shorter duration, the tendency to chronicity less, and convalescence more satisfactory than in cases treated by serum late in the course, or by alternative methods.

It is for the clinician himself to decide at what stage of the disease serum treatment loses its efficacy. From observations on cases in which acute symptoms had persisted even up to 21 days the writer is of opinion that improvement frequently starts if serum is given where no appreciable improvement had followed simple dietetic treatment and saline purgation; this improvement is especially marked in pyrexial cases.

The Complications of Bacillary Dysentery.

Table V. gives details of the complications which were met with in the series, and also includes a list of the most important coexisting diseases.

It will be observed that diarrhœa, or periods of diarrhœa alternating with constipation rendering convalescence unsatisfactory, was noticed in 20 cases, whilst in an additional six the stools remained mucoid, various portions of the colon remained thickened and tender, and the disease showed signs of chronicity. Had it been possible to keep patients longer under observation these figures would, in all probability, have been much larger. Diarrhœa was much commoner in cases not treated by anti-dysenteric serum, or in those cases in which serum had not been given till late in the disease. A slight degree of diarrhœa persisting when the colon symptons had subsided was common, but usually cleared up readily with careful dieting and with salol and bismuth salicylate.

Arthritis occurred in six of the series (1·2 per cent.) and constituted the most distressing and intractable complication met with. Table VI. gives details of the cases and shows the relation of the condition to serum injections.

The left knee was affected in all 6 cases, 100 per cent. The right knee, ankles, and shoulders were affected in 3 cases (50 per cent.), the manubrio-sternal and wrists in 2 cases (33 per cent.), and the left hip, sterno-claviculars, and interphalangeal joints in 1 case (16·5 per cent.). In the Flexner case (No. 5) there was a past history of rheumatism affecting the joints. In the remaining cases there was no such history, and gonorrhœa was excluded. The knee-joints showed synovial thickening and effusions, the latter always being sterile. The other joints showed thickening

TABLE

	Dysphagia.	Vomiting.	Hiccough.	Meteorism.	Hæmorrhage.	Perforation.	Chronic colitis.	Diarrhœa.	Typhlitis.	Appendicitis.	Liver abscess.	Dilated heart.	Endocarditis	Thrombosis.	Carbuncle.	Furunculosis.	Sup. bursæ.	Skin abscesses.	Delirium tremens.	Fibrositis.	Arthritis.	Serum sickness.	Conjunctivitis.	Balanitis.	Malaria. (Clin.)	B.T.	M.T.	Heat-stroke.	Pneumonia.	Nephritis.	Amœbic dysentery.	Total cases.
Clinical ...	1	1	—	—	3	1	3	7	—	—	—	1	1	—	1	6	1	—	1	—	3	25	2	—	2	—	1	1	2	—	—	133
B. Shiga ...	—	2	2	2	2	—	3	7	1	1	1	4	—	1	—	3	1	1	—	—	2	47	1	—	2	3	3	2	—	1	1	117
B. Flexner...	—	2	—	—	—		—	6	—	—	—		—	—	—	—	—	—	—	1	1	5		1	6	—	—	—	—	—	3	73
B. Flexner Y	—	—	—	—	—	—	—	—	—		—	1	—	—	—	—	—	—	—	—	—	5	—	—	1	—	—	—		—	—	21
Totals ...	1	5	2	2	5	1	6	20	1	1	1	6	1	1	1	9	2	1	1	1	6	82	3	1	11	3	4	3	2	1	4	341*

* Three combined Flexner and Shiga cases counted under each heading.

TABLE VI.

No.	Type.	Day of disease serum started.	Day of commencement of arthritis.	No. of days pyrexia	Joints affected.
1	?	Not given.	14	15	Left knee.
2	?	18	18	37	Knees and ankles.
3	?	4	12	60	Knees, ankles, wrists, elbows, shoulders, sterno-clavicular, and manubrio-sternal.
4	Shiga.	Not given.	24	21	Left knee, left hip, left elbow, shoulders, manubrio-sternal.
5	Flexner	,,	11	0	Left knee.
6	Shiga.	20	15	63	Ankles, knees, wrists, shoulders, interphalangeal joints, wrists.

only, much of which appeared to be peri-articular, this being most marked in the case of the ankles. Treatment was disappointing, most reliance being placed on absolute rest to the affected joints, the electric-light bath, and large doses of salol internally. The administration of salicylates, iodides, or urotropin was useless in the ordinary doses. In all the cases a certain degree of thickening and restriction of movement of the joints concerned persisted when the patients were evacuated from the hospital.

Only in one case (3) did the commencement of the arthritis bear the same relation to the administration of anti-dysentery serum as in the cases of serum arthritis mentioned below.

Serum Sickness.

The total number of cases treated by serum injections was 148. In 82 of these (56 per cent.) serum sickness occurred. In all of the 82 a serum rash was noted, the average day of its appearance after the initial dose of serum being 7·2. The rash varied in character from an erythema to an urticaria, appearing first of all over the sites of the injections. In severe cases it became generalised and blotchy, often occurring in circinate patches with raised urticarial borders. In such cases there was usually deep conjunctival injection, the fauces were injected and œdematous, the voice husky, and a sense of oppression in the chest experienced. The condition was associated with moderate pyrexia, the temperature rarely rising above 100·5°.

In 18 cases (12·4 per cent.) the serum rash was followed, after a short interval by joint and muscle pains, accompanied either by a second pyrexial period or by an accentuation of the fever which had accompanied the rash, this second pyrexial period, lasting on an average 5·6 days, being of more severe type than that which accompanied the rash, and being often associated with a rapid pulse.

Serum arthritis started on an average on the 10·8 day after the initial injection of serum, the shortest interval being 7, the longest 15. In 10 of the series joint and muscle pains and stiffness, chiefly affecting the lower extremity, were experienced, the joints showing no organic change. In the remaining 8 cases there was actual peri-articular swelling about the finger joints, wrists, knees, and ankles, and in one case even of the sterno-clavicular and temporo-mandibular joints. The symptoms were usually accompanied by a second rash if the original rash had faded, or by an exacerbation of the rash if it still existed, the second rash always being urticarial whatever the nature of the initial rash had been. All serum manifestations cleared up very rapidly when the accompanying pyrexia had subsided and caused no disability. No example of accelerated or abnormal reaction, such as those described by Colonel E. W. Goodall, were noted, although some of the patients had received in the past injections of antitetanic serum; nor did any case of anaphylaxis occur.

An increased liability to intercurrent disease appeared to be present during the course of serum sickness. Thus subtertian malaria occurred during this period in three cases, in one case as a relapse, in the remaining two as the first indication of the disease in an active form, though there was evidence of past attacks. The importance of diagnosis in such cases is obvious. In those observed the unusual severity of the pyrexia, and the fact that it was associated with an apparent relapse of the colon symptoms, whereas constipation is more usual in serum sickness, drew attention to the condition. Similarly, during the course of serum sickness, in two cases, heat stroke occurred, although the temperature and wet bulb reading were falling at the time. One of these cases proved fatal. In one severe toxic case which was apparently progressing favourably a recrudescence started during serum sickness, was quite uncontrollable, and proved fatal.

In conclusion, I have to acknowledge my indebtedness to Lieutenant-Colonel H. J. Crossley, R.A.M.C., commanding the hospital, for his permission to publish this record, and to Captain C. C. Twort, R.A.M.C. (T.C.), and Captain W. McAdam, R.A.M C. (T.C.), who carried out the bacteriological investigations.

References.—Goodall: THE LANCET, 1918, i., 323. Ballmann: Munchen. Med. Wchnschr., 1918, xxxi., 1129. Dorendorf: Med. Klinik. 1917, xiii., 519–525.

ŒDEMA OBSERVED IN A MONKEY

FED ON A DIET FREE FROM THE FAT-SOLUBLE 'A' ACCESSORY FOOD FACTOR AND LOW IN FAT.

BY A. HARDEN, D.SC., F.R.S.,
AND
S. S. ZILVA, D.SC., PH.D.

(*From the Biochemical Department, Lister Institute.*)

THE indispensability of the fat-soluble A accessory food factor in the nutrition of the rat is now well established. There is, however, no information as yet available concerning the effect produced by depriving the food of other animals of this factor. This note describes some preliminary experiments instituted with the object of studying the influence of a diet free from the fat-soluble A factor on monkeys. These animals have proved to be very suitable for dietetic experiments. It has been shown by Hart and Lessing (1913), and Harden and Zilva (1919), that by feeding them on a scorbutic diet, scurvy closely resembling the human disease can be induced. It was therefore of interest to watch the behaviour of monkeys subsisting on a diet lacking the fat-soluble A factor.

The Experimental Diet.

Three female monkeys (Macacus rhesus), aged about 2 years, were employed. Each of these animals received the following daily diet: Boiled polished rice, 250–300 g.; "Marmite," 10 g.; salt mixture, 2 g. This diet, as will be seen, was free from the fat-soluble A factor. The rice and the "Marmite," which is a yeast preparation, had been tested on rats and found to be free from that principle. The "Marmite" served both as a source of the antineuritic accessory factor and as a nitrogenous supplement to the rice. As an antiscorbutic lemon-juice, from which the acids had been removed according to the method of Harden and Zilva (1918), was employed, a dose equivalent to 4 c.cm. of the original juice being administered daily to each animal. The diet was therefore complete in every respect, except that it lacked the fat-soluble A factor and was low in fat.

Progress of Experiments.

The experiments were commenced on May 16th, 1918. Monkeys 17, 18, and 19 weighed at the time 2460, 2240, and 3280 g. respectively. During the first two months they showed a slight decline in weight, but after that period this ceased and they maintained their weight. On Nov. 30th No. 17 received 10 g. of purified butter-fat and No. 18 10 g. of olive oil per day in addition to their daily ration, whilst the diet of No. 19 was left unchanged. This alteration in diet was introduced in order to see whether the addition of butter-fat would stimulate growth in No. 17 at this stage, whilst olive oil, which has been shown to be free from the fat-soluble factor, was given to No. 18 in order to ascertain the effect of the addition of fat in the absence of the accessory factor. No. 17, however, showed no tendency to grow after the addition of the butter-fat to its diet. It remained very thin to the end of the experiment, was lively, and showed no signs of indisposition.

Monkey No. 18 also did not grow after the addition of the olive oil to its diet. It differed from No. 17 in so far that it gradually developed the characteristics of an animal suffering from malnutrition—namely, staring coat, indolence, and general lack of alertness. This state of malnutrition could not, however, have been due to a quantitatively inadequate diet, as the animal consumed its entire ration. This condition lasted until Jan 2nd, 1919, when the animal was observed at 11 A.M. to be very ill and was unable to sit up; it succumbed two hours later. Post mortem the animal was found to be in an emaciated condition, but nothing abnormal could be discerned.

Monkey No. 19, which remained on its original diet, maintained its weight until the end of January, after which it commenced to decline. Beyond this fall in weight nothing abnormal could be observed in the animal, its general appearance and deportment being quite normal. The loss of weight continued throughout the month of February. On Feb. 27th the animal first manifested well-pronounced œdema in the right side of the face. The condition improved slightly during the two following days, but on March 2nd the entire face, including the eyelids and tissues surrounding the orbits, were found to be very œdematous. On further examination well-marked œdema was found in the regions of the buttocks, arms, and the backs of the hands. The skin pitted readily on pressure and was not red. A sample of urine was passed directly into a clean vessel; it was pale yellow in colour and on examination revealed no albumin, either on acidifying and boiling or by the salicyl-sulphonic acid method. On March 3rd the œdema in the face was better. The urine showed a very slight turbidity on acidifying and boiling, but it had been collected through the perforated bottom of the case, and consequently had come in contact with the food. On the following day the œdema was again worse. A sample of the urine collected through the bottom of the cage again showed only a very slight turbidity on acidifying and boiling. The œdema persisted and became gradually worse. On March 1st the animal, for the first time since the commencement of the experiment, left some of its food uneaten; it developed diarrhœa, and by the 11th this had become very severe, and the animal was in such a very weak condition as to be unable to support its head, which showed a tendency to hang down. The œdema was, however, a little better than on the previous day. Knee-jerks were present; rectal temperature 98° F. The animal was then chloroformed owing to its distressed condition. At the post-mortem examination there was found a slight enlargement of the mesenteric glands; the right suprarenal adhered to the kidney, and in the lower part of it there was a small cyst which contained a thick opaque fluid, free from cells.

Monkey No. 17, which was in a lively condition but still very thin, was at this stage put on mixed diet (March 11th).

Results of Experiments.

All the animals had been kept for 198 days on the experimental diet before it was modified by the addition of butter-fat and olive oil. During the whole of that time, although they did not grow, they showed no signs of ill-health. As already mentioned, the addition of butter-fat to the diet of monkey No. 17 did not actually stimulate growth but kept the animal alive for 299 days, after which the experiment was stopped. The addition of olive oil to the diet of No. 18 did not prevent the animal from declining, and eventually succumbing, with no definite symptoms after 262 days. No. 19 first displayed symptoms of œdema 289 days after the experiment had been commenced.

As already noted, the diet employed, in addition to lacking the fat-soluble A factor, had also a very low content of fat and the effect of a low intake of this dietary constituent on monkeys is not yet known. These observations, therefore, can only be considered as of a preliminary character, and further experiments will have to be carried out in greater detail and on a larger number of animals before definite conclusions can be drawn as to the cause of the phenomenon.

Remarks.

Whether the foregoing results have any connexion with the œdemata observed by Bloch in underfed children or with "hunger œdema" it is impossible at present to say. Various experiments are in progress on the subject, but as they are necessarily of a protracted nature we considered it of interest to record the observations already made.

We wish to express our thanks to Dr. J. A. Arkwright for his valuable advice and criticism and for having carried out the post-mortem examinations.

References.—Harden and Zilva (1918): Biochem. Journ., xii., 259. Ibid. (1919): Journ. Path. Bact., xxii., 246. Hart and Lessing (1913): Der Skorbut der kleinen Kinder (Stuttgart).

MEDICAL MAYOR.—Dr. T. G. Lewis has been selected as Mayor of Newport (Mon.) for the ensuing municipal year.

SOME CURIOUS CASES OF
VIOLENT EXCITEMENT.

By A. L. TAYLOR, B.Sc., M.B. EDIN., F.R.C.P. EDIN.,
MEDICAL SUPERINTENDENT, CRAIGEND NEURASTHENIC HOME.

IN a series of almost 800 admissions to the mental ward of a general hospital in France it is not surprising that there should be a few patients of very uncommon types. The following seven cases, in which the leading disorder was a brief and violent attack of excitement, should be of interest to the medical profession, but more particularly to the psychiatrist and the medical jurist. Subjects of such disturbances invariably make their début in a criminal court, though perhaps later they may be confined in an institution for the insane.

The Cases Described.

CASE 1.—Gunner W.; trench mortar battery; aged 37; three years fighting in France. Admitted Nov. 21st, 1917, for observation of mental condition on account of some letters to his mother in which he said he was afraid that his old trouble was coming on again. The men in his own unit were unanimously of opinion that he was sometimes not "right in the head." The patient was a bright, good-looking, intelligent man, and said that ever since he could remember he had had a violent temper; he nearly killed his brother with a horsewhip at the age of 10, and was taken from school at 12 because of his dangerous propensities. He enlisted in the infantry at 16, and soon after was sentenced to seven years' penal servitude for setting fire to a stable. He attempted suicide at Dartmoor, and shortly after release got 18 months' imprisonment for housebreaking. More recently he has lived in America and has had several recurrences in which he has good reason to believe that he has committed murders. He came to France with the 1st Canadian Division, and was 14 days in hospital after being blown up at Ypres in 1915. He states definitely that at irregular intervals a desire to go off by himself comes over him and that at such times he will assault anyone without provocation. His attacks of violence are always preceded by severe headache, and he feels as though a wire was tightly twisted round his head. He never has any recollection of his conduct during the attacks, which are always less frequent when he is at sea. Family history shows an alcoholic father, an insane epileptic maternal aunt, a badly epileptic maternal cousin, and a brother who took fits in early childhood. This man was under my observation for a comparatively long time, but had no attacks, and was well behaved and useful as an assistant orderly.

CASE 2.—Sgt. H.; infantry; aged 35; 16 years' service in Regular Army; D.C.M. in 1915. Admitted to mental ward Feb. 4th, 1917, with the statement that before he was sent to the C.C.S. he had suddenly become violently excited, the attack evidently having been a very brief one. Gives a history of attacks of unconsciousness in 1908 and 1911 (while on reserve), and while at home on leave in 1915 fell down in the street and knew nothing for an hour. No aura, history of convulsions, or signs of hysteria.

CASE 3.—Pte J.; infantry; aged 33. Admitted June 28th, 1918, for observation because, when warned for duty with a working party and addressed as "J." and not as "Private J." he took the N.C.O. by the throat and knocked him down, afterwards making to shoot the party who came to the rescue. His history shows that he had heat-stroke at Singapore six years before (fell down suddenly, was unconscious for two hours, and ill for six weeks); two months after this "ran amok" twice in Yokohama and "laid out" a considerable number of Japanese; he then went to Australia and had similar attacks every six months or so; he knew when they were coming on and went off by himself into the bush. He never had any attacks before the heat-stroke, and alcohol had nothing to do with them. Was rejected for the Australian Army, but came home and joined the English infantry. It may be noted that the present attack occurred in hot weather.

CASE 4.—Gunner L., aged 43. Admitted Nov. 6th, 1917. Reported sick to the regimental M.O. and threw a Mills bomb at him. He was in a semi-conscious condition on admission to the field ambulance, recovered after about five minutes, and had no recollection of what had happened. He stated that he had had a similar attack during the South African war and several in civil life, his conduct having once led to a sentence of 14 days' imprisonment for suddenly and unreasonably attacking an acquaintance with whom he was walking along the street. Was invalided from Salonica after a similar attack. No aura.

CASE 5.—Pte. P., aged 19. Admitted May 8th, 1918, as he had behaved in a strange manner on April 15th, talking about a long march (which had not taken place) and threatening to shoot himself and all the other men in the tent; was very emotional next morning, and for the following fortnight was in an apathetic condition, from which he gradually recovered. His history showed that in 1916 when working as a riveter he fell down the funnel of a destroyer and landed on his head; ever since then he has had severe attacks of pain in the left temporal region, which when very bad are succeeded by periods in which he does not know what he is doing. On one of these occasions he tried to drown himself in the Tyne at Haddington. No abnormal sensory physical signs.

CASE 6.—Pte. B.; infantry; aged 20. Over two years fighting in France. Admitted June 18th, 1918. History of case is that in December, 1915, he had a sort of faint attack at a picture-house, a similar attack at Bruay in May, 1918, and while convalescent from a wound an attack of violent excitement, for which he was admitted to the mental ward. Was dull and confused on admission, but improved rapidly. On July 1st, 1918, after muttering to himself while apparently asleep, became very violently excited and did not settle down for nearly three hours, and not without an enormous amount of sedative; slept for a few hours and remained in a dull condition for a few days before he recovered his normal mental state. He showed numerous cutaneous areas of insensibility to pain.

CASE 7.—Pte. K., aged 26. Admitted Nov. 8th, 1916. Sent to the mental ward for observation because he was found wandering and unable to give any account of himself. Diagnosis of dementia præcox was suggested owing to his constant lassitude and disregard of personal cleanliness. His history is an extraordinary one: his father was a soldier and took him to India at the age of 3; he remained in India, enlisting in the infantry at 17; had a severe attack of heat-stroke in 1907 with pyrexia 108° F., and was discharged the service in 1912 because he was always in trouble, though he had obtained a first-class certificate in drill and musketry and second-class in education. When at home he again enlisted in another regiment, but after having been court-martialled four times was again discharged. Enlisted again in June, 1914, and when serving in France in 1915 was sentenced to two years' imprisonment for drunkenness and malingering; escaped from the military prison, got into the mental ward of a hospital, was labelled epilepsy at "D" Block, Netley, and again discharged the service. In January, 1916, joined a labour battalion, rose to corporal, was reduced for drunkenness, and sent to the regular line battalion in France in June, 1916, just in time for the first battle of the Somme, was buried by a shell, and thereafter sent to hospital for a week; subsequently his regimental M.O. certified that he was mentally unsound, after his being charged with drunkenness and discharging firearms in a billet; after this he became drowsy and confused, with visual hallucinations. Was perfectly well under my observation, and was an intelligent and rather attractive man. His attacks were always the consequence of drinking spirits, of which a very small quantity sufficed to produce violent excitement. He could drink moderate amounts of beer without evil results.

Remarks on Diagnosis.

In the above brief account negative facts, such as the absence of bad family history, the absence of organic nervous disease, or even the absence of physical signs which might arouse the suspicion of such disorders as general paralysis or chronic alcoholism have not been included.

Cases 1, 2, and 4 need little comment; they are interesting examples of men suffering from minor epilepsy, two of whom are fortunate in not so far having been permanently confined. Case 3 is identical with the last mentioned except for the important fact that the cerebral instability was produced by insolation.

In Case 5 it is difficult to settle the diagnosis between hysteria and epilepsy, as the initial head injury may have produced either. The case falls into the so-called epileptoid group of some writers, the difficult point being the absence of "objective" sensory disorders; the latter, however, can by no means be regarded as an essential feature of a traumatic hysteria, though admittedly extremely common in such cases. I am inclined to favour the diagnosis of hysteria, taking into account the youth of the patient, the emotional nature of the primary accident, and the absence of family history or any suggestion of previous epilepsy.

Case 6 is an extreme instance of hysterical excitement. I do not remember ever having had to give a patient so much sedative; it will be interesting to some to learn that the dose which finally settled the matter and produced sleep in 10 minutes was a hypodermic injection of ʒ ii undiluted paraldehyde, which, given in the pectoral region, produced no trace of local irritation; quite apart from dealing with violent patients, this is a useful method of administering a nauseous drug.

Case 7 is extremely interesting, a primary attack of insolation producing a great susceptibility to spirits. The condition is that described by the alienists of the Victorian era as "mania a potu." This susceptibility of neurotic persons to alcohol seems to me to be the cause of many misleading statistics on the so-called causes of insanity which are published annually. The person who drinks large quantities of liquor produces bodily disease, but seldom chronic mental disease; on the other hand, the progeny of alcoholics have a very strong predisposition to functional nervous and mental disturbances. I have observed many times in the course of studying war psycho-neuroses that men who in their hale and hearty days were able to drink a bottle of whisky in 12 hours or less with comparatively little inconvenience are, when they become the subjects of functional nervous disorder, seriously upset by a few glasses of spirits; in many cases this has been prescribed by a solicitous friend as the medicine which is likely to do the unfortunate patient the most good.

To the foregoing collection of 7 cases a good many more similar ones could be added, each possessing its own special points of interest. I have offered these notes for publication in the belief that a record of unusual conditions, even if it does not lead to valuable original observations, is often of interest to medical men.

Liberton, Midlothian.

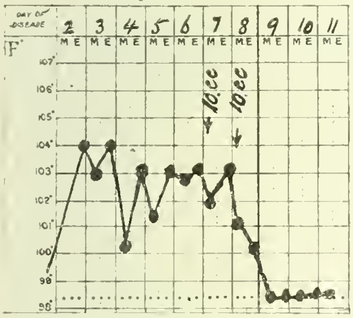
THE VALUE OF
ANTISTREPTOCOCCUS SERUM IN INFLUENZA.

BY W. HUGHES, M.B., M.R.C.P. EDIN.,
CAPTAIN, R.A.M.C., T.C., HOLBORN MILITARY HOSPITAL, MITCHAM, SURREY.

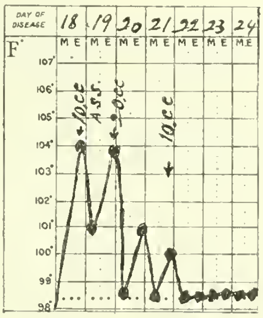
THAT the bacteriological reports of the recent epidemic of influenza have been conflicting is not to be wondered at when we have to deal with several organisms, each in itself capable of producing the pathological result. In one case the streptococcus, in another the pneumococcus, or again, in another the Pfeiffer bacillus, or all three may be present. In a mixed infection, whether the predominant organism is the principal factor, or whether it is a question of symbiosis is still, so far as the recent epidemic is concerned, undetermined. We know, however, that a mixed infection is usually more severe than a pure one. The discovery of a filterable virus and of a cocco-bacillus quite recently opens up the obscure fields of variants and pleomorphism. We know that in cultures the pneumococcus can sometimes grow in chains, and may show no capsule, and that some strains of streptococci may grow as diplo-streptococci, and may even show a capsule; and furthermore, agglutination tests have shown that the streptococcus mucosus and the pneumococcus are allied in some way. Hicks[1] has also shown that in cultures the *B. influenzæ* may appear almost like a coccus, in short chains, or in pairs. That there must be some hæmorrhagic factor at work is indicated by the frequent occurrence of epistaxis, hæmoptysis, menorrhagia, purpuric and petechial skin eruptions. As from most of my cases a diplo-streptococcus was isolated, probably the streptococcus mucosus, I was induced to try the effect of antistreptococcus serum. At first I used it only in those cases where pneumonia was definitely established. Later, when I saw the beneficial results in pneumonic cases, I adopted as a routine measure the injection with serum of all cases classified as influenza immediately on admission.

Justifiable Treatment.

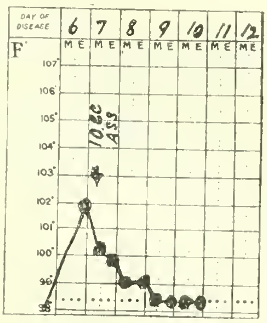
The application of serum-therapy in a disease like the recent epidemic, the bacteriology of which was still undetermined, might obviously lead to the erroneous conclusion of "post hoc" being "propter hoc." The treatment is justifiable, however, when, as was the case in this epidemic, we are dealing with a mixed infection. Whatever organism may finally be adjudged to be the specific cause, the fact remains that in a mixed infection, if we can remove one of the factors which is intensifying the disease, we may enable the patient to overcome the primary infection by his natural resisting powers. Thus antistreptococcus serum has been used for preventing or cutting short the duration of complications in small-pox, and also for combating the invasion of ulcerating pulmonary areas by streptococci in phthisis. The results have in many cases been successful and encouraging. The use of antistreptococcus serum in treating cases of influenza during the epidemic under notice is based on the same principle. That the results were in many cases striking and encouraging cannot be denied, especially when the patients were treated in the early stages of the disease, but other phenomena had to be considered before looking on it as being in any way specific.



CASE 1.—This case was treated with serum after five days' illness. The symptoms were severe, with profuse epistaxis. After the first dose of serum the epistaxis was checked, and the second dose soon brought the temperature to normal.



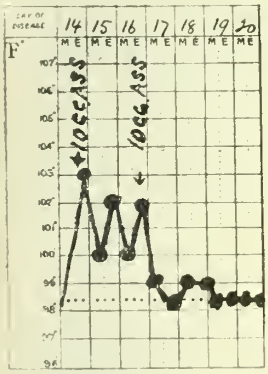
CASE 2.—Bronchial type with severe throat infection.



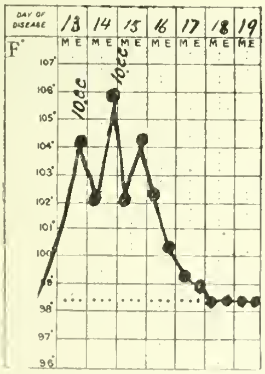
CASE 3.—Appeared very ill on admission with profuse epistaxis, which was checked by the first dose of serum.

Observers' Results.

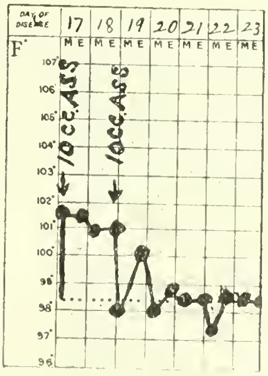
After the introduction of the antitoxin treatment of diphtheria many observers were struck by the beneficial results obtained when antitoxin was given in suspected cases of diphtheria which were subsequently found by bacteriological examination to be streptococcal, staphylococcal, or pneumococcal infections. Paton in 1902 considered diphtheria antitoxin to be of considerable use in raising the power of resistance in infective conditions. He also considered the use of normal (untreated) serum of value in many other conditions, including tuberculosis. The serum was given by the mouth. Quite recently we have the report of a French physician, Folley,[2] claiming to have treated successfully with antiplague serum 500 cases of the epidemic influenza type (as this treatment was based on the finding of a cocco-bacillus allied to *B. pestis*, it may, of course, be specific). These results would lead us to suppose that the serum of an animal which has been immunised against a certain organism or toxin may contain not only a protective substance against that particular organism or toxin, but also a protective substance against other organisms of different species. That this phenomenon might be explained when we use bodies of bacteria as antigens is possible, but not easy when the antigen is a specific exotoxin. In the latter case the antitoxin may, of course, acting as an excitant, produce some beneficial effect by inducing increased phagocytosis In all these cases, too, some reaction due to protein therapy must be taken into account. On the other hand, treatment of cerebro-spinal fever with antimeningococcic serum was disappointing until homologous, especially univalent, sera were prepared. On the whole, however, the bulk of evidence is in favour of the fact that when an antiserum produces satisfactory clinical results it must be specific in character.



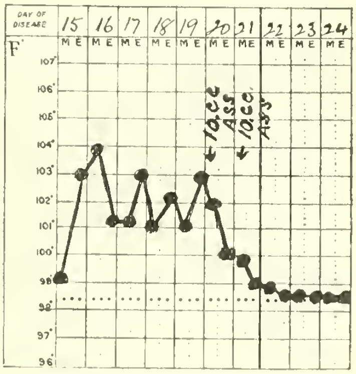
CASE 4.—Lobar pneumonia, right base.



CASE 5.—Lobar pneumonia, right apex.



CASE 6.—Lobar pneumonia, left base.



CASE 7.—Lobar pneumonia, right base.

Precautions Advisable in the Use of Antisera.

There are certain important points in connexion with antisera which we should always keep before our minds. These may be mentioned briefly. The serum of an animal immunised against an organism of the endotoxic group will, if the serum be collected at the proper phase, contain protective substances against that particular organism. These protective substances include bacteriolysin, precipitin, agglutinin, opsonin, and complement-deviation substances. So far, it is admitted generally that no anti-endotoxin in any appreciable quantity is formed. We cannot, therefore, look upon it as an antitoxic serum. If we assume that the most important substance is bacteriolysin we must conclude that the value of the serum, when used therapeutically, will depend on whether there is sufficient complement in that serum, or in the blood of the patient being treated, to bring about the desired reaction of bacteriolysis. The action of antistreptococcus serum, however, is difficult to explain as it does not produce bacteriolysis in vitro. On the other hand, Sir A. E. Wright[1] has conclusively shown that a so-called antiserum may not only *not* contain protective substances, but may even contain the very toxic matter injected for the purpose of producing immunity; furthermore, he has pointed out that certain sera of this character, which have been used with some therapeutic success, produced their beneficial effect just like vaccines—e.g., the patient had an exacerbation of his symptoms, after the injection of serum, before improvement took place. These facts are very important and should teach us to be very careful about the initial dose of any antiserum derived from endotoxic organisms. Another important point, and one which is of special importance nowadays on account of the extent of serum therapy practised during the war for the treatment of tetanus, dysentery, cerebro-spinal fever, &c., is that of anaphylaxis.

Points to be Noted.

These facts should make us pay special attention to the following three points in using an antiserum derived from an endotoxic organism.

(1) The serum should always be kept on ice until required for use, as any complement in the serum is soon lost at ordinary temperatures. The reinforcement or replacement of the complement can, of course, be carried out by adding some fresh serum, if available, to the antiserum before injecting.

(2) The initial dose of serum ought to be on the small side, lest the serum act like a vaccine and so produce an excessive negative, or what Sir A. E. Wright[4] now prefers to call apo-phylactic, phase. If there is a considerable rise of temperature, especially if accompanied by an exacerbation of the other symptoms, within 24 hours after the initial dose, it is advisable to give the next dose of serum from a new stock or use that of a different maker. I have had only one case of this character (vide Case 5) which showed increased severity of symptoms after the first dose, improvement taking place when I gave the next dose with a different maker's serum.

(3) On account of the extensive use of serum therapy during the war in the treatment of tetanus, dysentery, cerebro-spinal fever, &c., the importance of attempting to find out from the patient whether he has ever had serum treatment before should be emphasised. If the patient has had serum injections within a comparatively recent period he should be desensitised by a preliminary small subcutaneous injection of serum (0 5 1 c.cm.) given four hours before the curative dose, or by Besredka's method, to prevent anaphylaxis.

Cases Treated.

Cases of influenza.—Sixteen cases of epidemic influenza in the early stages of the disease were treated with antistreptococcus serum, injected subcutaneously into the back below the scapula. The initial dose given was 10 c.cm., repeated every 24 hours if the temperature was still up. In most cases there was a fall of temperature to normal, and rapid recovery after one or two injections. In no case was more than 40 c.cm. required. The clinical manifestations of these cases varied considerably. The symptoms common to all were fever, headache, aching in the lumbar region and limbs, pulse rapid, low blood pressure, whitish furred tongue with clean edges, conjunctivæ often hyperæmic. The throat varied from a congestive condition, slightly œdematous, and purplish rather than red in colour, to a well-marked septic throat showing many yellowish patches from which a diplo-streptococcus was isolated. The pulmonary symptoms ranged from a mild bronchial catarrh to a well-marked bronchitis, and many I looked upon as potential pneumonia cases, the respiratory murmur being feeble or inaudible, with well-marked crepitations over one or both bases, showing involvement of the alveolar tissue, and many rhonchi and râles. Epistaxis occurred in three cases and was of a profuse type; it was checked soon after the first dose of serum. All these cases made a rapid recovery and never developed pneumonia or prolonged bronchial trouble. Some specimens of the temperature charts are shown herewith.

Cases of pneumonia.—Fourteen cases of epidemic pneumonia were treated with antistreptococcus serum. Of these 11 were given the serum subcutaneously, and three intravenously. The 11 cases treated by subcutaneous injections were established cases of pneumonia on admission. The right base was involved in six cases, the left base in four, in three both lungs were involved, and one was a right apical pneumonia. Of these 11 cases two died. Of the two that died, one had a history of two previous attacks of pneumonia, and the other was a very virulent type, profoundly toxæmic, and complicated by hæmoptysis, small quantities of blood being continually brought up. In neither of these cases did the serum appear to have any beneficial result. On the other hand no bad effect was noticed. The maximum amount of serum given in any of these cases did not exceed 40 c.cm. The three cases treated by intravenous injections were admitted in a moribund condition, being profoundly toxæmic. One was maniacally delirious, and two were comatose. Although in two of these cases the serum seemed to bring the temperature down a little there was no improvement in the general condition and all three died. In all the fatal cases both lungs were involved. The serum used was obtained from two reputable makers and was polyvalent. Specimen temperature charts of some of the cases that recovered are shown herewith. There was no profuse sweating of the ordinary pneumonia crisis in those cases that recovered.

Conclusions.

There is no doubt that antistreptococcus serum aborted or considerably shortened the course of the disease in ordinary cases that were seen early. Whether any of these cases would eventually have developed pneumonia if they had not been given serum is, of course, impossible to say. The fact, however, that the serum was proved to have a beneficial effect in pneumonic cases justified one in thinking that it sometimes aborted a potentially pneumonic one. The value of the serum, speaking generally, depends on whether a streptococcus is implicated in any case, and on the treating of the patient in the early stages of the disease. In those very virulent and fulminating pneumonias characteristic of the epidemic the serum was disappointing. The administration of a preliminary dose of 10 c.cm. of antistreptococcus serum while waiting for the bacteriological report can do no harm in cases that are seen early, and may be, on the other hand, of great advantage to the patient. In the very grave pneumonic cases the danger of anaphylaxis or an unreliable serum should be carefully considered. I have to return my sincere thanks to my C.O., Colonel H. H. Dimmock, O.B.E., I.M.S., commandant of the hospital, for the great interest which he took in these cases and for permission to publish these notes, and to Dr. P. W. Nicol, bacteriologist to the hospital, for his valuable assistance and reports.

Since this paper was written Thomson[5] has pointed out that a strain of streptococcus isolated from a case in the recent epidemic was found by him to be an extremely small coccus and in his opinion capable of passing through a filter. He also found it to be hæmolytic and very toxic.

References.—1. THE LANCET, 1919, i., 420. 2. THE LANCET, 1919, i., 656. 3. Studies on Immunisation, 306–313. 4. THE LANCET, 1919, i., 490; Bosanquet and Eyre: Serums, Vaccines, and Toxins. 5. THE LANCET, 1919, i., 1107.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A CASE ILLUSTRATING THE USE OF CARDIAC MASSAGE IN CIRCULATORY FAILURE FOLLOWING THE ADMINISTRATION OF CHLOROFORM, ETHER, AND OXYGEN.

By M. J. PETTY, JUN., M.B., B.C. CAMB., F.R.C.S. ENG.,
SURGEON TO THE MODEL INSTITUTE OF THE RAWSON HOSPITAL, BUENOS AIRES.

IN the following case it is interesting to note that syncope occurred twice, and on each occasion responded to direct treatment. Special attention is directed to the force with which the massage was performed, and also that in this case it was seemingly advisable to continue working until the normal rhythm of respiration was re-established. In common with other cases who have suffered from this accident, the period of post-anæsthetic unconsciousness was much longer than that due to five minutes' anæsthesia, for the patient was comatose during 12 hours. The total period during which there was no cardiac action was 6¾ minutes.

The Case Described.

The patient, a man of 54 years of age, was diagnosed provisionally as a case of cancer of the stomach; since no tumour was palpable it was probably not too advanced for operation. His general condition was fairly good, the pulse-rate being about 84, but the arteries were tortuous and somewhat hard, hence the possibility of some untoward event during the administration of a general anæsthetic was foreseen. Preparation for the operation consisted in giving a purge, a stomach wash-out, and an enema on the morning of the operation. The apparatus for the administration of the anæsthetic was the German Roth-Dräger machine, which gives a continuous and easily regulated flow of chloroform, ether, and oxygen. The small respiratory abdominal excursion it evokes makes it an ideal apparatus for abdominal surgery. At 11.30 A.M. the induction of anæsthesia was started and within a few minutes the patient was receiving 60 drops of chloroform and about 150 of ether per minute. No struggling occurred during this period. At 11.35 A.M., being informed that the patient was ready for the knife, I started making a supra-umbilical para-median incision, when I noticed that no blood oozed into the wound, and at the same time the anæsthetist informed me that the man had ceased to breathe. It was evident that the state of affairs was even worse, for the patient was very pallid, his pupils were widely dilated, and other doctors present could feel no radial or carotid pulse. Artificial respiration was immediately performed, injections of caffein, strychnine, &c., were given, but to no purpose, for the pallor became more marked and the glassy look in the patient's eye more ominous. The only result was a respiratory grunt when the thorax was compressed. Placing a sterilised towel over the præcordium neither I nor my colleague could detect any cardiac sounds. Meanwhile an intravenous injection of caffein had had no effect. At 11.40 A.M. I determined to massage the heart through an incision in the linea alba. I felt for the apex with the tips of my fingers. Finding it flaccid and seemingly empty, I waited a few seconds for some slight contraction to take place, but since no such movement was felt firm pressure was made with fingers stroking the heart from the base towards the apex and upwards against the præcordium at the rate of 30 to the minute. The amount of force used was considerable; if the diaphragm had not been tendinous at this point my fingers would probably have passed through into the thorax. At 11.41 A.M., after about 30 seconds of rubbing, violent cardiac contraction occurred, startling me by its intensity. The massage was stopped 15 seconds after the heart had started to beat; but meanwhile the fingers were kept in contact with the diaphragm. The beats were very irregular, and suddenly, at 11.41¾ A.M., another cardiac syncope occurred. Immediately massage was restarted, but no response was obtained for a whole minute. When the heart beat again I determined not to stop until normal respiratory movements were fully established. Once this took place the wound was sewn up in three layers and the patient hurried to bed.

The treatment now consisted in warming up the patient and sustaining the heart. Two-hourly injections of 5 c.cm. of a 10 per cent. solution of camphorated oil and Murphy's proctolysis were administered. At 1 P.M. movements of the eyeballs, then of the eyelids, and finally of the limbs, took place. It was evident that the patient was slowly regaining consciousness. Oxygen was still being given. At 5 P.M. the patient was still unconscious, and, according to the nurses, had been so violent that he had been tied down to the bed. All the muscles were rigidly contracted, the position of the patient being somewhat similar to that of tetany. This spasm was soon overcome by an injection of morphia and strychnine given simultaneously. About midnight the first reasonable words were spoken by the patient, the oxygen was stopped, and the patient fell into a quiet sleep. At 11 A.M. the next morning the patient looked pale; his pulse was good, and he did not complain. On the morning of August 15th the stitches were removed, the wound healing per primam.

The lesson which I should be inclined to draw myself from this case is a practical one. If, on making an incision for a surgical operation, no oozing of blood occurs and the pulse should be found to be absent, there is an indication for immediate heart massage.

PERFORATION OF THE CÆCUM BY A PIN:

DEATH FROM GENERAL PERITONITIS.

By JOHN A. C. MACEWEN, M.B., C.M., B.Sc.,
F.R.F.P.S. GLASG.,

VISITING SURGEON, GLASGOW DISTRICT HOSPITALS; ASSISTANT SURGEON, GLASGOW ROYAL INFIRMARY; HONORARY SURGEON, ERSKINE HOSPITAL FOR THE LIMBLESS, ETC.

THE writer has previously reported cases of perforation of the appendix by foreign objects, but, fortunately, in most of these the appendix and termination of the cæcum formed the contents of a scrotal hernia, and the peritonitis was accordingly circumscribed. In this case matters were unfortunately otherwise.

The patient, a soldier, was admitted to hospital in extremis. Very little history was obtainable, save that he had been ill for a week. Advanced general peritonitis was obvious. The abdomen was opened, rapidly cleaned out, and the source of mischief was immediately ascertained to be a pin embedded in the cæcum, the point of which had caused a perforation close to the base of the appendix, through which it projected. The pin was removed and the perforation closed by a stitch, but, in spite of every endeavour made to restore the patient, he died about an hour after the operation.

Medical Societies.

MEDICAL SOCIETY OF LONDON.

The Reclassification and Treatment of Pensioners.

A MEETING of this society was held on Oct. 27th, Mr. V. WARREN LOW, the President, being in the chair.

Colonel A. L. A. WEBB, A.M.S., opened a discussion on the Reclassification and Treatment of Pensioners. He enumerated the various duties which were allocated to the headquarters of the Medical Section of the Ministry of Pensions. These consisted of: (1) provision for reclassification and reboarding and of the personnel connected therewith; (2) provision for treatment; (3) the establishment of convalescent centres; (4) provision of accommodation and supplies, which was passed on to the Army Service Corps; (5) the establishment of a Medical Intelligence Department. The convalescent centre branch was organising big centres for convalescents, and for the training of those who were prevented from following their original occupation. These were under the supervision of medical officers, but were also in the hands of skilled instructors. Some five or six such centres were being organised and should relieve the congestion of beds and of discharged soldiers who were waiting outside institutions. The Medical Intelligence Department was concerned with gaining information of the number of boards necessary and the number likely to be required, with noting any modern findings, either overseas or at home, with the compiling of statistics, and with intelligence generally. The number of boards which were being held was very large and amounted to about 16,000 a week for ex-soldiers other than officers. Cases of officers were only recently being surveyed, but in the case of other ranks this had been going on for some time. Appeal boards were being organised, which, it was hoped, would remove a good deal of dissatisfaction on the part of the ex-soldier.

Organisation of Treatment.

Dealing with the organisation of treatment, he said that an enormous number of cases fell into three groups, an orthopædic group, neurasthenia, and tropical diseases. An officer was being appointed on the staff of each regional commission with special experience of each of these. It was the duty of this officer to investigate his region and see all special cases, to advise on the formation of clinics, and in the appointment of suitable men, and to determine and advise whether a man should remain an out-patient or become an in-patient. The Ministry had a series of hospitals and were now adding to them some 10 or 12, which were being taken over from the army. It was thought at first that the patients in those hospitals would be discharged from the army and would then come under the Ministry of Pensions, but it had been arranged for the Ministry to take over the patients in the hospitals as patients under the Ministry of Pensions, in order to secure continuity of treatment. With regard to orthopædic cases special centres were arranged and radiating from them orthopædic clinics, under the medical control of an orthopædic surgeon and under the administrative control of the Regional Commission and his D.C.M.S. It was hoped to develop similar clinics for neurasthenia. Powers would be given to the Commissioners to appoint referees and a considerable portion of the staffs of necessary hospitals.

Discussion.

Dr. R. M. WILSON said that there were at present a very large number of men in this country so depressed by the belief that they were the victims of disease of the heart as to be afraid to pursue their callings, and yet in many cases they were only victims of a system which had accepted a symptom as a diagnosis. Sir James Mackenzie had always refused to regard cases of "soldier's heart" as heart disease.

He had declared, indeed, that the breathlessness, the giddiness, the palpitation, and the so-called heart pains were but the signs and symptoms of exhaustion, and that the disordered action of the heart was probably due indirectly to some more or less chronic infection. Later work had shown that this form of so-called heart mischief often followed trench fever, malaria, dysentery, and other infectious states and the classification of such cases as heart conditions was quite erroneous; they should be reclassified according to their proper diseases, treated, and if possible cured. The tests of capacity, of which so much had been written lately, were apt at times to become misleading. While it was doubtless true that the state of the heart could be measured in terms of the owner's capacity for work, it was equally true that both that capacity and that state varied with the amount of poison present. He would be a strange physician, for example, who suggested that because a victim of pneumonia was unable to leave his bed on the fourth day of the attack, therefore his heart was functionally inefficient, and who granted a pension on this idea. That case, of course, was an exaggeration, but it served to show how dangerous were mere functional tests of capacity so long as they left out of account the fundamental cause of the symptoms being investigated; in fact, the moment such tests were used to determine the degree of disability they became a snare. This degree could not be estimated until the first cause of the disability had been found and treated. The Ministry of Pensions should refuse to accept a diagnosis of D.A.H. or cardiac neurasthenia, and should demand a fundamental cause or, failing the discovery of this, evidence that a thorough and complete search had been made. In the speaker's experience a cause would be found much more frequently than might be expected. There could be no doubt that such a reclassification would be abundantly justified by the results it achieved.

Major W. BYAM said that he had recently been able to obtain experimental evidence that cases of neurasthenia and D.A.H. may be infected, and that these symptoms were due to actual infection and were not after-effects. A patient with trench fever, whom a prominent neurologist had pronounced to be suffering from neurasthenia, was utilised. By means of the fæces of lice which had fed on this man he had been able to convey to a volunteer trench fever, and subsequently to pass this on in the same way to a third man. The lice had previously been proved to be non-infected. Another instance was that of a man who was very slightly ill with occasional slight rises of temperature. A year and three months before the man had had trench fever. The excreta of lice which were fed upon him were inoculated into a healthy volunteer, who developed acute and typical trench fever. In this case also the disease was afterwards transmitted to a third man in the same way. Another example of the way in which such symptoms were due to actual infection was in cases of malaria. The infection could be demonstrated by splenic puncture.

The PRESIDENT referred to the difficulties which beset the proper pensioning of ex-soldiers and to the ex-soldiers' suspicions that they were being let down. A good deal of a man's capability depended upon the man himself. One man with a small anatomical lesion might be functionally incapable, whilst another might acquire a considerable capacity for work. He suggested that if the pension took the form of a capital sum it might lead to quicker functional adaptation on the part of the pensioner. The creation of pension agents or pension attornies, as occurred in America, should not be allowed.

Dr. CAREY COOMBS said that in Bristol the entire profession had combined to organise a system whereby they hoped that by working from below they would be able to meet the organisation of the Ministry of Pensions working from above. The ex Service man looked on all Government officials as paid to "do him down." It was possible by means of an organisation of quite a simple kind to enlist the whole of the profession in the treatment of the ex-soldier. The man's own doctor should have at his back a suitable set of consultants, hospital accommodation, and an administrative officer. In disordered action of the heart there were two other factors in addition to the continued infection. The Americans, who had had an opportunity of examining their men before entering the army, had found a considerable number who were predisposed to this symptom. The third factor he could only call anxiety neurosis. This condition of the heart was met with in the civilian population and in soldiers who had not been out of the country, in both of whom any special infection could be excluded. It was necessary to have places where men with this symptom could be sorted and treated; otherwise they would become both a continued charge on the nation and useless citizens.

HARVEIAN SOCIETY OF LONDON.

Gastric Ulcer.

A MEETING of this society was held on Oct. 23rd, Dr. JAMES TAYLOR, the President, being in the chair.

Sir BERKELEY MOYNIHAN gave an address on the Diagnosis and Treatment of Gastric Ulcer. He said that the subject of gastric ulcer should be ruthlessly revised in the light of the modern work of the radiographer and surgeon. An accurate landmark of the position of the pyloric opening was the pyloric vein, for it indicated the gastro-duodenal junction in 90 per cent. of the cases. The symptoms of gastric ulcer differed from those of duodenal ulcer, as did also the complications and sequelæ. Moreover, carcinoma was a common event in gastric ulcer, but very rare in duodenal. Duodenal ulcer he regarded as common and manifesting such a definite train of symptoms that its diagnosis could be made with considerable assurance, whereas gastric ulcer was comparatively rare and very difficult to diagnose with accuracy.

Symptoms.

Pain was of prime importance. It occurred with great regularity, usually within an hour or an hour and a half after food. In 66 per cent. it had occurred within an hour and a half. In duodenal ulcer, on the other hand, it followed two hours after food in 80 per cent. In gastric ulcer there was relief before the next meal was taken; in duodenal ulcer the pain continued until food or soda were taken or until the stomach was relieved of its contents. With a heavy meal the pain was later in duodenal ulcer. If the ulcer were near the cardia the pain might at once be made worse, was shorter in duration, and more prone to recurrence. Exceptions to the variety of pain usually met with in gastric ulcer occurred in the presence of adhesions, subacute perforation, stenosis, and erosion of the liver or pancreas. There was then a tendency for it to appear earlier. Severe pain in the back was complained of when the pancreas was eroded, and in 17 out of 23 such cases it was the chief complaint. Before the onset of pain enervation, lassitude, and disinclination for exertion were often met with. The regular rhythm of food, comfort, pain was all-important in the diagnosis. If there were any caprice it was almost certain that there was no organic lesion in the stomach. Gastric ulcer was twice as common in men as in women.

Vomiting was infrequent, occurring in only about one-fifth of the cases, and even with stenosis was little marked.

Hæmatemesis occurred in 25 per cent. The worst cases of hæmatemesis were met with in conditions other than gastric ulcer, and especially in splenic anæmia. When a patient complained of chronic dyspeptic symptoms and the gastric mucosa was found to be weeping blood it was not due to any organic lesion of the stomach itself, but to some lesion in the intestine more remote.

X ray examination was worth all the other methods of examination put together, and enabled a confident and certain diagnosis to be made in 90 per cent. It afforded signs both direct and indirect. The direct sign was that the ulcer with its cavity could be seen; the indirect resulted from spasm occurring either in the segment of the stomach at the site of the ulcer or in a neighbouring segment. X rays showed the stomach almost bisected, and this appearance was almost permanent and persistent. It was unalterable and remained in the same position and of the same size and depth.

Chemical.—Hyperchlorhydria was not constant. In 40 per cent. there was an excess of hydrochloric acid, but in 10 to 20 per cent. there was hypochlorhydria. Excess of hydrochloric acid was also met with in cholelithiasis, chronic appendicitis, and in many other conditions, and he placed little reliance upon it.

Epigastric tenderness was nearly always present, but was also often present in other conditions. Murphy's sign, described on the right side in cases of cholelithiasis, could not infrequently be elicited on the left side in gastric ulcer. There were more mistakes made in the diagnosis of gastric ulcer than in any other abdominal disease. In appendicitis there was a pyloric blush, the pyloric end of the stomach contracted irregularly, and there was a chain of enlarged glands along the greater curvature of the stomach; with these three signs there was nothing wrong with the stomach, but the disease was in the appendix. The symptoms of a gastric ulcer were accompanied by induration and congestion around the ulcer and a copious deposit of fat at its base, by infection and enlargement of the sentinel gland, by spasm, and by altered secretion. All these alterations in the ulcer, in the musculature of the stomach, and in the secretion were present when symptoms were aroused. Similar conditions arose when the stomach was affected by other diseases, by distal irritation. The mimicry had therefore a rational explanation. It would be well for some time, if only for disciplinary purposes, to refuse to accept the diagnosis of gastric ulcer unless it was displayed by X rays or by excision through the abdominal wall.

Treatment.

Medical treatment was directed towards reduction of acidity, but this was not enough to cause or even to help an ulcer to heal. Medical treatment occasionally led to a cure, for, post mortem, a few ulcers had been found healed. Before an estimate could be made of the value of medical treatment the ulcer should be seen by X rays before it was begun and demonstrated as healed afterwards. An ulcer did not long remain healed, for attacks recurred. Moreover, there was no chance of healing except by treatment continued over many weeks or months. By healing, too, a condition was often produced which called for surgical treatment for its relief.

The operation usually performed had been gastro-enterostomy. It drained a blocked stomach, and was said to have a physiological effect by allowing the contents of the intestine to enter the stomach. If the ulcer were distal to the gastro-enterostomy opening the result was probably satisfactory; if proximal it could be of little value, for he had little belief in the physiological effect. Gastro-enterostomy alone would not cause healing of or prevent the development of a gastric ulcer. Carcinoma was a real danger; 50 per cent. of gastric carcinomata developed in simple ulceration. He had abandoned gastro-enterostomy altogether for gastric ulcer. Excision of the ulcer he regarded as unsatisfactory. Balfour's operation in which a cautery was used was more satisfactory, but there was a better. For some time he had employed partial gastrectomy. It obviated the chance of recurrence. Of 49 ulcers removed by this operation, three had shown evidence of early carcinoma. With very large ulcers partial gastrectomy could not be employed, and total gastrectomy was a very serious operation. For these he employed the Y-shaped loop operation and had thereafter fed the patient through the jejunostomy opening.

NORWICH MEDICO-CHIRURGICAL SOCIETY.

Medicine and the State.

THE opening meeting of this society for the present session was held on Oct. 14th, under the presidency of Dr. A. BURTON, of Cromer.

Sir WILMOT HERRINGHAM gave an address on the Relation of the State to the Medical Profession, and described the Glasgow scheme for a public medical service, which had been the subject of a leading article in THE LANCET of Oct. 11th. The following advantages were, he said, indicated as likely to accrue to the general practitioner if such a medical service, based as it was on the R.A.M.C., were adopted: (1) He would have a fixed salary and would be relieved of the burden of book-keeping and the worry of bad debts. (2) Regular annual leave, with the provision of a locum-tenent, would be a great desideratum. (3) An opportunity would be given for occasional "study-leave" to attend post-graduate classes. (4) It would lead to a greater independence in his relations with patients, and would raise the standard of the profession.

Certain difficulties and disadvantages of the scheme were alluded to. In the Glasgow medical service the senior medical men would have the rank of colonel, and pay of £800–£900 a year. The speaker stated that the proportion of colonels to junior officers in the R.A.M.C. was 1 to 12; but if this scheme was adopted there would be 400 colonels to every 1000 officers between the ages of 25 and 60, and 1 colonel to every 2 officers over that age. This would necessitate a great increase of pay, and he did not believe that the Government would ever consent to pay a civilian medical service at a higher rate than that of the R.A.M.C. The chief crux, however, seemed to be the question of promotion, which in the lower ranks would depend on the goodwill of the senior officers, and few young men in general practice would care to be judged as to their fitness for promotion by senior general practitioners. Probably the criterion for eligibility for promotion would come to be, as in the army, a capacity for sending in reports. The tendency in Government services was for promotion to go mainly by seniority. Not long ago an attempt was made to adopt a system of selection by merit in the R.A.M.C., and the War Office published a list of men so promoted. This effort on their part, however, was received with such dissatisfaction in the service that the list had to be amended. Any scheme in which favouritism would be likely to play a part would never be received favourably by the civilian medical profession.

Would such a scheme be for the advantage of the profession or not? To answer the question it would be well to compare the standard of practice in the R.A.M.C. and in civil life. In Sir Wilmot Herringham's opinion the standard is unquestionably lower in the R.A.M.C. than it is in civilian practice. The consulting surgeons who went to France had to raise the standard of surgery to that of civilian life. The R.A.M.C. surgeons were only second class, and as to physicians—well, they hadn't any. The treatment of the army in this campaign has been of a far better character than that of any army previously in the world's history, and that was due to the fact that the medical and surgical attendance on soldiers was in the hands of civilians. The road to success in the army was, not to try to do things better than other people, but to do just enough routine work to escape censure. The very worst atmosphere for any scientific profession was the atmosphere of obedience.

The objection of the general public to the proposed medical service would be that they would be afraid of its interfering with the "choice of doctor," and that it would lead to greater independence of the doctors—one of the points most in favour with the profession itself.

Suggested Improvements in General Practice.

Having arrived at the conclusion that the Glasgow scheme would not meet with favour from the profession at large, the general public, or the Government, the speaker made certain suggestions as to the improvement of general practice as it now exists. He pointed out that a large part of general practice now consisted of insurance patients and that the panel system had delivered the doctors from the tyranny of the clubs. He suggested the following improvements in general practice: 1. Greater facility for consultation; this would be easy enough to arrange in towns, but in country districts there would have to be some sort of scheme of itinerary consultants. 2. Increase of hospital accommodation. There were now enormous "waiting lists" at all general hospitals of people waiting for what he called "enabling" operations—e.g., for hernia, varicose veins, &c.—whose unemployment caused a great drain on the public purse. He suggested that more use should be made of the Poor-law infirmaries, which were in many cases quite up to date in their equipment and staff. There was also much need for hospital accommodation for people of moderate means. The very rich and the very poor were well catered for in sickness, but persons of moderate means were at a great disadvantage at present. He suggested some such scheme as that which he had seen at a hospital in Cologne for paying patients, who were divided into three classes according to their means: (*a*) those requiring two rooms, (*b*) those satisfied with a single room, and (*c*) 8 to 10 persons in a ward together. 3. Insurance patients should be able to obtain the services of pathologists, who should be Government officials, paid a sufficient salary by the State, and not merely "sucking physicians."

In conclusion he gave it as his opinion that England had fallen behind in experimental science, and urged a greater attention being devoted to this subject.

Reviews and Notices of Books.

Roentgenotherapy. By A. F. TYLER, B.Sc., M.D., Omaha, Nebraska. London: Henry Kimpton. 1919. Pp. 162. 13*s.*

THIS volume is of importance to radiologists if only because it is based on the use of the Coolidge tube entirely, which, if we understand the author aright, he holds to be applicable to every case suitable for X ray treatment. The general principles of his system consist in the employment of very highly penetrating rays,—the tube resistance equivalent to about 9½ inches of air,—filters of 5 mm. to 7 mm. or more of aluminium, fairly long exposures, and heavy currents. Such methods are common enough in the treatment of deeply seated lesions and certain cases of more superficial malignant disease, but it is doubtful if the technique of radiologists in this country is at all similar for dermatological cases. This is where the peculiar interest of this volume lies, and if the author's contentions are substantiated it will mean a considerable addition to the value and uses of the X rays in therapeutics. On general principles we favour the use of hard tubes and thick filters as giving a more efficient type of radiation and a greatly diminished risk of the treatment being interrupted by X ray dermatitis; but in the more superficial lesions the rule has been to use tubes of medium hardness, or even distinctly "soft" under special circumstances. We may quote the author's technique for epilation in cases of ringworm as an instance of how his methods differ from those usually employed. "One should use a 9½" spark gap, 5 millimetres of aluminium and leather filter, and 5 milliamperes current, 10 minutes over each area until the entire scalp has been covered." These directions, of course, lack completeness, but they serve to show the general trend of the author's methods by which he claims to get satisfactory results. How far these methods will commend themselves to British radiologists remains to be seen, but they appear to be worthy of investigation.

Notes on Galvanism and Faradism. By E. M. MAGILL, M.B., B.S. Lond. Second edition. London: H. K. Lewis. 1919. Pp. xvi. + 224. 6*s.*

THIS volume was reviewed in these columns shortly after its first appearance. Its success is evident from the fact that the first edition was twice reprinted. In the new edition the author has taken the opportunity of making alterations and additions by way of bringing it up to date, and enhancing its value in other ways. It is an excellent book for those nurses and masseuses who have to carry out the directions of the electro-medical specialist.

Allgemeine Prognostik. By Professor Dr. THEODOR BRUGSCH. With 13 illustrations. Berlin and Vienna: Urban and Schwarzenberg. 1918. Pp. 498. M.24, paper; M.29, bound.

THIS work does not treat of prognosis in disease, but rather in apparent health; it resumes, and advances, indications of constitution, of vulnerability, of diathesis, making much of the fact that health and sickness are seldom clearly differentiated the one from the other. To quote the sub-title, its subject is "die Lehre von der ärztlichen Buerteilung des gesunden und kranken Menschen." The author's inspiration to write pretty clearly came by way of Rokitansky and Beneke. In this epoch of bacteriological enthusiasm it will not have escaped notice that several of the former's ideas, and some of the latter's laborious work, have been rather remarkably confirmed since their day by the revelations of radiography. The small median-placed heart of the consumptive, as Beneke described it, can now be seen *intra vitam* well enough through the X ray screen or at least on the X ray plate. In the first part of his book Professor Brugsch painstakingly amplifies all such confirmation, working it out to interesting conclusions. In the second, the effects of the development and functioning of the abnormal anatomical structures are considered under the usual main divisions, circulatory, respiratory, digestive, excretory, ductless glandular, and so forth. This section contains, however, much less of original research. There are two classes of readers who should be immensely interested in this work, at all events in the first half of it. They are, firstly, medical biometricians; and secondly, old pupils of Sir Arbuthnot Lane who remember their master's interesting observations on the effect of certain occupations upon bodily structure. It should also have an enlivening influence upon certain physicians who are apt to sit at the feet of the bacteriologists with a tightness which is not warranted by results. The discrediting of a thorough-going infection theory by the phenomena of war tuberculosis forms a recent example. Works like the present one show that if study of specific external noxæ is best left to specialists, there is much of importance concerning the invaded organism that is not to be got either from physiologists or physicists.

JOURNALS.

IN the *Military Surgeon* (Washington, D.C., U.S.A.) for September, Major C. F. Tenney tells how the officers were definitely and progressively educated in a base hospital. Every Wednesday evening there was a parade meeting at which one of the departments gave an account of its interesting cases, which were then discussed by the other officers. Between 11 and 12 on Tuesday and Thursday "ward walks" were held, and short clinical lectures and demonstrations of novel or special treatments were given. At the same hour on Monday, Wednesday, and Friday, similar visits were paid to the pathological laboratory and X ray room. Friday afternoons saw a Medical Service Conference, when possibly the administration of the hospital was criticised and when perhaps a lecture on malaria or some other emergent disease might be given. The officers in charge kept to the same wards, but the others changed round and so did not get stale. Officers did their work better and with more enthusiasm. They knew better where to get help and that help was more readily rendered. We commend this paper to all officers commanding hospitals.

Major E. H. Schorer and Agnes S. Ruddock, writing from the Laboratory of the Embarkation Staff at Hoboken, N.J. (the Southwark side of New York), tell how many diphtheria carriers there were in the troops going overseas, of whom 1,833,000 passed through New York, and how many there were amongst the patients returning, and how the carriers were found. It takes good organisation to capture, as they did, 640 carriers from amongst 50,000 patients. They stained the smears from the cultures with Neisser, counterstaining with aqueous saffranin, which gave "bright blue granules in a pink bacillus." The personnel of the hospitals had twice as many carriers per cent. as had the patients.

Lieutenant-Colonel E. M. Colie, Jr., tells of his experience in France in a hospital-train built by the North-Western Company. He had 16 cars; the train normally carried 360 bed cases, but he could give places to 740. Water was apt to run low, though they had 100 gallons in each car (for 36 beds in three tiers). Soup with vegetables was the general food, and was given as soon as possible. Blankets and other equipment had to be carefully watched during long waits in dark sidings if the trains were running empty. At first the train staff consisted of orderlies; later nurses were supplied, and Colonel Colie remarks that, though they did their work excellently, he does not think they did it better than the men.

A Bill has been introduced into the Senate of the United States to punish anyone who uses a dog for experimental purposes in the District of Columbia. It is aimed at vivisectors, and is buttressed by statements of the friendliness of the dog to man and a recital of canine services in the war.

La Presse médicale d'Egypte has resumed publication after an interval of five years, under the editorial direction of Mr. H. Maraspini, member of the Société Française d'Oto-Rhino-Laryngologie, assisted by a distinguished committee representative of all branches of the profession in Egypt. It is to appear fortnightly at a cost of 80 centimes and consists of 16 pages of much larger size than is customary for scientific journals, but is to be conducted on usual lines, consisting of editorials, original articles, reviews, and news. In an introductory leader, local practitioners are informed that the journal is designed to be the mouthpiece of work done by them and are urged to send such contributions as will make it representative of medical ideas in Egypt. For their convenience papers in other languages than French will be translated if they so desire, and illustrated contributions will be welcomed.

The first number contains original articles on the cure of uterine cancer, on the psychogenesis of certain organic paralyses of cerebral origin, and on local anæsthesia in ear, nose, and throat operations. Another interesting feature which we hope will be continued is the publication of statistics for a week's mortality and childbirth in Cairo and Alexandria. The ages at death are divided into convenient groups and the causes roughly differentiated; the infant mortality and the proportions of male to female births is clearly shown.

The journal should help in the expression of the new hygienic conscience which is so gratifying to all who have the best interests of Egypt at heart.

THE LANCET.

LONDON: SATURDAY, NOVEMBER 1, 1919.

The Problems of Disablement.

AT the Medical Society of London on Monday evening last Colonel A. WEBB, Director of Medical Services at the Ministry of Pensions, gave a brief and businesslike survey of the work of his department in reclassifying and treating ex-Service men drawing disablement pensions. The smoothness with which the system is now working should not blind our eyes to the enormous dimensions of the disabilities which are thus being dealt with. The number of pensionable men is in the neighbourhood of three-quarters of a million, and 16,000 ex-soldiers are attending week by week at medical boards for assessment or revision of their grade of disability. A considerable and increasing proportion of the medical profession of the country is engaged, and likely to be engaged for an indefinite period of time, in the care and treatment of these men, and it is of the very first importance that there should be that relation of confidence and mutual understanding between patient and doctor, which counts so much as an element in recovery.

It was stated without contradiction during the discussion at the Medical Society that as soon as the medical man is known to be a whole-time officer of the Pensions or any other Ministry he is regarded by the ex-Service man as someone who is there to cut down his pension to the greatest possible extent. The pensioner reacts by making the most of his disability, an attitude which, adopted at first for public occasions, inevitably tends to become part of his private life. Colonel WEBB was able to assure his hearers that it was not the policy of his department to create a whole-time medical staff. The work will, therefore, remain in the hands of a much larger number of part-time medical men who are likely to have a more human relationship to disabled men than merely that of assessor. Some of those who have seen the effect on a man of appearing periodically before an assessment board with the intention of putting the best complexion on the severity of his disability, have been led to feel that the allocation of a permanent pension would present less danger in this respect than a pension subject to constant revision. The granting of a lump sum may have something to be said for it. At present a very large proportion of pensions are on a temporary basis—all, in fact, except those in which the disability is final and unalterable, such as the loss of limb or eye.

In regard to the wider aspect of treatment and training, Colonel WEBB announced that the first of the large convalescent centres was shortly to be opened at Blackpool, and the practical results will be noted with interest as a guide for the future. At a centre where training and treatment are combined the atmosphere is obviously conducive to recovery. The importance, therefore, of the treatment and training centre at Enham, started by the Village Centres Council, and officially opened by Sir WORTHINGTON EVANS on Wednesday last, is much greater than appears from mere numbers. Designed to accommodate 1000 men, just over 100 are at present in residence, and of these no inconsiderable number have already signified their intention to settle permanently at the centre. The question of orderly conduct, which has been widely canvassed as a probable difficulty in running such a centre—military discipline not being available—simply does not arise in practice when the men feel that they are placed in surroundings favourable to rapid recovery, and where their returning energy can at once be turned into useful and profitable channels. The further development of the Enham Village Centre may well have a profound influence on the vast medical question of disablement.

◆

Women's Medical Service in India.

THE Joint Committee on the Government of India Bill is now considering the whole question of the share to be taken by Europeans and Indians in the administration of the country, and the Indian Medical Service came up recently for discussion. We take the opportunity of referring to another important element in the health of India. The development of the Women's Medical Service in India during the last seven or eight years shows little progress; indeed, in comparison with women's activities in other countries a relative retrogression is displayed. As long ago as 1912 one of the regular Indian correspondents of THE LANCET, commenting on the brave but ineffectual attempts of the Lady Dufferin Fund to cope with the problem of medical aid for the women of India, declared that the task appeared to be beyond the resources of unofficial energy, and suggested that the initiation by the Government of India of a medical service for women would be welcomed by all classes in that country. Later in the same year the demand for a women's medical service, organised, financed, and controlled by Government, was emphasised in the press, and it was urged that the needs of the times had outgrown the possibilities of any voluntary organisation. In the same year, also, certain recommendations were submitted to the Director-General, I.M.S., by the Council of the Association of Medical Women in India, who begged for the appointment of women inspectors to supervise the work and conditions of life of all medical women, especially of the lower grades in remote districts, pleading that the standard of preliminary and all competitive examinations should be raised, and also that character and general suitability should be investigated before the award of any scholarships. This memorandum might well have been framed as a comment on the Annual Report of the National Association for Supplying Female Medical Aid to the Women of India (Countess of Dufferin's Fund) for the year 1918. The greater part of this volume consists of reports from branches; these too often record the inefficiency, or even misconduct, of junior officials, leading to dismissal or suspension; or they point out that sub-assistant surgeons or midwives have been found unsuitable for their jobs and transferred, alas, rather than dismissed; while from the teaching schools there are pathetic lists of scholarships and prizes awarded with ever-lowering standards. The result is that the smaller hospitals command no confidence, seeing that, to quote the report, "the lady doctors put in charge are generally women of little or no education, and that they have had no previous experience of hospitals run under purdah conditions." "Lady doctor" is the term in common use in India for female medical assistants who possess certificates of different grades, though the association of the term lady with deficiencies in education is not fortunate.

It must be remembered that since the war the struggle to maintain any sort of medical service for civilians in India has been waged against colossal odds, and the work of some members of the Women's Medical Service has been individually splendid—sometimes, indeed, beyond any demand which should reasonably be made of a human being. Some of the endurance of the East must have infused itself into these women, and protected the innate energy and impatience of evil conditions which originally drove them to their work; and it is good to feel that these qualities endure to face the depressing future. In 1914, just at the moment when buildings, money, and equipment seemed at hand, when an increasing number of women were qualifying in England (a much larger proportion of whom looked to the East as their future sphere than at present), European events swallowed up all recruits to medicine as well as to nursing, and dragged inevitably some of the old stalwarts into the new war work. But the picture is not without its bright side. The war caused a proportionately large increase in the number of qualified women, and conditions will be greatly altered. We understand that modifications are already under consideration in the matter of salary; opportunities for medical as apart from administrative work, and especially the provision of trained nurses, must follow, if suitable recruits are to be induced into this service. A high grade of medical or surgical ability by no means implies administrative skill, and the physician or surgeon who is attracted by the vast mass of wasted clinical material may be a hopeless failure in the East. She may lose her judgment and threaten resignation unless allowed to make a clean sweep of an inefficient staff, making no allowance for local customs and superstitions; she may become resigned to inefficiency and drop all attempts even at gradual reform; or at best she may be forced to give up her personal ambitions for the active practice of her profession and become an administrator pure and simple.

Surprisingly little stress is laid in this report on the need of a nursing service parallel to the Women's Medical Service. The standard of work must fall when a conscientious surgeon is compelled to refuse to perform major operations for lack of skilled help. Such help will not be forthcoming if only pay and leave conditions improve; it is necessary, also, that sufficient European nurses should be employed at one and the same hospital both to maintain an aseptic atmosphere without gross overwork, and to train native effort. It occurs to us that in the interval European travelling operation-teams might be organised. They could travel round a specified area like a judge on circuit and perform non-urgent operations collected for their visit Their performances would also serve as demonstrations to educate the native assistants at the local hospitals in procedure, so that the resident medical officer might count on some assistance in an emergency. We would also urge the association to enlist the help of the Red Cross whose activities are to be widely extended in peace time. The V.A.D., coldly regarded by the hospital sister at home, would be welcomed in India, and an organised Voluntary Aid Detachment among the European community in India might be invaluable not only in hospitals but also in maternity and child-welfare work. Education of the people is badly needed—to-day some local superstitions as to treatment of the newborn infant form a horrible anachronism. The consensus of opinion seems to be that little or no improvement in conditions of childbirth and management o labour may be expected until India has been purged of the indigenous dai. The dai is a midwife whose sole qualification is that o heredity, and whose children learn their profession quite young by watching their mothers at work One enterprising medical woman, who despairs of introducing antisepsis in any form into the practice of the adult dai, has instituted a school for these children of midwives, in the hopes of constructing synthetic dais, and certain authorities believe that by a widespread adoption of this method of education progress can be made. even if results are only apparent in ten years' time.

For the rest, the map at the beginning of the report is so thickly covered with dots representing women's hospitals or wards as to suggest camouflage when read in conjunction with the rest of the report. Quality rather than quantity is indicated and we recommend the Women's Medical Service to expand in efficiency and numerical strength any existing centres rather than to attempt further distribution. For the present it must be better policy deliberately to ignore the need in many places so as to concentrate, and thus use to the full what skilled help is available. Inter-departmenta and inter-provincial energy may be relied upon in time to do the rest, provided always institution have sufficient local prestige to invite the emulation of neighbours. We believe that if expansion is thus checked the real difficulty will be neithe money nor buildings, but reliable and educated women in every grade. Great hopes are buil on such well-equipped institutions as the Lady Hardinge Medical College, Delhi, which is increasing its staff and hopes to turn out a numbe of medical women every year. Moreover, if conditions of service are brought more nearly into line with the new I.M.S. regulations, a larger numbe of women will be attracted from England. W still feel that the decision of the Indian Government in 1913 to refuse to establish a women' medical service, but to give an annual grant o £10,000 to the Dufferin Fund was a mistake, and that a sufficient quantity of suitable women wil not be found to serve a voluntary organisation without official backing. The professional work of the senior doctors in the Indian hospitals has been hampered for many years. The time has surely come when they should be freed from some of the strain of financial and administrative responsibility and thus enabled to get on with the war against prejudice, dirt, and ignorance, as medical officers of a recognised government service.

Violent Excitement as a Release Phenomenon.

IT is no uncommon experience in medicine to find exceptions more instructive than rules, and rarities than banalities. The occasional occurrence together of tabes and hemiplegia has served more to merge the obsolescent terms of parasyphilis and tertiary syphilis into the comprehensive "neurosyphilis" than either by itself, though much more frequently encountered, could have done. In the same way, laborious concentration on the common phenomena of idiopathic epilepsy, even patient investigation of such side-issues as its metabolism, its urinology, the cholin-content of its spinal fluid, and so on, has aided less in an understanding of its essential nature than a consideration of the rarer cases in which epilepsy is seen to lie on the borderland of other states. Distinctions between hystero-epilepsy and epilepsy proper are breaking down, and each is being regarded rather as the expression of a temporary disintegration of functional neural mechanisms or levels, to differing degrees no doubt, but from the effect of not always fundamentally differing factors. During the air-raid experiences in London it was frequently observed that attacks of idiopathic epilepsy followed on emotional strain and stress, thus furnishing a clue which deserves prosecution, especially since the exciting cause of epileptic fits is often apparently elusive and that of hysterical fits is supposedly obvious. There is, moreover, a well-recognised psychic epilepsy. Psychical equivalents of epilepsy are of practical significance, and the occurrence of epileptiform attacks in psychasthenia provides one more evidential item, were such required, to show how limited is the conception of idiopathic epilepsy which would restrict it to a conventional form with a conventional symptomatology. Several of the interesting cases narrated by Dr. A. L. TAYLOR in his brief paper in another column illuminate the *Grenzgebiet* of hysteria, epilepsy, and psychasthenia, and throw into relief not merely the difficulty of diagnosis but also the inadvisability of compressing epilepsy into a symptom-tight compartment. The student of the subject is compelled to recognise that certain patients exhibit seizures clinically indistinguishable from ordinary epilepsy as reactions to situations of a purely psychical nature. In other words, the attacks are due to extraneous psychical causes such as have been supposed to be characteristic of hysterical fits only. In these patients, further, dream-states, violent outbursts of temper, excitements, even maniacal outbreaks, recur periodically on the heels of emotional experience or as the result of ideational or conceptual activity. The "wild man" who "runs amok" at the sight of a policeman, say, is to be judged in the light of such knowledge, whether there be evidence of a post-epileptic confusional state or not. To assume his entire responsibility in the absence of proof of the occurrence of the phenomena in a post-epileptic interval is unjustifiable, for they may constitute the epileptic state itself. The emotional nature of the original experience, it may be repeated, is no criterion of hysteria. Some years ago Mr. CHARLES B. DAVENPORT,[1] of the Carnegie Institute in Washington, published a statistical study of violent temper and its inheritance, and proved conclusively that in hysterical, epileptic, and insane family histories alike the tendency is a dominant in the Mendelian sense. He neither regards these conditions as a cause of violent temper nor the latter as an equivalent of them, but holds that the attacks are due to some factor operative in all. It will be seen, therefore, how the horizon of epilepsy widens and what justification there is for the contention that a psychogenic basis for the epileptic seizure, properly so-called, should be sought for by psychical methods of examination, or at least should not be ignored because the patient bites his tongue and is incontinent. There may be certain minor symptomatological differences between the epilepsy of degenerates of this grade and that usually considered genuine epilepsy, but the former is no pseudo-epilepsy. Another point of interest raised by Dr. TAYLOR'S paper is the susceptibility of some neurotic persons to alcohol after their sensitiveness has been increased by a preceding nervous condition, and he does well to emphasise the bearing of the data on annual statistics of the so-called causes of insanity. Once nervous disease, or a functional nervous state, reduces resistance, trifling doses of alcohol may produce an effect out of all proportion to their amount. And not merely alcohol alone will thus disturb psychic equilibrium. It is known that in the strenuous days of the retreat from Mons, when physical and mental fatigue was at its maximum, the mere partaking of a hot, innocuous, Maconochie ration sometimes resulted in the individual's exhibiting all the appearances of intoxication. Alcohol, as such, is but the match that fires the train already laid by quite other agencies, and is no more or less blameworthy than the anæsthetic administration which leads to the struggles on the operating table.

The Medical Consultative Council.

THE consultative council appointed by the Minister of Health to advise him on questions relating to medical and allied services has held its first meeting under the chairmanship of Sir BERTRAND DAWSON. Dr. ADDISON stated that the main duty of the council would be in connexion with questions of policy in the formative stage. This, he added, would necessitate the deliberations being of a confidential character, although statements would be issued to the press from time to time. His first question to the council would be: What is the ideal system of medical and allied services? Sir BERTRAND DAWSON, who as chairman of the council is to have direct access to the Minister, said that their endeavour would be to represent the views of all sections of the profession. We feel sure that this endeavour will be loyally made and carried out with great and fruitful results, but it is a matter for regret that the council is always to meet secretly. A great opportunity of public education in medical matters may sometimes be lost in this way.

---

[1] THE LANCET, Oct. 23rd, 1915.

Annotations.

"Ne quid nimis."

THE REACTION OF CULTURE-MEDIA.

Since the early dictum of Koch, that nutrient media intended for the cultivation of bacteria should be faintly alkaline to litmus, the reaction of media has always occupied the serious attention of the bacteriologist. But the bacteriologist, and still less the laboratory attendant to whom the actual preparation of the nutrient media is too often relegated, is not necessarily a trained chemist, well versed in the technical applications of the dissociation theory, expert in the manipulation of the electrical potentiometer, and familiar to the point of contempt with the various indicators. Consequently the methods advocated failed to attain any general acceptance, and standardised media still remained merely an ideal. Towards the end of the last century, however, Eyre in this country and Fuller in America proposed similar simple methods for the chemical titration of media against normal alkalis or acids, using phenolphthalein as the indicator. As these methods served a useful purpose in adjusting media of similar composition to an arbitrary standard, shown by trial to be generally acceptable to bacterial growth, they enjoyed a considerable vogue, and the scales evolved to indicate the amount of normal alkali (or acid) required to render the finished medium neutral to phenolphthalein became the recognised method of recording the reaction of media employed in special investigations.

Now, in dealing with pathogenic bacteria, at any rate, it is obvious that the reaction of the media employed for their growth should approximate to that of the tissues of the animal in which they are naturally parasitic, and the expression of that reaction is most conveniently stated in terms of the hydrogen-ion concentration. But ordinary titration methods do not afford a true criterion of the hydrogen-ion concentration of the solution investigated, and a just comparison with a perfectly neutral substance, such as distilled water, where the hydrogen and hydroxyl ions are equally balanced, cannot be made. The titration figure depends entirely upon the kind and sensitiveness of the indicator employed, so that, for example, the same organic acid solution would require a different amount of normal caustic soda to bring it to the neutral point, according to whether phenolphthalein or orange-red was the indicator used, and in neither case would it be necessarily "neutral" in the modern acceptation of the term. The difficulties to be encountered are well exemplified by the contribution in our issue of Oct. 25th from Dr. J. McIntosh and Mr. W. A. M. Smart "On the Adjustment of the Reaction of Bacteriological Media." These writers advocate the titration of the media with the help of thymolphthalein, an indicator the end-point of which is fairly sharp and bears a definite relationship to the hydrogen-ion concentration of the solution to which it is added—viz., P H = 8·95. This concentration is, of course, unsuitable, but the authors state that media adjusted to that point merely require the addition of 10–12 c.cm. normal HCl per litre to bring the final reaction of P H = 7·6. (the reaction of normal plasma), which, it is agreed, is the most suitable for routine work. These contentions are, however, only true if the instructions laid down by the writers are followed exactly and in their entirety, as was shown by some experimental trials. They do not hold for media of even slightly differing constitution; indeed, by omitting to specify the exact brand of peptone used in their own experiments they lay themselves open to misconstruction, as different peptones give widely divergent results. That the authors themselves realised the existence of such sources of fallacy is evident, since at this stage they direct that further control titrations must be carried out with two other indicators, and it is clear from the paper itself that a certain amount of adjustment may be necessary. Apart from this, it is not quite certain that the dilution of a medium with distilled water prior to titration leaves its hydrogen-ion concentration unaltered.

In view of these facts the Green Book recently issued by the Medical Research Committee on "The Reaction of Media" (Special Report Series No. 35) will have a wide appeal. The method here advocated is based upon the work of Sörensen, Walpole, Homer, and others, and depends upon the preparation of a series of standard phosphate solutions of varying hydrogen-ion exponents, the accuracy of which can be controlled by potentiometer readings. To each standard a fixed amount of phenol red is added, thus forming a range of shades, against which may be matched corresponding mixtures of the medium to be standardised. Thus in the first instance the initial hydrogen-ion concentration of the medium can be estimated, and later the addition of sodium hydroxide will enable the observer readily to match the shade corresponding to any required exponent. The simplicity of the process, and the ease with which any required hydrogen-ion concentration can be secured, are the essential features, and a few trials will suffice to demonstrate the eminently practical character of the method. So soon as its adoption becomes general the ideal of standardised media will have taken a long step towards realisation, for no matter what precautions are taken or omitted during the early stages of the manufacture of his nutrient medium, the worker will be assured that it will be a simple matter for any subsequent observer to reproduce with exactitude what is probably an all-important feature—the final reaction in terms of hydrogen-ion concentration. The obvious corollary to the publication of the Green Book is, of course, the supply of sets of standard phosphate mixtures and standard indicator solution guaranteed by the Medical Research Committee. Such action would greatly reduce the labour involved in standardising media, and earn the benediction of the working bacteriologist.

A JOURNAL OF DISCOVERY.

As a result of a conference, called early in this year by the Presidents of the Royal Society, the British Academy, and other important bodies, it has been decided to publish, not for profit, a popular monthly journal, in order to keep the public informed of the progress of knowledge in all branches. The scheme is to produce a journal the high standing of which is assured by the eminence of its sponsors, and which, while written in popular language, will provide references to the original work on which its articles are based. Many prominent educationists were present at the conference, and distinguished representatives of all branches of Science and the Arts, medical men being represented by Dr. C. S. Myers. The meeting selected *Discovery* as the name of the new journal, and established a trust for its maintenance, the first trustees being Sir J. J. Thomson, Sir F. G. Kenyon, Professor A. C. Seward, and Professor R. S. Conway, who is also the honorary secretary. The publisher will be John Murray, and the editor Captain A. S. Russell, M.C., D.Sc., reader-elect in chemistry at Christ Church, Oxford. The price will be sixpence, and the first number is to appear on Jan. 20th. The leading societies in every branch of knowledge have undertaken to furnish to the editor every year a list of suitable contributors, and help has also been promised from various bodies of students and teachers and from public libraries. The journal regards all knowledge as its province; the managing committee, as at present constituted, is therefore large and may prove unwieldy in practice. No specific mention is made in the preliminary circular letter of the coöperation of any medical bodies, but presumably one at least of the five members to be nominated by the Conjoint Board of Scientific Societies will be a medical man. The criticism is often made that we have but little general culture or knowledge of recent research outside our special lines, and on the whole it is not unjust. On the other hand, it is amazing how ignorant even the highly educated lay public are of medical research that concerns them very nearly, and to what extent superstition still clings to them. A widespread knowledge of current medical opinion on such matters as heredity and contagion in tubercle and cancer would be of enormous benefit to many members of the general public, who often worry about these questions with a personal application that makes them hesitate to frame a definite question. We trust that the editor will bear these facts in mind and will allot to medical science a space proportionate to its neglected place in national education. In any case we look forward to the appearance of the journal with great interest.

NASAL HYDRORRHŒA.

ACCORDING to Dr. John A. Thompson,[1] of Cincinnati, the condition called by Bosworth nasal hydrorrhœa and by others rhinœdema or œdematous rhinitis has received little attention from rhinologists. Thompson defines it as an obscure nervous disease, the chief symptoms of which are nasal. There is some relation between it and angioneurotic œdema with which it is occasionally associated. The disease is most common among younger men and women of sedentary habits. There are no known external exciting causes, such as produce hay fever, or as in the œdema caused in certain persons by the emanations of horses, cats, or other animals. The local condition is a dropsy, the connective tissue interspaces of the turbinated bodies being filled with serum. The characteristic symptoms are a sense of extreme irritation in the nose, followed by sneezing and a very profuse watery discharge from both nostrils, which varies in amount from an ounce to half a pint in 24 hours. The fluid is alkaline, and contains small amounts of sodium chloride and traces of phosphates. The presence of mucin differentiates it from the cerebrospinal fluid discharged from the nose after injuries. The disease may begin at any season of the year and last for months or years. The reasons for regarding nasal hydrorrhœa as a nervous disease are, first, the pronounced mental depression from which the patients suffer; secondly, any unusual mental or emotional strain greatly aggravates the nasal symptoms; and lastly, local treatment absolutely fails to give relief, the condition being only cured by tonic and hygienic measures.

THE THREAT OF INFLUENZA.

DREAD of an impending epidemic of influenza may be justified, and it is of enormous importance that the country should not be taken unawares. But neither a study of precedent or a consideration of existing circumstances warrants the public apprehension. In view of inquiries, the Ministry of Health has stated that during the last few weeks there has been in the 96 great towns of England and Wales a slight but gradual increase in the number of deaths attributed to influenza, and a coincident rise in the number of notifications of acute primary and acute influenzal pneumonia. The increase appears to have been associated with prevailing meteorological conditions, and does not, in the opinion of the advisers of the Ministry, signify more than the usual variation in catarrhal and lung diseases generally which may be expected at this season of the year. Whilst the possibility of a fresh outbreak of influenza cannot be excluded, the data available do not at present afford any indication of an immediate recrudescence of the disease in epidemic form.

THE OLYMPIA MOTOR EXHIBITION.

THE thirteenth exhibition, which is under the Royal patronage of H.M. the King and organised by the Society of Motor Manufacturers and Traders, Ltd., in connexion with the Royal Automobile Club, opens its doors next Friday, Nov. 7th. Many old as well as new British firms will be found among the exhibitors, names ranking high in the motor and engineering world. It has not been easy to change over from war work to car-building. Raw material has been difficult to obtain, strikes have caused a shortage of fuel and castings, and labour unrest has added to these difficulties. Still, many manufacturers are concentrating upon mass production, which is the only method to produce nowadays a car at a reasonable price. And some of them appear to be working might and main with the idea of meeting the requirements of the very rich, who—whether fairly or absolutely unfairly—are being classed as war profiteers. Still, the man of moderate means, another way of describing the doctor, will be catered for, and the 4-cylinder car of 12 horse power will be in evidence, though it is questionable whether delivery of such cars will be obtainable at an early date. The experience of many who have ordered cars since the armistice has been unfortunate; the nearer the delivery date approached the more it receded, a position which has tested severely their patriotism in ordering British cars. It is to be trusted that future events will not justify such an argument in favour of American, French, or Italian products.

The official announcements of the meeting may be noted:—The price of admission, including tax, will be as follows: Tuesday and Thursday, before 6 P.M., 5*s*. and 10*s*. respectively, other days and times being 2*s*. 6*d*.; the band of H.M. Welsh Guards will play thrice daily: and the catering is in the hands of Messrs. J. Lyons and Co., Ltd.

---

[1] Journal of the American Medical Association, 1919, lxxiii., 587-8.

SERUM THERAPY IN BACILLARY DYSENTERY.

THE two papers by Dr. B. G. Klein and Dr. W. E. Waller on the treatment of bacillary dysentery by anti-dysenteric serum, which appear in our present issue, contain a record of well-observed experiences, and will prove a valuable gain to our knowledge, dealing, as they do, with the subject in countries as widely separated as France and Mesopotamia. It will be noted that in the use of the polyvalent serum available to both, Dr. Waller administered it by the subcutaneous method to all of his 148 cases, in doses of 140 c.cm. given in three injections at eight-hourly intervals during the first 24 hours for severe attacks, and in milder cases of 100 c.cm. in two injections. Dr. Klein, on the other hand, whose serum-treated cases numbered 51, came to prefer intravenous administration, after having given full trial to both intramuscular and subcutaneous methods in 28 of his earlier cases, and the size of his single doses varied from 25 to 120 c.cm. The latter claims as advantages for the adoption of the intravenous route that the serum is better able to get to work at once, that the whole dose is available instead of the possibility of some of the active principles of the serum being destroyed locally in the tissues when given *sub cute*, and that the method is practically painless. Against intravenous administration is the possible danger of anaphylaxis, particularly to those who have already been "sensitised" by previous serum treatment. Although the risk has, perhaps, been somewhat exaggerated, and the chances of anaphylaxis occurring are less than at one time supposed, the danger is one which has to be guarded against. Where it is known that a patient has previously received serum, either antitetanic or antidiphtheritic, precautions can be taken to minimise the risk of shock by adopting, as Dr. Klein contemplated, the method of giving an initial dose of about 1 c.cm. intravenously, followed after several hours by the main dose.

Opinions as to the size of the dose of serum necessary for administration by either route differ widely, and it has even been advocated in an amount as large as 300 c.cm.! The necessity for large dosage has recently been challenged in the report[1] on "Bacillary Dysentery occurring in Macedonia," on the grounds that the polyvalent serum, as at present prepared, is an unsatisfactory method of treatment, containing, as is believed, antitoxins derived from a mixture of the Shiga bacillus and one or more strains of Flexner bacilli; further, that its employment has even become a ritual in certain instances for almost all cases passing blood and mucus. In view of the importance of providing an antiserum in acute bacillary dysentery as early as possible, this report advocates that every case requiring serum therapy should receive a mixed antiserum for the *initial* doses. Subsequently, as under the most favourable conditions the infecting organism can be determined bacteriologically in 12 to 16 hours, all proved Shiga cases, which constitute the majority of severe infections, should receive an anti-Shiga serum, and the Flexner cases, representing the majority of the milder type of the disease, the appropriate serum as required. On such lines, and with the specific antisera ready at hand, it is justifiably claimed that better results would be forthcoming, with the added advantages of the injection of smaller amounts of the horse serum, subcutaneously administered; thus would be avoided the necessity of relying on antiserum which may not contain adequate antitoxin to neutralise the special toxins of the infecting organism. The report concludes its criticism of the present serum therapy of dysentery with observations on the agglutinin content of certain antidysenteric sera supplied to the British Salonika Forces, and the very important and cogent deduction therefrom "that 'in-date' antisera may be very deficient in dysentery agglutinins, especially for *B. Shiga*."

Dr. Klein's and Dr. Waller's results are in general accord with current opinion as to the importance of antiserum administration not later than the sixth day from the onset of the disease, when its value in averting a fatal issue and reducing the rate and completeness of recovery steadily diminishes. The efficacy of serum therapy would in all probability be greatly enhanced by the provision of specific antisera on the lines advocated by Colonel Dudgeon's report, with the prospect of reducing not only mortality, but also the large number of chronic cases. The waste in man-power of our fighting force was immense, as was the loss of money consequent on the crippling influence of dysentery. There is need for improvement in the preparation and use of antiserum as a means of treatment, including the avoidance of the harmful effects of over-dosage with horse serum, such as anaphylaxis, and serum sickness, which figure largely in Dr. Waller's series of cases; and we have much to learn as to its prophylactic value. Time and experience, too, have yet to show what place, if any, vaccine therapy and prophylaxis will fill in supplementing the present methods of dealing with bacillary dysentery.

THE "BARTS" CHRONICLE.

THE appeal of St. Bartholomew's Hospital to the public for liberal support, in order that part of its important work shall not be shut down for lack of funds, has taken the form of an illustrated pamphlet of 16 pages, resembling in appearance one of the daily picture papers. The first number, dated Oct. 25th, is issued at 2*d*., and, it is stated, has been registered at the General Post Office as a newspaper. Short articles in the form of news paragraphs describe the history of the hospital from its foundation, the manifold work which it is doing, and the urgency of the financial position. The illustrations are many and excellent, although they only appear to full effect on the art paper employed for part of the issue. The form of the appeal is ingenious, and the execution worthy of the importance of its cause.

PURPURA HÆMORRHAGICA DUE TO NEO-SALVARSAN.

THE serious and even fatal consequences which occasionally follow administration of salvarsan or its substitutes in ordinary doses have never been satisfactorily explained. The attempts of Ehrlich and his followers to exonerate the drug by attributing them to organic disease in the patient or to errors of administration have failed. The prevalent view is that they are toxic effects due to some idiosyncrasy to the drug. The suggestion has been made in the *Journal of the American Medical Association* of August 30th, p. 710, that they are due to some error in the preparation of the drug which leads to decomposition during storage. Dr. J. B. Rieger refers to four successive cases of "delayed reaction" to arsphenemin in the practice of a man who had previously used the drug with entire satisfaction. An ampoule was examined and found sound, but the contents gave a solution with the characteristic gun-metal tinge due to oxidation. At a meeting of the Société Médicale des Hôpitaux of Paris, MM. Marcel Labbé and Simeon Langlois described a new condition which must be added to the forms of arsenical poisoning possible after administration of salvarsan and its substitutes—purpura hæmorrhagica. Three cases of purpura hæmorrhagica, of which one was benign and two were fatal, have occurred in the practice of M. Leredde. The following is the third case.

---

[1] "Studies of Bacillary Dysentery occurring in the British Forces in Macedonia." Edited by Colonel L. S. Dudgeon, C.M.G., C.B.E., F.R.C.P. No. 40. Special Report Series of the Medical Research Committee.

A woman, aged 25 years, had in April, 1918, an indurated chancre of the lip with cervical adenopathy, which was followed by roseola in June. From July 15th to August 18th were given six injections of novarsenobenzol (15, 20, 30, 45, 60, and 90 cg.). The last injection fatigued her, obliging her to remain lying down all day. There were rigors and a little fever. At the end of August she suffered from influenza. From Sept. 1st to 22nd four injections (75, 75, 75, and 90 cg.) were given and they produced facial congestion. She rested for three weeks. On Oct. 13th the Wassermann reaction was positive, and 45 cg. were injected. She rested for a fortnight. On Nov. 3rd the injection was repeated, and two hours later there was slight bleeding from the nose and gums. On Nov. 10th and 17th and on Dec. 1st the injection was repeated with the same result, the hæmorrhage on the last occasion lasting eight hours. On Dec. 8th ecchymoses appeared on the limbs and purpuric spots on one shoulder. An injection of 30 cg. was given. For two days there was no hæmorrhage, but menstruation began on the 10th, eight days in advance of its time, was much more abundant than normal, and lasted seven instead of three days. Then epistaxis recurred. On the 20th she was admitted to the Charité Hospital very pale and weak, and bleeding from the nose, gums, and tongue. The liver was slightly enlarged. Blood examination showed: red corpuscles 1,601,000 and leucocytes 4650, of which polymorphonuclears were 30, lymphocytes 25, and mononuclears 35 per cent. The coagulation time was 19 minutes and the clot was irretractile. 20 c.cm. of horse serum and 500 of normal saline solution were given hypodermically. Improvement of short duration followed. In spite of repetition of the injections the coagulation time became longer and longer, the hæmorrhages continued, the temperature rose, and the pulse was accelerated. On the 29th she became comatose and died.

The symptoms corresponded closely to what is described as "infectious purpura," but there was no doubt that they were due to the injections, for they occurred in the two other cases. Arsenical intoxication is mentioned as one of the causes of purpura. The moral of the case is obvious. Hæmorrhage into the skin or from mucous membranes during salvarsan treatment should be regarded as a danger signal, and the drug discontinued. In the discussion which followed M. H. Grenet stated that he had seen, during salvarsan treatment, slight hæmorrhages from the gums and slight hæmoptysis in the subjects of latent tuberculosis.

THE Conference of Representatives of Local Medical and Panel Committees of the British Medical Association will meet in London on Nov. 27th, when the remuneration of Insurance practitioners under the 1920 terms of service will come up for discussion.

AT the Royal College of Physicians of London, on Nov. 6th, Dr. A. P. Beddard will deliver the Bradshaw lecture, entitled "Some Remarks on Chronic Arthritis." The Fitz-Patrick lectures will be given by Dr. Edward G. Browne on Nov. 11th and 13th, his subject being "The Origin and Development of Arabian Medicine."

THE MEDICAL PROFESSION AND THE NATION'S HEALTH.[1]

BY SIR MALCOLM MORRIS, K.C.V.O.

THE war which descended upon a startled world like an avalanche five years ago was to usher in an era of universal peace. We were encouraged to look forward to a time such as that sung by Milton in his seraphic ode:—

> "No war, or battle's sound,
> Was heard the world around;
> The idle spear and shield were high up hung;
> The hookèd chariot stood
> Unstain'd with hostile blood;
> The trumpet spake not to the armèd throng;
> And kings sat still with awful eye,
> As if they surely knew their sovran Lord was by."

How different, so far, has been the reality from the promise. For "meek-eyed Peace," who, with wide waving of her myrtle wand, struck "a universal peace through sea and land," the Congress of Paris has been a sorry substitute, and while, with infinite wrangling, it has been ensuing peace, a large part of Europe has been in the throes of a fratricidal war. If new nations are being born, it is by a process of prolonged and difficult labour, with vigorous instrumental interference. Of the older nations, some have undergone revolution, others are wondering whether it will not presently be their fate also to "shoot Niagara." Thrones not broad-based upon the people's will, as ours happily is, have been overturned, nor are republics free of apprehension. Statesmen, the most richly endowed with insight and prescience, feel that their vision has grown dim. Civilisation, it is true, no longer trembles under the menace of a militarism gone mad. But its best minds would give much to be sure that there is no need to fear chaos.

Upon the medical profession the reactions of the great catastrophe have been exceptionally severe. A multitude of students enrolled themselves in the fighting ranks. Many of them fell on the stricken field; the survivors have had to resume their training at the point at which it was interrupted. Of the thousands of practitioners who entered the R.A.M.C., too many have returned to civil life to find that they have to begin their careers over again. Those whose duty it was to remain behind to care for the health of the civilian population were subjected to a strain that was barely endurable. We have heard much about the demands made by the war upon the endurance of coal-miners and munition workers, and we are invited to find in this an excuse for slackness and under-production in certain industries since hostilities ceased. I venture to assert that no group of manual workers was exposed to a strain greater than that which medical men had to bear, and neither while the war was raging, nor since, has there been any slackness for which excuses have to be found.

Recognition of Professional Service.

The time of greatest stress was during the successive waves of the influenza epidemic. The country has too much taken for granted what I do not scruple to call the heroism with which that emergency was met. On the other hand, there has been ample recognition of the service rendered by the profession in war work. The brilliant triumphs it achieved, by antiseptic resource and surgical skill and consummate organisation, in combating the diseases of war, both long-familiar diseases such as typhoid, and new diseases such as trench fever, and in saving life and limb and repairing horrid mutilation, have won universal appreciation. Never before in the history of these islands had the profession enjoyed such an opportunity of justifying itself and its methods. We may regard this as a hopeful augury of the consideration which will be paid to the medical view in whatever changes may be coming upon us. The sense of what the country owes to the profession is possibly one of the things which made so smooth a path for the advent of a Ministry of Health. And the creation of that Ministry, with a medical man at its head, with its medical officer charged with administrative powers and responsibilities, and with its Medical Consultative Council, is another reason why we may regard the future with hope. Certain it is that the Ministry of Health cannot do its best for the health of the nation—and that, reduced to simplest terms, is the end for which it has been created—without promoting the best interests of the profession. Never again will a great health measure such as the National Insurance Act be presented to the nation until medical men, upon whom the burden of carrying it into effect, have been fully consulted.

---

[1] An address delivered before the Harrogate Medical Society on Oct. 16th, 1919.

State Medicine.

I shall make no attempt to forecast the precise changes which are coming upon us. Of all mental exercises none is so unprofitable as specific prophecy. But who can doubt that, as the years go by, medical men will more and more be engaged in the practice of State medicine? The nation is manifestly evolving in the direction of State control and State service. In what I have elsewhere called the swan-song of the late Local Government Board, the review of public health events since 1871, which is prefixed to his annual report for 1917–18, Sir Arthur Newsholme points out that of the 24,000 practitioners on the Medical Register of England and Wales some 16 000 are engaged in insurance domiciliary practice, from 4000 to 5000 in Poor-law practice and as public vaccinators, 1800 to 2000 as medical officers of health, tuberculosis officers, venereal disease officers, &c., and 1300 in the School Medical Service. To these have to be added the medical men in the navy and army, and those who are doing lunacy and factory and post office work. More than one public appointment is, of course, often held by the same medical man, but, when this is allowed for, the figures show that already the vast majority of practitioners are engaged in what I may call communal service. And the tendency for this communal work to grow is irresistible. Take the School Medical Service as an example. In my little book, "The Story of English Public Health," I have sought to convey some notion of what that service has accomplished during the few years of its existence. But it is only a beginning. No one could, or would, attempt to set bounds to its future activities. By its system of inspection it has brought to light the alarming prevalence of health defects among school children, defects which prevent the proper use of the educational facilities which at enormous cost the community provides. It now remains to cure the defects as they are discovered, and, even more important still, to remove the conditions—ante-natal and domestic and social—which are the *fons et origo mali*. Take but one other instance, National Health Insurance. By an Act passed during the present year, almost *sub silentio*, and now actually in operation, the income limit within which insurance is obligatory has been extended, subject to certain exceptions, from £160 to £250. And who can be sure that presently there will not be further extensions? I remember that when the County Franchise Bill, of which he had been one of the champions, was passed, Sir George Trevelyan was reported to have exclamed, "How many Acts are there implicit in this Act!" So is it with Public Health measures. Having gone so far in recognising its responsibility for the nation's health, the State is sure to go much farther. It has been suggested by Dr. Gordon Dill that compulsory health insurance should be extended to all classes of the community. In this way, he believes, most of the conditions of health insurance with which fault is found would be removed, the system would be placed upon a sound financial basis, and its success would be assured. We may not be within measurable distance of that consummation, but no one can doubt that the claims of the body politic upon the organised service of medical men, in this and many other directions will inevitably expand.

Should All Medical Work be Placed on a Communal Basis?

This suggests the question whether it is desirable, in the interests of the profession, that *all* medical work should be placed upon a communal basis. In his brochure on the "Future of the Medical Profession," a contribution, in my judgment, of more than temporary value to a discussion that is still only in its initial stages, Sir Bertrand Dawson appears to look forward to a time when medical men generally will be either full-time or part-time salaried servants of the community. According to this conception, the specialists in preventive medicine, radiographers, chemists, bacteriologists, and pathologists, will be mainly whole-time servants of the community, and will be paid correspondingly by salary, and, speaking generally, the number of whole-time men will be greater in large towns than in more thinly populated areas. It is possible that we may not be far removed from such a régime as is here sketched. In my opinion that is quite as far as it is desirable to go in the direction of communal service. To go farther, to aim at the abolition of private practice, is, in my judgment, desirable neither for the nation nor for the profession. Some medical men are able to regard such a prospect with equanimity and even with enthusiasm. The vast majority, I am persuaded, would regard it with dismay and many of them with abhorrence. I agree entirely with Sir Bertrand Dawson when, in a pregnant sentence, he declares that "liberty of action, the stimulating force of rivalry, and the personal touch are essential.' I for one have no wish to see medical men deprived of their independence, their initiative. Any system which bears such a fruit as that is, in my opinion, self-condemned. That may be a German, it is certainly not a British, ideal. It makes for a soulless mechanism; it would rob medicine in this country of the humanity which is its chief glory. Leave no scope for the spirit of adventure, and how much of the zest and savour of life would have vanished! No; the medical man must be left free to realise himself. And the patient, too, must be left absolutely free to choose his doctor. In the whole circle of social relations there is none more to be admired than that subsisting between the family practitioner and his patients. He wins their confidence, he comes to be regarded as their friend, and his personal influence supplies that element of suggestion which is hardly less valuable than professional skill. No scheme of organisation must be allowed to disturb a relation which so abundantly justifies itself by its result.

Specialism in Medicine.

Another pronounced tendency of the times in medicine is that towards specialism. It is not without obvious disadvantages. The specialist is in danger of looking at the problems that demand solution too much from his own angle, forgetting that he cannot make full use even of his own special knowledge if he confines himself rigidly to it and fails in appreciation of the more general aspects of medicine. All the same, as medical knowledge grows and medical technique becomes more highly elaborated so will specialism increase. To recognise that is by no means to depreciate the importance of the general practitioner. I question whether the laity understand even approximately how much knowledge it is necessary that he should have acquired, or how exigent are the demands constantly being made upon his mental alertness, his resourcefulness, his judgment. They do not realise that, of all the fundamental sciences, astronomy is the only one which does not enter into the bases of medicine. Nor do they know how vast is the field which medicine itself presents to the medical student. When at the end of his studies he enters upon general practice, how much is expected of him—tact, sympathy, self-command, coolness and equanimity, cheerfulness and resourcefulness, quick decision. What other profession is there in which the man's whole personality finds a scope so extensive?

Importance of Training.

If that rough sketch of what is expected from the general practitioner is correct, it is obviously of the first importance that he should have the best possible training for work so exacting. Does he get the best possible training? That question is answered with an emphatic negative by Sir James Mackenzie, in his recent book on "The Future of Medicine." He cites his own illuminating experience. Starting practice with the confidence that his studies and his hospital experience had properly qualified him for his work, he was not long in finding that in the great majority of his patients he was unable to recognise the nature of their ailments. The examinations he had been trained to make in the hospital wards, and even in the out-patient department, had reference for the most part to the detection of gross physical signs. As a general practitioner he found that few of his patients had any physical signs to detect. What he was called upon to diagnose was subjective symptoms, and in this kind of diagnosis he had had so little training that he found himself quite at a loss. He connects this lack of understanding of the beginnings of disease with the fact that men who have been in general practice have no place on the teaching staff of our hospitals. The remedy he proposes, pending that reorganisation of medical education which is widely felt to be necessary, though there is no common agreement as to the form it should take, is that in every school of medicine there should be, at least, one teacher who has had from 10 to 20 years' experience of general practice. "It would be well," to quote his words, "if a young man were encouraged to enter general practice with the expectation that if he proved himself fit he should be qualified to become a teacher, and have the opportunity in a well-equipped hospital of solving the problems he has had to face in his practice. In general practice he would speedily be brought face to face with the real difficulties of medicine." Thus, as Sir James Mackenzie points out, he would come to know how to assess the value of symptoms, an appreciation of which is so necessary for the consultant and teacher. Only by such an experience can the whole field of medicine be viewed in its proper perspective. I cannot help feeling that this suggestion is as valuable as it is novel. In my own work as a consultant and teacher I often felt it an advantage to have had, at the beginning of my career, some experience of general practice. Antecedently, it might seem to be impossible that the training of general practitioners should virtually be restricted to those who have had no experience of general practice. But life abounds in these antecedent impossibilities, and we are so habituated to them that when the rational view is first presented to us we are apt to suspect a paradox.

The Out-patient Department.

The beginnings of disease—I must dwell for a moment upon that phrase. How little is our present system of medical education calculated to equip the student with this most necessary knowledge! It is in the out-patient department that it is to be acquired. Is it here, where diagnosis is most difficult and there is greatest scope for cure, that the most experienced physicians are employed, and that all the aids of laboratory technique are at hand? On the contrary, as Sir James Mackenzie says, out-patients are relegated to "the youngest member of the staff. He searches carefully for physical signs, and if there are no physical signs the patient is either discharged with a bottle of physic, or told to return from time to time until a physical sign is discovered; then, and not till then, is he sent to be under the care of a skilled physician; and then, and not till then, does he receive the assistance of laboratory methods in his examination." This defect in our medical education is insisted upon no less strongly by Sir George Newman in his memorandum on Medical Education in England. "There are not half-a-dozen medical schools in this country," he says, "where the student is continuously and properly taught in the out-patient department. Indeed, nothing could be more remote from true educational method and spirit than the clinical work which sometimes characterises out patient treatment or the teaching of students in these departments—a hasty glance, a bit of paper, and on to the next patient, a situation inferior to that of a busy morning in the waiting room of a certifying factory surgeon or an over-driven panel doctor, a handling of the patient which is actually mischievous training for the student. Yet the out-patient department should play an important part in his education." The fact is, gentlemen, that the whole conception of the out-patient department is wrong. Instead of being regarded as an avenue to the wards, where the patient will be welcomed when his symptoms have developed *secundum naturam*, it should constitute a first line of defence, a barrier to prevent him from gaining access to them. What is wanted in the out-patient department is not a policy of expectant treatment but the offering of a vigorous resistance to the beginning of disease. As the ultimate aim of State medicine is not merely to check the dissemination of disease but to prevent its occurrence so, in the limited senses of arresting disease in the initial stages, of appreciating the significance of early symptoms and averting their development by the application of remedies or the correction of faulty modes of life, should prevention be the ideal of hospital and private practice.

The importance of this point seems to have been overlooked by one of the leading public health authorities of the United States. In Mr. Frederick Hoffman's "Plan for a More Effective Federal and State Health Administration" there is much sound sense, but he brings against schemes of compulsory health insurance the objection that "the major portion of time, thought, and expense is devoted to trivial and partly imaginary ailments," ailments which, he holds "have neither much pathological nor sociological significance." In my opinion, this attention to early symptoms which leads Mr. Hoffman to condemn compulsory health insurance is precisely the ground on which such systems can most successfully be defended. Our own National Health Insurance was so shaped as to be more concerned with palliative than with preventive medicine. Apart from the work of the Medical Research Committee—a very important exception, it is true—it has done little directly for preventive medicine, but by the facilities it provides for prompt and early medical treatment it has, I am persuaded, done much to check the development of disease.

Representation of Medical Men on Governing Bodies.

By the creation of the Ministry of Health the medical view, as I have suggested, has a representation in the Government such as it has never before possessed. But that is not nearly enough. It is also necessary that the profession should be powerfully represented on all the authorities which have the framing and execution of the laws bearing upon its work and upon the nation's health. When, in the "eighties" of the last century, it looked as though the agitation against compulsory vaccination was about to achieve a definite triumph, it was left to a non-medical Member of Parliament, Sir Lyon Playfair, to stem the time by a speech which undoubtedly changed the current of Parliamentary feeling. It was he also who effectively defended the cause of experimental research. In these days the profession is better served in the House of Commons and medical Members of the House, such as Sir Watson Cheyne, have been able to exert a salutary influence in moulding the Ministry of Health Bill and defending the practice of vivisection. But the House of Commons ought to include many more exponents of medical thought.

Not less important is it that the profession should have its spokesmen in the House of Lords. That House may undergo considerable modification in a not distant future, but in any case its work as the revising chamber must always be of great importance, and I hold that it ought to include at least half a dozen men who could speak with authority in behalf of enlightened medical thought.

Nor ought the medical view to lack direct expression on those local authorities that carry out the detailed administration of public health law. The Labour party is said to be laying its plans to dominate these bodies. If so, it is an eminently wise ambition. You will not have forgotten that in his famous "parish pump" speech Lord Rosebery tried to bring the country to a sense of the first-rate importance of local administration—not very effectually, it is to be feared, for in many areas, especially in London, the vast majority of the ratepayers take not the faintest interest in their local authorities, and hardly know when an election is in progress. Dr. Rowland Fothergill has recently urged the profession to take steps to secure representation on local authorities, and it seems to me that the advice should be followed. The difficulties in the way of medical representation in the House of Commons and on these local bodies are obvious. The demands made upon the time and energy of those who represent popular constituencies in the House of Commons are most exorbitant. As to local authorities, it is easy to understand the aversion with which most medical men regard local electioneering, into which personalities and pettinesses so frequently enter. I would suggest, however, that the end to be gained is worth the sacrifice. There is no lack of medical men who have the necessary aptitude for the work, and I suspect that those who have established a reputation for highmindedness and discretion might find it easier to secure the suffrages of their neighbours than they suppose.

History of the Federation Movement.

And now, gentlemen, I come to the point to which these observations are intended to lead up—the need for such an organisation of the profession as will impart to it the power that comes from unity. It has recently been borne in upon many of us that the absence of a federation commanding the confidence and support of practically the whole profession, a federation which could speak not only for medical but also for ancillary institutions when legislation affecting their interests was projected, which, further, could invite the active coöperation of lay associations that have to do with matters of public health, is an immense disadvantage. It is to supply this lack that the British Federation of Medical and Allied Societies has been formed.

Let me remind you of its origins. The movement out of which it has evolved was the outcome of a widespread feeling that means ought to be devised for increasing that Parliamentary representation of the profession which is an urgent necessity of the times. In October of last year an open meeting of medical men was called which, at the instance of Dr. Addison, then President of the Local Government Board, now Minister of Health, passed with unanimity a resolution declaring "That in the interest of the national health it is essential that the considered views of the medical profession should be voiced by representative medical men in the House of Commons." That was the single and specific object which was contemplated at the outset. As the result of the resolution a provisional Parliamentary Committee was appointed. That committee clearly did some hard thinking, which led it to favour the formation of a permanent Committee representative not only of medical but also of allied societies and institutions, such as those charged with the interests of the dental, pharmaceutical, and nursing professions and those whose business it is to promote public health. It therefore organised a conference to which the various medical and allied institutions were invited to send representatives. The conference was held in May, under the presidency of Sir Watson Cheyne, chairman of the temporary Parliamentary Committee. The need for an organisation which could speak for the profession as a whole, as well as for allied professions, could supply material for the formation of expert opinion to all the societies concerned, and could promote the election of medical Members of Parliament and keep in touch with them when elected, was recognised. It was felt that such an organisation would be able to help Parliament in legislating for the health of the nation, and that in time it might initiate as well as help to shape reforms. Hostility towards, or even rivalry with, the British Medical Association or any other society was expressly disclaimed. At the same time, the feeling was all but universal that no existing society was capable of being transformed into such an institution as was required. Dr. Arthur Latham, one of the secretaries of the committee, and now a vice-chairman of the federation, only said what is self-evidently true when he declared of them generally that they had too much work arising out of their own special aims to be able to promote political developments, and that, moreover, they lay under the suspicion—whether justly or unjustly I need not attempt to determine—of seeking to further interests of the profession at the expense of the public. "We shall never," he added, "have political power until we get the public on our side, and that will happen when we approach the public through a body which is recognised as looking after the community rather than after the doctor. And this is the right order, for the interests of the doctor will be cared for if the interests of the community are met; the mistake the medical profession has made in the past is that they have not led the public to understand that the interests of the profession are wrapped up in the interests of the community."

The upshot of the conference was the appointment of a permanent Medical Parliamentary Committee, to be constituted of representatives of existing medical, dental, pharmaceutical, nursing, and midwifery societies, and those concerned in public health questions or interested in medico-parliamentary activities, with all medical Members of Parliament and the editors of approved medical journals and similar publications. In addition, the permanent committee was to comprise members coöpted by the committee itself, not exceeding 20 per cent. of the representation. Later there were to be added directly elected representatives of the whole medical profession and approved allied bodies. Further, the permanent committee was authorised to appoint an executive consisting of not more than 20 members, of whom not more than one-fourth were to be consultants.

It was left to the provisional committee to give effect to the decisions thus arrived at, and in July the new committee reported that as many as 47 medical and similar societies had accepted representation. It had been found that the name Medical Parliamentary Committee gave rise to misunderstanding and excited prejudice, and the new body therefore adopted the designation of "The British Federation of Medical and Allied Societies." So the Parliamentary Committee passed from the scene and gave place to the federation, which is to be an incorporated association, limited by guarantee, and having no share capital under the Companies Acts, and is to be registered under the Board of Trade (Section 20), with limited liability. Within a few months, then, a movement started to promote the election of medical Members of Parliament so enlarged its scope as to furnish the nucleus of an organisation which aims at the federation of all medical and ancillary institutions, so that regular communication between them may be established and action in common taken on every appropriate occasion.

"*Ways and Means.*"

A word now about "ways and means." To cover the estimated expenses of the first year, by the end of which it is expected that the federation's revenue will suffice to meet the expenditure, a guarantee fund of 2000 guineas has been raised. Apart from any donations that may come in, the income will be furnished by entrance fees and annual subscriptions. The amount of the annual subscription is still under consideration.

It should be clearly understood that the federation has no wish to limit the independent action of the constituent bodies, still less to supersede them. In all matters in which a society considers that its own representations to the Government are sufficient it will make them independently. It is only when there is reason for bringing greater pressure to bear than can be exercised by any one society that questions will be referred to the federation. The Executive Committee will then elicit the views of all the other constituent bodies, and where a common feeling is found to exist the federation will give it authoritative expression. Is it not to the obvious advantage of any organisation, even to one so powerful as the British Medical Association to join the federation and so have its influence strengthened by the concurrent influence of other medical and ancillary bodies? And as each constituent body will thus enjoy the advantages of associated action, so also will it have the privilege of aiding every other constituent body by adding its authority to the common stock.

Practicability of the Scheme.

There may be those who think that while the aims of the federation are unexceptionable, they are impossible of realisation. When, under the pressure of ill-health and Parliamentary duties, Sir Watson Cheyne was compelled to resign the chairmanship of the Parliamentary Committee and I was invited to fill the vacancy, you will not be surprised that I asked myself whether this scheme was practicable. After due consideration, and with a full appreciation of the obstacles that have to be surmounted, I answered the question affirmatively. Am I unduly sanguine? I reply by asking whether, in the recent course of events, there is not a good deal to justify the optimistic mood. When the war broke out, what ground was there for hoping that within half a decade a Ministry of Health would be created? And when, in 1913, the profession demanded the appointment of a Royal Commission on Venereal Diseases, who could have believed that within half a dozen years the land would be covered with a network of clinics for the gratuitous treatment of those diseases? In both instances there appeared to be lions in the path, but no sooner were they faced than they turned tail and fled. So, gentlemen, it may prove to be here. The difficulties, I frankly admit, are formidable. There will be need for the exercise of tact, of patience, of persistence. Those qualities will, I am sure, not be lacking. I can testify that the spirit which animates the Executive Committee is a spirit of harmony, and of confidence tempered by caution. The profession now has such an opportunity of attaining unity as was never presented to it before. I cannot believe that it will be so blind to its highest interests as to fail to grasp the precious chance. If the peoples of the world, so widely sundered by race and temperament and secular antagonisms, can form a league of nations for the conciliation of clashing interests, is there not enough statesmanship among medical men to form a federation for action in common? This great profession—the most beneficent, I venture to assert, of all the professions—has never yet exerted its proper influence in the nation's life. Its course has been vexed and thwarted by cross-currents. It exists to heal the sick. Can it not heal its own divisions? Let it avail itself of the means now within its reach of speaking with one voice, and Parliament, I believe, will gladly accept its guidance in the things pertaining to the nation's health.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

The Royal College of Surgeons of Edinburgh and the Naval and Military Medical Forces of the Empire.

IT is appropriate that in Edinburgh appreciation of the splendid and humane work performed by the Medical Services of the Empire and of our Allies should be expressed. At a meeting of the Royal College of Surgeons of Edinburgh held on Oct. 15th the President moved that the following names, representative of all the branches of the Medical Services, be added to the roll of Honorary Fellows of the College for distinguished services in the Great War:—

Sir William Norman, K.C.B., R.N., late Director-General, Naval Medical Department.

Sir Robert Hill, K.C.M.G., C.B., C.V.O., Director-General, Naval Medical Department.

Lieutenant-General Sir T. H. John Goodwin, K.C.B., C.M.G., D.S.O., K.H.S., Director-General, Army Medical Department.

The Hon. Major-General William Rice Edwards, C.B., C.M.G., K.H.P., M.D., Director-General, Indian Medical Service.

Major-General G. L. Foster, C.B., Director-General, Medical Services, Overseas Military Forces of Canada.

Major-General Sir N. R. Howse, V.C., K.C.B., Director, Australian Army Medical Service.

Colonel W. H. Parkes, C.M.G., C.B.E., Director, New Zealand Medical Corps.

Colonel P. G. Stock, C.B., Director, South African Medical Corps.

Rear-Admiral W. C. Braisted, U.S.N., Administrative Head of the Medical Service of the United States Navy.

Surgeon-General M. W. Ireland, United States Army Medical Corps.

Médecin Inspecteur General Sieur, Member of the French Academy of Medicine and Professor of the Val-de-Grâce Military Hospital.

Lieutenant-General Leopold Melis, K.C.B., Inspecteur-General du Service de Santé de l'Armée Belge, Attaché à la Maison Militaire du Roi.

Maggiore Generale Commendatore Lorenzo Buonomo, Attaché to the Ispettorato di Sanità Militare, Rome.

Surgeon-Director-General Professor Tadao Honda, Director-General, Naval Medical Service (Japan).

This motion was unanimously carried with enthusiasm.

In referring in suitable terms to the personal career of each the President pointed out that the honorary Fellowship was very rarely awarded. Prior to the 400th year from the foundation of the College only about 34 honorary Fellows had been created, while in the last 14 years one addition had been made in the person of Lord Rosebery on the occasion of his opening the new hall and museum extension.

The Election of Direct Representatives on the General Medical Council: Dr. Norman Walker's Candidature.

At a meeting of the medical profession in Edinburgh, in support of Dr. Norman Walker's candidature for the position of Direct Representative in Scotland upon the General Medical Council, a letter was read from Sir Clifford Allbutt, in which the veteran professor of physic at Cambridge, said: "For, I daresay, some ten years, I sat with Walker in Council, ever growing in respect for his sound and calm judgment, wide knowledge of affairs, and command of easy persuasive speech, which never failed of its influence." Professor Lorrain Smith, the chairman of the meeting, who read the letter, endorsed the statement as a former colleague of Dr. Walker on the Council.

The Candidature of Dr. Dewar.

Dr. Michael Dewar closed his campaign in this election last week by addressing meetings at St. Boswells and Stirling. He based his claims for election on the following grounds:—

1. That the 1886 Act was passed for the purpose of enabling the general profession to elect one of themselves as their direct representative.
2. That Scotland had not been represented by a general practitioner since 1906, and the 1886 Act had thus been a dead letter in that country for 13 years.
3. That he is a general practitioner in active practice and has been strenuously engaged for the last 17 years or more in furthering the interests of the profession.
4. That it is now time for the general profession to assert itself and take its share in the control of the general education of those proposing to enter the medical curriculum and in the medical education of students qualifying for registration as medical practitioners by returning one of themselves to the Council.

Inaugural Lectures by New Professors at Edinburgh.

Professor Barger, the occupant of the new chair of Chemistry in Relation to Medicine at Edinburgh, gave his inaugural lecture on Oct. 21st. Speaking on the relationship of medicine and chemistry in the past, he drew attention to the advantages which clinical medicine and pathology had derived from the introduction of suitable methods of analysis, and of these he instanced bacteriology as one of the greatest. The functions of a university were twofold—to teach and to increase knowledge—and often professors had been too much occupied with lecturing to do themselves justice as original investigators. He emphasised the importance of original research, and expressed the opinion that a period spent in work of this kind should form the normal ending of a student's period of study. He hoped much from the institution of the new Ph.D. degree, to be given only for research.

Professor Meakins, first occupant of the Christison chair of Therapeutics, delivered his inaugural lecture on Oct. 23rd, taking as his subject "The Influence of Edinburgh on McGill University and American Medicine." Professor Meakins outlined the development of medical education in Canada in the eighteenth century. The first native Canadian who went abroad for medical study was François Bianchet, who was born in 1776 and went to New York to obtain his education. He aroused the desire for foreign education in Jacques Labrie, who journeyed to Edinburgh in the latter years of the eighteenth century. On his return home Labrie entered politics, and it was to him that they were indebted for the institution of those tribunals which guard the honour of the medical profession in Canada. In 1744 James McGill was born in Glasgow; when quite a young man he went to Canada in search of fortune and engaged successfully in mercantile pursuits, notably in the North-West fur trade. He subsequently settled in Montreal, and on his death in 1813 he left his estate of Burnside, together with the sum of £10,000, for the foundation of an English-speaking university, one of the colleges of which was to be called McGill College. The Montreal Medical Institution, an active teaching body, and the first to attempt medical education in Canada, became the medical faculty of the new University. This institution was composed of men from the Edinburgh school, who brought from Edinburgh her methods of medical teaching, and from the very earliest up to the present they had continued on the foundation so truly laid. The early history of McGill University was a protracted struggle. Up to 1855, the principals of the University had been men of a theological training; they had striven to guide this young institution and at the same time to perform the duties of busy clergymen, and their efforts were not a success. With the appointment of Dr. Dawson, an Edinburgh graduate, a new era opened in Canadian medical education, and it was not long before McGill University came into prominence among the great seats of learning. The tradition that an Edinburgh graduate should hold this important position in Canadian education was still being unconsciously carried on, and quite recently Sir Auckland Geddes had been offered and had accepted the principalship. In the last hundred years there had been few exceptions to break a steady line of Edinburgh and McGill men occupying professorial positions at the McGill Medical School.

Glasgow University.

The report of the Business Committee to the General Council of the University say that though the war has closed the University continues to work under emergency conditions, owing partly to members of the teaching staff being still on service abroad, and also to the greatly increased number of students requiring special arrangements for their instruction.—The Roll of Honour shows that no fewer than 3420 graduates, students, &c., have been on service, and of these over 570 have fallen, and over 700 were reported wounded or missing. Some 340 received military distinctions and honours, and over 200 were mentioned in despatches. At least 1200 cadets of the O.T.C. received commissions, the total who served as officers approaching 2700 in all.—Matriculation for the current session ended on Oct. 23rd, and the enrolments have reached the record total of 2736. The previous highest figure was 2200 prior to the institution of the preliminary examinations in 1892. For the winter session immediately preceding the outbreak of war the total was 2181.—The result of the election for the new Lord Rector was announced on the 25th, Mr. Bonar Law being the successful candidate. The figures were:—Mr Bonar Law (Coalition), 1073; Professor Gilbert Murray (Liberal), 726; Hon. Bertrand Russell (Socialist), 80.

Royal Maternity Hospital, Edinburgh.

Dr. William Fordyce and Dr J. Lamond Lackie have been appointed ordinary physicians to the hospital, in place of Dr. F. W. N. Haultain and Dr. J. W. Ballantyne, who retire on completion of the usual period of service. Dr. Ballantyne remains in the service of the hospital in connexion with the ante-natal work, with which his name has so long been associated.

Aberdeen University Council: Election of Assessors.—War Memorial Scheme.

At the one hundred and nineteenth statutory meeting of the General Council of the University of Aberdeen, which was held in the Mitchell Hall on Oct. 18th, Dr. John Scott Riddell and Dr. George Smith, director of studies. Training Centre, Aberdeen, were by a majority of votes elected as assessors to serve for four years, and the Rev. James Smith and Mr. D. M. M. Milligan, advocate, were elected to serve for two years. The chairman submitted a report on behalf of the War Memorial Committee, proposing that the memorial to the 301 students and former students who had fallen during the war should take two forms—namely, a record in book form of all who had served in the forces during the war who were connected with the University, in which it was proposed to print short biographies and portraits of each and of monuments at King's College and Marischal College. At King's College the antichapel was to have the names of the fallen on the walls, a stained-glass window was to be placed in the chapel, and it was also hoped to restore the original east window. At Marischal College it was proposed that a porch of a memorial design should be added at the foot of Marischal Tower. The sum required to carry out these proposals is estimated at from £9000 to £10,000. It was agreed by the business committee not to dissent in a general regulation ruling that, after Jan. 1st, 1921, the preliminary examination in medicine would be the same as that for arts and science.

Bequests to Aberdeen Medical Charities.

The late Mr. David Graham has left the following legacies, free of legacy duty—viz.: to the Aberdeen Royal Infirmary, £1000; Morning Hospital, £250; Royal Aberdeen Hospital for Sick Children, £500; Aberdeen Eye Institution, £250; Aberdeen District Nursing Association, £250. The Aberdeen Royal Infirmary will also benefit by one-half of the residue of the estate of Mrs. Barbara Mitchell or Shiach, 26, Mount-street, Aberdeen.

Oct. 27th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Royal College of Physicians of Ireland.

AT the annual meeting of the Royal College of Physicians, held on St. Luke's Day, Dr. James Craig was unanimously elected President. Dr. Craig is King's professor of medicine in the School of Physic, a physician to Sir Patrick Dun's Hospital, and to His Excellency the Lord Lieutenant. He was for many years registrar of the College.

The House of Industry Hospitals.

The refusal of the Government to take any responsibility for the liabilities incurred by the governors of the House of Industry Hospitals, as recorded in THE LANCET some months ago, has compelled those in charge of the hospitals to decide to manage them on different principles from those formerly in force. The new policy has been laid down in a letter to the daily press from the secretary of the hospitals. In future it is intended to charge fees sufficient to pay for maintenance to all patients able to pay them. It is hoped in this way to cater for a class of patients who have hitherto been reluctant to seek hospital treatment. Urgent cases will not be refused admission even if no fees can be paid, and it is hoped after a time to increase the number of free beds. It is not stated whether the patients who pay the hospitals for their maintenance are also to pay fees to the staff for their medical treatment. It is clear that the policy adopted under stress of necessity by the House of Industry Hospitals raises far-reaching questions which affect all the Dublin hospitals. The number of people requiring hospital treatment, and unable to pay anything, is very large in Dublin, and the strict limitation in the number of free beds in the House of Industry Hospitals will entail a greater pressure on the free beds in the other hospitals, as well as on the Poor-law infirmaries. Up to the present the voluntary hospitals have been ostensibly charitable institutions for the treatment of the poor, and few patients made any contribution. If now they are to be a convenience for the middle class, what is to become of the sick poor, and in what relation are the hospital physician and surgeon to stand to the outside practitioner! Within the past few days the Lord Lieutenant has nominated a new board of governors for the House of Industry Hospitals. It is interesting to note that the board now includes all "the full" staff, to whose energies, indeed, the continued existence of the hospitals is due.

Scarlatina Epidemic in Belfast.

There are now over 900 cases of scarlatina in Belfast, and both the municipal fever hospital at Purdysburn and the union workhouse fever hospital are full. At a meeting of the guardians on Oct. 21st—when it was reported that there were 576 scarlatina cases in the union workhouse fever hospital, 21 of whom were admitted the previous night—it was decided to notify the public health committee that they must be responsible for any further cases of the epidemic. The public health committee, faced with such a serious contingency, made application to the military authorities for the use of the old asylum buildings in the Grosvenor-road, where at present 80 or 90 soldiers suffering mentally are under treatment. It was thought these cases could be treated at the Craigavon or Hilden Hospital, but as this suggestion has not been successful there is to be another conference to see if the guardians and the public health committee cannot come to an amicable agreement, so that arrangements can be made to treat all the cases. Some writers urge closing the schools, but it appears that, out of 60 schools affected, not more than one or two children in each have been reported. Of 300 schools in Belfast one-third of them have not had a single case. Other writers think the usual public health methods for keeping in check such epidemics having failed, an attempt should be made by research work to find out the reason of failure, and to discover something definite about the cause of scarlatina, how it is spread, and why it prevails in certain towns, like Belfast. At a special meeting of the Belfast guardians, held on Oct. 27th, after a long discussion, it was decided, in view of the statements made by a deputation from the public health committee, to grant 55 more beds for the present, but the guardians emphasised the fact that the corporation must make more provision for dealing with such epidemics in the future.

The Omagh Board of Guardians.

There was an extraordinary occurrence on Oct. 26th at a meeting of the Omagh board of guardians, called to appoint a medical officer for the Omagh No. 1 Dispensary District. There were two candidates—Dr. Bernard Lagan and Mr. James A. Cunningham. After the vote was taken the chairman announced that the latter had received 41 votes and the former 39. This was challenged by the supporters of Dr. Lagan, and a wild scene ensued; blows were struck and strenuous fighting took place round the chairman and over the reporter's table, pandemonium reigning for an hour. Amidst the din the assistant clerk said, according to his count, each candidate had received 40 votes. This announcement was received with loud enthusiasm by Dr. Lagan's supporters, and, finally, the chairman, accepting the assistant clerk's count, said the appointment would have to be adjourned. Eventually, by 41 to 39 votes, it was decided to put off the appointment for four weeks when it is to be hoped that the proceedings may be conducted with something more approaching decorum.

Oct. 28th.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENT.)

Influenza in India.

FROM the latest influenza statement prepared by the Sanitary Commissioner with the Government of India it would appear that Madras has been suffering more severely from the disease than any other large centre of population in India. During the week ending August 29th 97 influenza deaths were reported in that city, while in the week ending August 30th 17 were reported in Bombay city, and in the week ending August 23rd 46 occurred in Calcutta. The epidemic in Burma is said to be definitely abating, though 58 deaths were reported in Rangoon during the week ending August 23rd.

The Epidemic Diseases Act has been applied to the provinces of Burma, Bihar, and Larissa, where outbreaks are feared.

Health in Calcutta during 1918.

The report of the municipal administration of Calcutta for the last year, just issued, says that the year 1918 was an abnormal year from a public health point of view, and coming immediately after the healthiest year on record the differences are strongly accentuated. In the early months of the year there was a considerable influx of the panic-stricken emigrants from badly infected centres of plague who brought infection with them, intensified overcrowding, and helped to swell the mortality. particularly from small-pox and plague. In the middle of June influenza broke out in an epidemic form, and although it subsided after a few weeks there was a severe recrudescence in October which lasted throughout the year. Its effects are reflected in the vital statistics. About a fourth of the year's mortality is due, directly or indirectly. to this epidemic.

The total number of births registered was 18.166, as compared with 18 807 registered in the previous year; the total number of deaths registered during the year was 31,371, as against 21 360 registered in 1917. This is equivalent to a death-rate of 35 per 1000, which is the highest recorded since 1907. The Calcutta Corporation has appointed a committee to consider the whole question of providing sanitary buildings or building sites for persons of moderate means in suitable localities. For 20 years the corporation has done nothing to give effect to the provisions of the Act which authorises such action.

Sickness in the Afghan War.

The following statements are published for the period May 5th to August 9th. The total admissions to hospital were 10 882 British and 45.774 Indian troops and followers giving daily admission rate per 1000 of strength of 4·98 British and 2 97 Indians The deaths from disease were 12 officer and 77 other ranks British, total 89; and 9 officers and 1260 other ranks and followers Indian troops. total of 1269 Indian. Total deaths, British and Indian. 1358. The deaths per 1000 admissions to hospital (excluding wounds) was British 0·82. Indian 27·74. These ratios may be compared with similar ratios for other forces engaged on active service during the same period of the year in India or in the East on former occasions, as follows:—

—	Daily admission rate per 1000.		Mortality per 1000 admitted to hospital.	
	British.	Indian	British.	Indian.
Indian Frontier, May 5–Aug. 9, 1919	4·98	2 97	0·82	27·74
Mesopotamia ,, ,, 1917	5·04	2·11	19·30	15·96
Mesopotamia ,, ,, 1918	3·45	2·27	7·41	20·51
East Africa ,, ,, 1918	—	3 58	—	14·13
South Persia ,, ,, 1918	7·55	4 88	5·55	11·37
Waziristan, June 1–July 15, 1917 ...	9 68	3·77	7·11	16 69
Tirah Campaign, Oct.–April, 1897–98	4·25	2·80	19 03	63·87

The relatively high cases of mortality amongst Indians is due to the relatively high incidence of cholera, especially amongst Indian followers. If cholera cases and deaths (Indians) are excluded the case-mortality from other causes is 14·9 per 1000, a figure which is, with one exception, lower than the record for any of the operations included in the above table.

Heat-stroke on the Frontier.

The deaths from heat-stroke during the recent Afghan War per 1000 do not compare unfavourably with the deaths from that cause during the same period in 1918 in Mesopotamia when a heat-wave of similar intensity prevailed in that country.

Deaths from Heat-stroke per 1000 Strength.

	British.		Indians.
Indian Frontier, May 5th to August 9th, 1918	1·16	......	0 89
Mesopotamia, May to August, 1918	6·04	......	0·30

The actual deaths from heat-stroke were: British 26, Indian 140; total 166.

Small-pox in Ootacamund.

An effort is being made to organise more effective measures, precautionary and preventive, for combating small-pox, which has been prevalent since January last and which in recent months was threatening to develop into an epidemic. Since January last there has been 132 attacks, out of which 59 have proved fatal. The total number of vaccinations during the period was 1542. more than half of this number having been in July. It is expected that revaccination will be more vigorous in the future, as Government have sanctioned a reward of 8 annas to every individual submitting himself to revaccination.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Medical Treatment for Pensioned Soldiers and Sailors.

AN Order has just been issued fixing the details of application of a law passed last March, by which all pensioned soldiers and sailors are entitled for life to gratuitous treatment and drugs in respect of future sequelæ to the wound or illness for which the pension was allotted. Treatment will be given at military hospitals where possible; where these do not exist, at civil hospitals near the pensioner's home, or if necessary by doctors whose fees will be paid by the State at the recognised tariff for gratuitous medical aid. It is impossible to estimate the total to which expenses arising out of this Order will amount in years to come, but it will certainly be very high.

Reorganisation of the School of the Service de Santé Militaire.

A reorganisation of the school of the Service de Santé Militaire has just taken place. Students will now take the first two years of their course in their own provinces, and the next two at Lyons, where they will join civilian medical students in all classes, and will be entitled to become "externes" and "internes" in civilian hospitals. When qualified they are to proceed to Paris for a year's special training in military work. Some criticism has been levelled against this scheme in military medical circles, where it is feared that those who have held posts in civil hospitals may acquire undue prestige and receive more rapid promotion than their less fortunate colleagues. On the other hand, civilian practitioners who have suffered from the exclusive attitude of military doctors during the war are on the whole in favour of the new arrangement, hoping that a more cordial feeling may arise between civilian and military medical men as a result of their close association as students.

Industrial Diseases.

The Senate and the Chambre des Députés have just adopted a law placing industrial diseases on the same footing as accidents to workmen. The victims of disease will thus obtain the same benefits as those sustaining accidents, in so far as the responsibility of the employers is legally recognised for both. Insurance companies covering employers' liabilities will thus have to raise their tariffs once again.

The Early Diagnosis of Cancer.

In the course of a recently delivered lecture M. Regnault pointed out that nearly all natural phenomena depended on vibrations of different wave-lengths, perceptible either by our senses or by delicate instruments. Thanks to the delicacy of Abram's visceral reflexes, quite a number of vibrations that have hitherto escaped observation can now be detected. All functioning organs are surrounded by a field of electrons; cancer in the process of active proliferation is surrounded by a very powerful one, specially characterised by marked polarity and by waves attuned to the patient, or any other individual to whom the electronic influence can be applied. According to M. Regnault, one can now recognise the malignancy of a tumour and define the limits of its invasion, and cancer may thus be diagnosed at its onset and operated on under the best possible conditions. Researches now in progress on the polarity of the energy liberated by cancer, and on the receptivity on the part of the tissues, foreshadow the possibility of the limitation of the growth and destruction of the malignancy of the tumour without resorting to operative measures.

Oct. 25th.

MEDICINE AND THE LAW.

A QUESTION OF CERTIFICATION.

IN the spring of the present year an inquiry was held at Widnes under Article 71 of the National Health Insurance (Medical Benefit) Regulations, 1913, into a complaint lodged by the National Amalgamated Approved Society against two medical practitioners, Dr. S. Porterfield and Mr. S. McCausland, in connexion with certificates of incapacity given by them to insured patients—members of the society. The two gentlemen named are partners, having at the times in question about 2850 and 1100 insured patients respectively on their lists, and during part of the period covered by the charges, before the return of Mr. McCausland from military service, and in the absence of another practitioner temporarily away, Dr. Porterfield was responsible for the medical attendance of something like 15,000 persons.

The Cause of the Complaints.

All the complaints had reference to the same point, a familiar one to all who are engaged in insurance work, the issuing of certificates of incapacity on Form Med. 40 to insured persons who had not, in fact, been examined by the practitioner on the dates stated on the certificates. They were limited to this. There was no suggestion that any patient had a certificate who was not entitled to one, and, as the Inquiry Committee expressly found in their report, the periods during which the irregularities complained of occurred synchronised with two epidemics of influenza at Widnes. That certificates were given which referred to patients who had not been seen by the signatory upon the dates stated in the document was admitted by both practitioners, and Dr. Porterfield further explained with regard to some of these that they were issued for him by a lady clerk during one of the influenza epidemics in August and September, 1918. It was an expedient devised to meet an overwhelming pressure of work, and they were issued to patients whose disability could not be in doubt, whether they were seen or not. They were, in fact, respectively cases of chronic endometritis with prolapse of uterus, cerebral hæmorrhage, tuberculous disease of the hip, epilepsy, chronic bronchitis, and dementia, the sixth, if not quite in the same category as the others, being a case of pregnancy. Five charges out of a total of 20 were withdrawn. As an example of the others may be cited one of influenza in which a final certificate, dated Feb. 22nd, was signed by Dr. Porterfield on information given by Mr. McCausland, who had seen the patient on the same day. Among the strongest cases against the two medical men was one in which Dr. Porterfield saw a female patient on August 16th, 1918, and did not see her again until three weeks after her confinement, which took place on August 23rd. Meanwhile he signed certificates for her which on August 16th and 23rd stated rheumatism, for which he had attended her for a long time, as the cause of her incapacity. In another, a patient who had long suffered from piles, when, in February, 1919, a recurrence of these took place, could not wait in a queue of two or three hundred persons at the surgery, and received from Mr. McCausland certificates without being examined.

Finding of the Inquiry Committee.

That no serious result in the way of loss to the society took place is thus obvious, and in the circumstances it might have been thought that that body would have recognised the extraordinary demand upon the doctors' services, a demand which rendered accurate clerical work of secondary importance. By its report the Inquiry Committee recognised that there were beyond question breaches of the regulations, and that the medical men had failed to meet the situation by modifying the official form so as to accord with the facts. It also found, however, that the local officials of the society for their part had failed to appreciate the necessity for lessening the strain of clerical work, if attention were to be given, as far as possible, to the sick during the influenza epidemic, and delay in the issuing of certificates avoided. The following finding is worth quoting:—

> "It seems to the Inquiry Committee not unreasonable to imagine that in the crisis caused by the influenza it might have been possible for the local officials of the Approved Society to have made some arrangements for the purpose of lightening the burden of certification, which rested upon the shoulders of these doctors, but no evidence of any action in this direction was given before us."

Finally the Committee recommended that Dr. Porterfield and Mr. McCausland should bear some part of the society's costs in presenting the case, so far as it dealt with complaints as to the year 1919.

The Insurance Commissioners' Decision.

The Insurance Commissioners, in announcing to the solicitors for the society their decision to take no action upon the report of the Inquiry Committee, fixed the contribution of each medical man to the society's costs at £20. Their letter also commented on the question of strict adherence to the rules in giving certificates, and upon the difficulties arising out of the influenza epidemic combined with the shortage of doctors. As to the former, the Commissioners refused to recognise ignorance of the rules under the Insurance Acts as justifying departure from them on the part of medical men undertaking insurance work, and said:—

> "Neither doctor had, in fact, taken the trouble to make himself acquainted with the actual provisions of the rules, or with the system on which they are based, or the objects at which they aim. Consequently neither doctor appreciated, or was in a position to appreciate, the possibility of issuing certificates in an emergency of this nature, which if they did not conform strictly to the rules would at least have substantially safeguarded the interests of the Approved Societies concerned."

As to the second point, the Commissioners regretted that, whereas it had been found possible in many areas by means of cordial coöperation between society officials and doctors to surmount the difficulties to which the exceptional conditions prevailing in the period involved gave rise, more successful efforts in the same direction were not made at Widnes.

Comment on the Case.

Comment in the circumstances can hardly go further than to call attention to the facts summarised above and to the observations of the Inquiry Committee and of the Insurance Commissioners. No one can suggest that Dr. Porterfield and Mr. McCausland did anything that was detrimental to the interests of their patients or of the National Amalgamated Approved Society. Nor did they do anything that an absolutely honourable medical practitioner might not do at any time in the pressure of overwork, and when engaged in fighting for his patients' lives and health against such epidemics of influenza as have recently visited us. At ordinary times the giving of certificates in accordance with the regulations is one of the duties which a medical man accepts when he places his name upon the panel. In extraordinary times there are ways in which strict compliance with the regulations may be waived, as a matter of temporary relief, and as a matter of arrangement between those concerned. Probably in the pressure of their work, and under the paralysing influence of an overwhelming outbreak of disease, neither of the medical men in question ever had time to review the situation calmly or to think out the best plan and negotiate. Both will certainly have made ample amends in paying what is in substance a fine of £20 to the complainants. If the officials of the society on their part had had sympathetic consideration for Dr. Porterfield and Mr. McCausland, to say nothing of their patients, they need not have involved the two medical practitioners and themselves in costly and wholly unprofitable proceedings.

A MONTHLY RECORD OF ATMOSPHERIC POLLUTION.

METEOROLOGICAL OFFICE: ADVISORY COMMITTEE ON ATMOSPHERIC POLLUTION: SUMMARY OF REPORTS FOR THE MONTHS ENDING

Feb. 28th, 1919.

Place.	Rainfall in millimetres.	Metric tons of deposit per square kilometre.								
		Insoluble matter.			Soluble matter.		Total solids.	Included in soluble matter.		
		Tar.	Carbonaceous other than tar	Ash.	Loss on ignition	Ash.		Sulphate as (SO_3).	Chlorine (Cl).	Ammonia (NH_3).
ENGLAND.										
London—										
Meteorological Office	40	0·21	2·32	6·82	1·28	4·32	14·95	1·80	0·71	0·04
Embankment Gardens	29	0·16	2·79	9·02	3·43	5·76	21·15	3·37	0·69	0·06
Finsbury Park ...	69	0·20	2·22	7·06	4·82	7·28	21·59	4·91	1·03	0·09
Ravenscourt Park	41	0·20	1·52	3·13	3·48	5·12	13·45	3·67	1·47	0·09
Southwark Park	28	0·30	3·18	6·91	5·90	8·72	25·00	6·67	1·37	0·36
Victoria Park* ...	—	—	—	—	—	—	—	—	—	—
Wandsworth Com.	18	Nil	0·16	0·42	0·78	1·48	2·84	1·01	0·45	0·04
Golden Lane ...	59	0·10	5·36	6·49	1·88	4·95	18·79	2·55	0·94	0·21
Malvern*	—	—	—	—	—	—	—	—	—	—
Manchester—										
Whitworth Street (garden)*	—	—	—	—	—	—	—	—	—	—
,, (roof of College)*	—	—	—	—	—	—	—	—	—	—
Newcastle-on-Tyne	29	0·06	2·79	4·35	2·46	2·91	12·56	1·38	0·43	0·12
Rochdale[1]	—	—	—	—	—	—	—	—	—	—
St. Helens	41	0·24	2·27	4·94	4·36	9·73	21·54	4·59	2·31	0·05
Southport—										
Hesketh Park ...	28	0·01	0·52	0·54	0·27	1·91	3·25	1·08	0·21	0·00
Woodvale Moss...	24	—	—	—	—	—	2·69	—	—	—
SCOTLAND.										
Coatbridge	12	1·48	3·33	2·40	3·32	3·14	13·67	1·44	0·15	0·02
Glasgow—										
Alexandra Park...	18	0·12	3·43	4·37	1·15	2·27	11·34	1·26	0·13	0·05
Bellahouston Park*	—	—	—	—	—	—	—	—	—	—
Blythswood-sq. ...	21	0·19	2·91	5·04	2·48	3·28	13·90	2·07	0·20	0·10
Botanic Gardens	31	0·12	3·50	4·64	2·79	5·77	16·82	3·20	0·14	0·11
Richmond Park*	—	—	—	—	—	—	—	—	—	—
Ruchill Park ...	22	0·03	1·66	2·30	1·40	1·85	7·24	1·17	0·12	0·05
South Side Park.	20	0·06	1·43	2·32	1·96	2·76	8·53	1·87	0·09	0·15
Tollcross Park* ...	—	—	—	—	—	—	—	—	—	—
Victoria Park* ...	—	—	—	—	—	—	—	—	—	—

March 31st, 1919.

Place.	Rainfall in millimetres.	Metric tons of deposit per square kilometre.								
		Insoluble matter.			Soluble matter.		Total solids.	Included in soluble matter.		
		Tar.	Carbonaceous other than tar	Ash.	Loss on ignition.	Ash.		Sulphate as (SO_3)	Chlorine (Cl)	Ammonia (NH_3).
ENGLAND.										
London—										
Meteorological Office*	56	0·13	1·71	5·29	1·56	2·92	11·61	1·17	0·75	0·05
Embankment Gardens	62	0·11	19·06	12·33	5·92	7·50	44·93	4·55	1·52	0·17
Finsbury Park ...	105	Nil	1·12	3·42	4·40	6·68	15·63	4·16	1·20	0·08
Ravenscourt Park	79	0·15	1·16	2·62	3·54	5·57	13·03	3·78	0·84	0·20
Southwark Park...	84	0·13	2·36	4·70	17·91	5·16	30·24	10·85	1·33	1·26
Victoria Park ...	21	0·04	1·43	3·04	1·14	1·38	7·02	0·87	0·28	0·02
Wandsworth Com.	6	Nil	Nil	Nil.	0·34	0·40	0·74	0·30	0·08	0·01
Golden Lane ...	82	0·07	2·95	3·81	2·47	4·28	13·58	2·49	0·99	0·17
Malvern*...	—	—	—	—	—	—	—	—	—	—
Manchester—										
Whitworth Street (garden)*	—	—	—	—	—	—	—	—	—	—
,, (roof of College)*	—	—	—	—	—	—	—	—	—	—
Newcastle-on-Tyne	55	0·17	7·15	12·94	2·40	4·58	27·24	1·93	0·77	0·12
Rochdale[1]	—	—	—	—	—	—	—	—	—	—
St. Helens	96	0·07	2·22	3·31	2·39	7·17	15·17	3·41	1·43	0·01
Southport—										
Hesketh Park ...	133	0·02	0·59	1·17	1·66	4·28	7·72	2·17	1·39	0·01
Woodvale Moss...	107	—	—	—	—	—	6·41	—	—	—
SCOTLAND.										
Coatbridge	33	—	—	—	3·37	5·62	—	2·73	0·20	0·27
Glasgow—										
Alexandra Park[2]	52	0·04	1·61	2·63	1·93	3·06	9·27	1·76	0·47	0·10
Bellahouston Park[2]	79	0·04	1·57	2·69	3·30	6·15	13·75	2·99	0·38	0·10
Blythswood sq. ..	80	0·29	2·67	4·40	3·72	5·12	16·20	3·52	0·53	0·21
Botanic Gardens	98	0·11	1·33	3·72	4·82	7·25	17·23	4·75	0·45	0·17
Richmond Park...	61	0·09	1·88	3·03	3·29	4·61	12·90	3·32	0·32	0·16
Ruchill Park ...	83	0·11	2·19	3·26	2·01	4·08	11·65	2·71	0·45	0·14
South Side Park[3]	79	0·06	1·44	5·38	2·29	5·15	14·32	2·81	0·35	0·13
Tollcross Park ...	61	0·08	1·76	4·33	2·10	5·00	13·27	2·95	0·38	0·16
Victoria Park[2] ...	98	0·04	1·29	2·55	3·95	7·88	15·71	5·44	0·55	0·13

* No returns. [1] Gauge interfered with. [2] Lead present. [3] Carboy had strong odour of phenol and lead present in deposit.

"Tar" includes all matter insoluble in water but soluble in CS_2. "Carbonaceous" includes all combustible matter insoluble in water and in CS_2. "Insoluble ash" includes all earthy matter, fuel, ash, &c. One metric ton per sq. kilometre is equivalent to: (*a*) Approx. 9 lb. per acre; (*b*) 2·56 English tons per sq. mile; (*c*) 1 g. per sq. metre; (*d*) 1/1000 mm. of rainfall.

The personnel of public health authorities concerned in the supervision of these examinations and of the analytical work involved remains the same as published in previous tables. The analyses of the rain and deposit caught in the gauge at the Meteorological Office are made in THE LANCET Laboratory.

TUBERCULOSIS.

Pulmonary Tuberculosis: Mortality after Sanatorium Treatment.

Dr. N. D. Bardswell and Mr. J. H. R. Thompson, F.I.A., have published, under the auspices of the Medical Research Committee, a report[1] on mortality after sanatorium treatment, with special reference to the experience gained at the King Edward VII. Sanatorium, Midhurst. Since 1914 a special clerk has been employed at Midhurst solely to trace and keep in touch with ex-patients; by this means the proportion of patients lost sight of has been reduced to 3·5 per cent. The method of investigation adopted was that employed by Elderton and Perry in their study of the data obtained from the Adirondack Sanatorium. The material analysed consists of 1707 patients discharged from the sanatorium in the eight-year period 1907–1914, the males numbering 1053, the females 654. The patients were grouped in three classes, according to the severity of the disease, the classification adopted being that of the Association for the Study and Prevention of Tuberculosis in America. It was found that the mortality in the first class was nearly six times, in the second class over 16 times, and in the third class about 38 times greater than the total mortality for the population of England and Wales. It was also found that the critical period for the patient is within the first two to three years of discharge; after this interval the mortality for patients in the first class is almost normal. A study of the cases in which the disease was first manifested by hæmoptysis showed that the disease was diagnosed earlier, and that the effect of treatment was better than for patients the onset of whose disease was more insidious. As for the significance of tubercle bacilli in the sputum, it was found that the prognosis is far worse for patients with than without tubercle bacilli, although the prognosis for the latter is much worse than for the whole community. This observation shows that although the finding of tubercle bacilli establishes the diagnosis beyond question, the disease is to be recognised with some measure of certainty in the absence of the specific organism. The interesting fact also emerges from this investigation that the prognosis for the patient with tubercle bacilli on admission, but not on discharge, is almost as good as for the patient in whose sputum the bacillus has never been found. This would suggest that sanatorium treatment should be continued till the bacilli have disappeared from the sputum. In the section dealing with inherited predisposition to tuberculosis the writers come to the conclusion that "having contracted pulmonary tuberculosis, patients with a consumptive family history enjoy the same chance of recovery as those who have no such history." The results of tuberculin treatment were found to be "distinctly disappointing." The general conclusion drawn from this investigation would appear to be that though the results of sanatorium treatment leave much to be desired, the findings of the investigators are not inconsistent with a belief in its utility.

A Prospective Middlesex Sanatorium.

The Middlesex County Council propose purchasing Harefield Park, at a price not exceeding £31,000, with a view to converting it into a sanatorium. The estate comprises 122 acres, and in addition to the mansion there are the hutments used for hospital purposes by the Australian troops. The usual local opposition to the establishment of a sanatorium has already found voice.

---

[1] Pulmonary Tuberculosis: Mortality after Sanatorium Treatment. H.M. Stationery Office, 1919, pp. 112.

Tuberculosis in Cows.

In an address given on Sept. 11th by Mr. J. Malcolm, of the Veterinary Department of the Birmingham Corporation, the lack of effective legislative machinery to control bovine tuberculosis was emphasised. It was calculated that approximately a third of the cattle in this country are more or less tuberculous, but the extent of infection varies greatly in different herds. In one large herd in Staffordshire 84 per cent. were infected; in another herd in Warwickshire only 58 per cent. were infected. In the first case no steps had been taken to combat the disease, but the Warwickshire herd was dealt with by the authorities, and for some years it had been absolutely free from tuberculosis.

Devon Tuberculosis Colony.

In connexion with the allotment by the British Red Cross Society of £20,000 towards the provision of a Devonshire farm colony it is proposed that the colony shall be established in connexion with the county council's sanatorium at Hawkmoor, Bovey Tracey. The estimated initial cost is £38,000. The colony will be controlled by the public health committee of the county council, and will be organised as a self-contained village, with accommodation for both sexes. At first, however, it will cater only for men, who will be paid for their work, and who will have greater freedom than sanatorium patients. The whole community will be under the supervision of the medical superintendent of the sanatorium.

Opening of Kinver Sanatorium.

At the formal opening in August of Edge View Tuberculosis Hospital, Kinver, acquired by the Staffordshire, Wolverhampton, and Dudley Joint Committee for the treatment of advanced cases, it was stated that the premises now converted into a hospital had been taken over on a 21 years' lease at a rental of £160 a year. It had cost about £4000 to convert the building, originally erected as an hotel, into a hospital, with accommodation for 40 beds. The largest ward contains eight beds. The district is served by a light railway, and the hospital is situated at the base of the great sandstone ridge which terminates abruptly above the river Stour. The county medical officer, Dr G. Reid, expressed the hope that the erroneous impression that the hospital was intended for the dying would speedily be removed. It was also stated that Prestwood House, intended for early cases, might be ready for occupation in a year's time.

NOTES ON HOUSING.

Medical Appointments and the House Shortage.

MEDICAL men not only see the bad results on national physique of the house shortage, but they themselves are feeling its inconveniences. It is true that many doctors are their own landlords. The goodwill of a practice, particularly if long established, depends so much upon the place of the practitioner's residence, that it is usual for him, if he has the intention to settle down permanently, to secure himself by buying his house. But this custom has not been universal, and the war will have prevented some from following it, while others have been unable, when away on military service, to continue to pay high rentals, with the result that during their absence their residences have passed from them, with very destructive effect on their practice and any prospects of getting it together again. Everywhere except in big towns houses suitable for the work of a medical man have always been very limited in number. Thus house shortage makes it impossible for the changes in distribution of the population brought about by the war to have their medical needs properly served, and many a good opening for practice cannot be taken advantage of. The junior men suffer most. A striking thing is the difficulties thrown in their way when taking up the municipal medical appointments which have increased in number so much of late years. They often find themselves obliged to put up at local hotels, the cost of which way of living just now often exceeds their salary. Applications have recently been made for permission to reside at a considerable distance when travel to the locality just permits of a bare minimum of work being done.

Relaxation of Building By-laws.

The Ministry of Health issued a formidable array of regulations on Oct. 9th for the benefit of local authorities. The most important of these documents is probably *General Housing Memoranda No. 12*, which deals with Section 25 of the Housing and Town Planning Act. The object of this section is to give to local authorities a power, exercisable during the period of three years from July 31st, 1919, to allow the erection and use for human habitation of buildings of a kind which may not be permissible under existing by-laws, but which comply with regulations made by the Minister of Health. In these latter regulations a wide discretion is left as to the choice of materials and methods of construction. We find, however, that certain restrictions, doubtless for a very good reason, are imposed. There is, for example, a note in *Housing* for Oct. 11th to the effect that the combination of concrete and timber in the construction of walling is considered undesirable by the Ministry. It is not clear whether this decision rules out the type of house which is built of wood and bitumen sheeting and treated with cement on the outside. Some interesting experiments on these lines have been carried out recently by Sir Charles Ruthin in South Wales. Also, the committee appointed specially to investigate the matter has reported against the construction of purely wooden walls. Its conclusions appear to be based mainly on the grounds of cost. Only one-third of the total cost of a brick cottage consists in the cost of the brick "shell," and with present prices there would be little saving gained by making the shell of wood. The wooden house has a shorter life and a higher insurance policy. It is therefore rejected on the ground of extravagance. The great advantage of this type of building does not seem to have received very much consideration. No other kind of house can be put up with anything like the same speed. It is questionable whether in some parts, where ground rents are not high and where the shortage is most acutely felt, the extra expense of temporary wooden huts might not be justifiable.

The recommendations made by the Government are not all negative. A paragraph appeared in *Housing* on Sept. 27th recommending a new material named Wytchert; this is considered as suitable for use in the construction of cottages provided a brick, concrete, or stone base is built to the wall and the roof has good projecting eaves and the outside face of the wall is plastered.

The Right of Appeal.

Should private builders find their enterprise unduly curbed by restrictions from local bodies they have the right to appeal against local decisions directly to the Ministry of Health. A nominal deposit of £10 is demanded to prevent loss of time over frivolous appeals, though even this sum may be reduced or excused altogether in the discretion o the Ministry. It is to be hoped that medical officers o health will take advantage of these regulations to ensure that sanitary and desirable schemes undertaken by private enterprise shall not be obstructed or delayed by officia action.

Housing Conditions in Durham.

Dr. Eustace Hill has recently drawn attention to th serious state of overcrowding which exists in the mining county of Durham. Even in 1911, the year of the las Census, only one-half the occupied houses in the count contained more than three rooms. To make the congestio still worse Durham has an exceptionally high birth-rate. I certain parts of the county overcrowding, as judged by th standard of two persons per room set by the Registrar-General has been shown to be present in over 40 per cent. of the habitations. There is a high death-rate, especially among infants and young children, and Dr. Hill refutes the sugges tion that this high death-rate may be due to maternal neglect Durham mothers, he says, do not compare unfavourably wit mothers in other parts of the country in the care of thei infants and, for the most part, deserve praise for the care o their houses under the most depressing conditions. From consideration of statistics Dr. Hill argues that the housing conditions existing in the county are "almost entirel responsible" for its bad health and high rate of mortality The schemes at present advanced by local authorities mak allowance for 15 000 new houses. Dr. Hill estimates tha at least 50,000 are required. He insists also that larger an more sanitary buildings must be provided—there are already in spite of the general shortage, far too many two- and three-roomed houses in the county.

Dwelling-house v. *Picture Palace.*

Attention has been directed pretty generally to the fact that, while the house shortage remains as acute as ever, labour and materials are being expended on the construction of halls for amusement. The London County Council is considering a suggestion that no dwelling-house shall be demolished to furnish room either for a place of amusement or for business premises. In the Manchester city council great consternation was aroused last month by the discovery that only 12 bricklayers were at work on an estate where 78 cottage flats are in course of erection. At the present rate it is calculated that Manchester will take not three but 20 years to complete her scheme. In a leading article on Oct. 16th the *Manchester Guardian* points out that it is to the financial advantage of the contractor and of the workman to build halls for which the profit is not limited and to engage in in-door building which is not liable to be interrupted by the weather. Some readjustment of working conditions is necessary to attract labour for that class of work which is at present so vital to the community's need.

Lectures on Housing.

A course of lectures on Housing Problems and Town Planning in Relation to Public Health is being given at the Royal Institute of Public Health, 37, Russell-square, London, W.C., on successive Wednesdays at 4 P.M. during the months of October, November, and December. Dr. E. W. Hope dealt with General Principles on Wednesday last. Dr. W. G. Savage lectures on Housing Problems in Rural Districts on Nov. 5th. Other lectures will be noted in our Medical Diary.

The Services.

ARMY MEDICAL SERVICE.

Colonel H. V. Prynne, C.B.E., D.S.O., and Colonel W. T. Mould, C.M.G., retire on retired pay.

Temp. Col. H. H. Tooth, C.B., C.M.G. (Lieut.-Col., R.A.M.C., T.F.), relinquishes his temporary commission on re-posting.

ROYAL ARMY MEDICAL CORPS.

To be acting Lieutenant-Colonels whilst commanding Medical Units: Majors H W. Farebrother, G. H. Stevenson, A. W. A. Irwin; Capt. and Bt. Major R. E. Barnsley.

Major R G. Archibald, from half-pay list, retires, receiving gratuity.

Major C. Cassidy is restored to the establishment.

Capt. D. S. Martin relinquishes the acting rank of Major.

Capt. G D. Harding to be acting Major.

Temp. Capt. H. S. Laird to be acting Major whilst specially employed.

To be temporary Majors: R. A. Beaver (late temporary Major); Temp. Capt. R. L. Davies (whilst specially employed).

Temp Capt. C. C. de B. Daly relinquishes the acting rank of Major on ceasing to be specially employed.

Capt. T. P. Buist is seconded for service under the Civil Administration of Mesopotamia.

Capt. C. H. K. Smith, from T.F., to be Captain.

Late temporary Captains to be temporary Captains: C. W. C. Robinson, S. Wigglesworth, W. Reynolds, E. C. Arnold, J. Cross, R. F. Gill, F. M. Kirwan.

To be temporary Captains: Lieuts. C. V. Macnamara, J. C. Coutts, C. A. Whitfield, J. E. Rea; Temp. Lieut. M. D'Albon and J. P. Mitchell (Captain, Spec. Res.).

Lieut. (temp. Capt) A. A. B. Scott to be Captain.

Temporary Lieutenants to be temporary Captains: A. H. Ward, A. R. Moore, M. Rust, C. A. D Bryan, W. C. Morton, B. Dunlop, J. W. Clyne.

To be temporary Lieutenants: A. M. Moll, A. W. D. Magee.

Officers relinquishing their commissions: Temp. Lieut.-Cols. W. Wrangham and E. P. Cathcart (and retain the rank of Lieutenant-Colonel); Temp. Hon. Lieut.-Col. H Charter (and retains the honorary rank of Lieutenant-Colonel); Temp. Major D. Embleton (Captain, R.A.M.C., T.F.). Temporary Majors retaining the rank of Major: G. H. Colt, E W. Witham. Temporary Captains granted the rank of Major: J. E. H. Roberts, E. Biddle, A. R. Esler, J. W. Dew, Eric S. Marshall, A. C. Pickett (acting Major). Temporary Captains retaining the rank of Captain: H. B. Emerson, R. Y. Stones, H. V Fitzgerald, G. C. Ramsay, N. Booth, D. C. Evans, G. Joughin, H. W. Hodgson, S. W. Coffin, J. B. Whitfield, G. A. Bird, A. J. Bennee, H. G. Sparrow, W. H. Ross, W. A. Ryan, J M. Campbell, G. W. Christie, N. F. Hallows, P. Wallice, F. A. Mills, A. G. MacLeod, R. C. Crawfurd, G. E. Elkington, D. G. Halsted, J. A. MacLean, C. W. Wilson, T. H. Fowler, F. A. Grange. Temp. Hon. Capts. E. S. Bridges and C. Parmenter retain the honorary rank of Captain. Lieut. (temp. Capt.) D. J. Valentine.

Canadian Army Medical Corps.

Temp. Lieut.-Col. (acting Col.) T. J. F. Murphy to be temp. Colonel.

Temp. Major (acting Lieut.-Col.) W. J. McAlister to retain acting rank of Lieutenant-Colonel.

The undermentioned retire in the British Isles:—Temp. Lieut.-Col. M. H. Allen, Temp. Major N. J. Barton, Hon. Capt. H. G. Bayes.

South African Medical Corps.

Lieut.-Col. A. Blackwood Ward relinquishes his commission and retains the rank of Lieutenant-Colonel.

SPECIAL RESERVE OF OFFICERS.

Capt. W. B. Jepson relinquishes his commission and retains the rank of Captain.

TERRITORIAL FORCE.

Major (acting Lieut.-Col.) H. W. Williams relinquishes his acting rank on ceasing to be specially employed.

Capt. (acting Lieut.-Col) R. E Bickerton relinquishes the acting rank of Lieutenant-Colonel on ceasing to be specially employed.

Captains (acting Majors) relinquishing the acting rank of Major on ceasing to be specially employed: A. W. Paterson, K. F. R. Davison, R. P. Pollard, T. S. Elliot, R. D. Langdale-Kelham, B. J. Alcock.

Capt. (acting Major) F. W. Squair to be Major.

3rd London General Hospital: Capt. D. Embleton is restored to the establishment.

2nd Scottish General Hospital: Major (acting Lieut.-Col.) J. D. Comrie relinquishes the acting rank of Lieutenant-Colonel on ceasing to be specially employed.

ROYAL AIR FORCE.

Medical Branch.—The undermentioned are transferred to the unemployed list: Capt. A. H. Wade and Lieuts. E. F. Wilson and E. E. Rollins.

Dental Branch.—Lieut. G. O. Roper to be Lieutenant. The undermentioned are granted temporary commissions as Lieutenants: C. A. E. Cook, K. Batten.

INDIA AND THE INDIAN MEDICAL SERVICE.

Captain to be Major: G. E. Malcolmson.

Captains to be temporary Majors: E. R. Armstrong, E. E. Doyle, F. W. Cragg, A. D. Stewart, A. F. Babonau, R. Sweet.

Temporary Lieutenants to be temporary Captains: Homi Rustomji Cursetji, Sohan Lal Bhatia, Antonelli Saldanha, Govindrajapuram Rama Pattar Parasuram, Kyaw Nyan, Kizhanattan Seshadri Gopalaswami, Monmohun Kumar, Nagendra Narain Majumdar, Kali Krishna Sirker, Satya Kumar Ray, Madho Prasad Bhargava, Coimbatore Krishna Anantanarayana Iyer.

The King has approved the retirement of Lieut.-Col. G. P. T. Groube in consequence of ill-health.

Major J. A. Cruickshank officiates as Assistant Director-General of Medical Services in India vice Lieut.-Col. W. D. A. Stevenson, granted three months' leave. Major H. Haliday is appointed to be Civil Surgeon, Simla. Major A. Chalmers, Staff-Surgeon 4th (Quetta) Division, Quetta, is appointed to hold charge of the current duties of the office of Civil Surgeon, Quetta, in addition to his own duties. Major R. J. Owen, an officiating Agency Surgeon of the 2nd Class, is granted leave for six months. Major D. S. Olienbach, retired Medical Officer, Eastern Bengal Railway, Sealdah, to act as Deputy Superintendent of the Campell Medical School and Hospital vice Major R. Sharples, allowed six months' leave. Major B. B. Sheen, Professor of Midwifery, Medical College, Calcutta, is appointed to act as Surgeon Superintendent of Presidency General Hospital, Calcutta vice Lieut.-Col. F. O'Kincaly, granted six months' leave. Lieut.-Col, W. H. E. Woodwright officiates as Inspector-General, Civil Hospital, United Provinces, vice Colonel C. Mactaggart, granted six months, leave. Dr. R. A. Hollingsworth is transferred from Toungoo and is posted to the charge of the Rangoon Central Jail as a temporary, measure, in place of Major R. D. Saigol, Ophthalmic Surgeon, Rangoon General Hospital.

THE HONOURS LIST.

The following awards to medical officers are announced:—

O.B.E.—Surg.-Lt Comdr. L. F. Cope, R.N., "For valuable services with the Danube Naval Brigade."

M.B.E.—Surg.-Sub.-Lt. D. J. T. Oswald, R.N.V.R., "For valuable services during the war."

Foreign Decorations.

Belgian.

Croix de Guerre.—Surg.-Lt. W. G. Bigger, D.S.C., R.N.

URBAN VITAL STATISTICS.

(Week ended Oct. 25th, 1919.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at 16,500,000 persons, the annual rate of mortality, which had steadily increased from 10·4 to 12·5 in the six preceding weeks, further rose to 13·7 per 1000. In London, with a population slightly exceeding 4,000,000 persons, the annual death-rate was 16·3, or 1·6 per 1000 above that recorded in the previous week, while among the remaining towns the rates ranged from 3·0 in Dudley, 5·6 in Rotherham, and 5·8 in Eastbourne, to 18·4 in Gateshead, 18·5 in Barnsley, and 20·5 in Hastings. The principal epidemic diseases caused 269 deaths, which corresponded to an annual rate of 0·8 per 1000, and comprised 115 from infantile diarrhœa, 68 from diphtheria, 34 from measles, 27 from scarlet fever, 21 from whooping-cough, and 4 from enteric fever. Measles caused a death-rate of 1·5 in Sunderland, 1·8 in Tynemouth, and 3·4 in South Shields, and diphtheria of 1·1 in Sunderland. There were 2246 cases of scarlet fever and 1355 of diphtheria under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, against 2120 and 1320 respectively at the end of the previous week. The causes of 35 deaths in the 96 towns were uncertified, of which 6 were registered in Birmingham, 6 in Liverpool, and 3 in Tynemouth. The deaths from influenza, which had been 32, 39, and 57 in the three preceding weeks, further rose to 71, and included 20 in London, and 4 each in Birmingham and Leeds.

Scotch Towns.—In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2,500,000 persons, the annual rate of mortality, which had been 10·8, 10·2, and 12·3 in the three preceding weeks, fell to 11·1 per 1000. The 237 deaths in Glasgow corresponded to an annual rate of 11·0 per 1000, and included 7 from diphtheria, 5 from infantile diarrhœa, 3 from scarlet fever, and 1 from measles. The 93 deaths in Edinburgh were equal to a rate of 14·4 per 1000, and included 4 from scarlet fever, 3 from diphtheria, and 1 each from measles and whooping-cough.

Irish Towns.—The 118 deaths in Dublin corresponded to an annual rate of 15·2, or 0·4 per 1000 below that recorded in the previous week, and included 3 from infantile diarrhœa and 1 each from enteric fever, whooping-cough, and diphtheria. The 116 deaths in Belfast were equal to a rate of 15·1 per 1000, and included 12 from scarlet fever and 1 from infantile diarrhœa.

Correspondence.

"Audi alteram partem."

GENERAL MEDICAL COUNCIL ELECTIONS: THE ELECTION OF DIRECT REPRESENTATIVES FOR ENGLAND.

To the Editor of THE LANCET.

SIR,—Like Dr. John Brown of Blackpool, I also have been nominated as a candidate for election as a Direct Representative for England on the General Medical Council, my nominators being the National Medical Union, with the approval of other associations having a non-panel membership. I have, however, too high an opinion of the independence of the individual professional man to believe that any organisation can deprive him of his liberty of thought and action. I have myself for long been, am, and propose remaining, a member of the British Medical Association, though regretting some of its actions in the past in relation to State Medicine, and it would certainly never occur to me to do otherwise than scrutinise carefully, and in the matter of medical politics very carefully, any suggestion emanating from its directorate for the time being. I have no fear, therefore, that with all the advantages which Dr. Brown claims for its specially nominated candidates, the profession at large, or even its own membership, will unreflecting do its bidding. In a medical election heads are counted, not noses. I think, therefore, Dr. Brown and other candidates need not fear that their just claims will be overlooked merely because the rulers of any given organisation endeavour to influence the electorate in favour of certain nominees. I have too high a regard for the electorate now in question to believe that it will without careful consideration yield to any organised attempt to manipulate its intelligence.

I am, Sir, yours faithfully,
ALEXANDER BLACKHALL-MORISON, M.D., F.R.C.P.
London, Oct. 25th, 1919.

POST-MORTEM ACTIVITY OF THE LIVER AFTER DIABETIC COMA.

To the Editor of THE LANCET.

SIR,—About 20 years ago I was called out early in the morning by the relations of a patient who had died the previous night, about 10 o'clock, from diabetic coma. I arrived about 8.30 A.M. and found that the reason for summoning me was that the body was so warm that they could not believe that he was dead. The weather was very cold and the body had lain all night in an unheated room. I was able to convince them that the patient was really dead, though the upper abdomen and lower thorax were still quite warm to the touch.

The incident remained in my memory as a curious one, but I did not attach any particular import to it at the time. Not long ago, however, I was in the post-mortem room and noticed steam arising from the abdomen in a case of the same nature. On placing a thermometer in the substance of the liver the temperature was found to be 91° F. It was then 3 P.M., the temperature of the room was 40° F., and the body had been there certainly over 10 hours, the patient having died before 2 A.M. that morning. The warmth was confined to the liver and neighbouring viscera.

It is clear, of course, that nothing but prolonged physiological activity of the liver could account for the maintenance of such a temperature under such conditions, and it would be very interesting to know whether this activity is peculiar to diabetic coma. It may be presumed that the condition was the same in the first case as in the second, though not proved. I am not aware of any previous observations on the subject, and I therefore send this note in the hope of stimulating further inquiry. It is possible that an investigation of the chemical condition of the liver under these circumstances might throw some light on some of the vexed problems of diabetes. In any case the question of the post-mortem activity of organs, the delay of cellular death, and the conditions under which it occurs is one of considerable interest and importance. I am, Sir, yours faithfully,

Brighton, Oct. 23rd, 1919. E. HOBHOUSE, M.D.

CONJUGAL TUBERCULOSIS.

To the Editor of THE LANCET.

SIR,—It is difficult to follow Dr. C. Muthu's argument in his letter which you publish in your issue of Oct. 18th. We know that consumption is caused by tubercle bacilli, provided the dosage is sufficient, and we know that contact cases (especially husband and wife) are exposed to strong infection. Why, therefore, must one explain any slightly greater prevalence of the disease amongst married people than others by supposing that the stress and strain of married life are factors in rousing into activity some assumed latent lesion? What good evidence is there that re-infection does not occur, and that disease which manifests itself in later life is only the result of infection in childhood? Even if one holds this view one must admit the necessity of guarding against infection throughout life, for the child will remain susceptible until infected.

Again, Dr. Muthu suggests that most people who nurse consumptives do not contract the disease. But surely the same applies to scarlet fever. Such negative evidence can have very little value. Is it not equally reasonable to believe that we are all exposed to infection, but that the individual possesses some resistance which is usually sufficient to prevent the infection from developing into a serious disease? Repeated small infections may add to this resistance, but there is a limit, and if the dosage is too great the patient develops tuberculosis, whether or not he has been previously infected. For a long time I have held the strong opinion that the danger of contact has been much exaggerated, but I would never allow a consumptive patient to sleep with his wife, and I think it would be a bad day if medical opinion convinced the public that consumption is not a contagious disease.

I am, Sir, yours faithfully,
Wimbledon, S.W., Oct. 19th, 1919. L. S. BURRELL.

CŒLIAC DISEASE.

To the Editor of THE LANCET.

SIR,—The subject of cœliac disease is one so comparatively seldom raised that I hope Dr. David Forsyth's paper in THE LANCET of Oct. 25th may serve as a pretext for some discussion on this condition. Could an agreement be reached on some points in connexion with the disorder, even though mainly negative ones, it would be useful. Firstly, and before considering Dr. Forsyth's suggestion, there is the question of the morbid anatomy. While I do not forget such changes as have been reported post mortem, yet it seems true that no causative organic lesions are constantly found. Most commonly, as in a recent case of my own, no important lesions are found, even microscopically, in the pancreas and liver and their ducts, nor in the intestines. Secondly, if this be agreed to, the causative theories advanced must be viewed in this light. Must we not seek a cause which can operate over many years without being associated with any organic changes traceable (or as yet traced) post mortem?

Dr. Forsyth's suggestion of boric acid poisoning, however applicable to the acute case he reports, is difficult of acceptance in the true chronic cœliac case. Such points as the following occur to my mind. The withdrawal of milk does not cure, only improves, the condition. I have had good results in mild recrudescences by giving the usual milk well skimmed instead of with its cream. In one patient of mine, travelling all over England in the last three years, attacks have occurred anywhere, town or country. In recovering cases the stools will vary in colour and consistency enormously without change in diet. Finally, it is difficult to account for the continuance of the symptoms unless the boric acid set up a chronic enteritis, which neither the character of the stools nor post-mortem findings suggest.

The theory of abnormal intestinal flora is attractive, particularly in view of the abrupt onset of some cases. But in agreement with other observers, in my search for abnormal organisms I have found none or any. In one instance under me for the past five years an organism of the paratyphoid-Gaertner group was originally reported several times. This disappeared in a course of soured-milk treatment and has never reappeared, but no definite good seems to have accrued. Must we not, however unwillingly, set this theory aside as insufficient?

The relationship of cœliac disease to other diseases, especially to sprue, needs elucidation. We badly want information from those who have seen much sprue. From reading accounts of it, it appears more a kindred disease than the same disease under different circumstances. The relationship to scurvy I have not been able to trace. Pains in the legs are common, but even when present I have not been able to recognise a scorbutic element. Loss of knee-jerks is also frequent. Two of my cases had been suspected of poliomyelitis. We should not forget, in connexion with cœliac disease, the case of congenital steatorrhœa reported by Garrod,[1] of which I have seen an example.

Lastly, there is the theory of pancreatic or biliary insufficiency. It would seem that we can exclude a persistent organic disease of these glands and their ducts, and almost certainly a temporary but repeatedly reappearing organic disease upsetting their functions. On the other hand, we cannot exclude a disorder of their functions from some unknown cause. Of the two organs the liver seems much more suspect than the pancreas.

If it be agreed that our knowledge of the cause of the disorder is in this nebulous state, its title and definition should reflect our ignorance. The term cœliac disease is pleasingly vague, and is to be preferred to others sometimes used, such as "acholia" or "pancreatic insufficiency." Its definition must be in clinical terms and carefully non-committal—e.g., "a condition of obscure origin occurring in children, and characterised by a chronic or relapsing fatty diarrhœa, enlargement of the abdomen, and retardation of physical growth.

I am, Sir, yours faithfully,

Harley-street, W., Oct. 27th, 1919. REGINALD MILLER.

THE GENESIS OF CANCER OF THE UTERUS.

To the Editor of THE LANCET.

SIR,—I have read with interest in your issue of Oct. 25th the summary of Dr. F. J. McCann's communication to the Royal Society of Medicine on the pre-cancerous uterus and your sympathetic leading article on this subject, which is by no means a new or unimportant one. In the first (1910) and in the succeeding editions (1917 and 1919) of my "Principles of Gynæcology" I called attention to the matter in the following words under the heading of treatment of carcinoma of the cervix :—

> "In discussing the treatment of most diseases it is advisable, when possible, to pay some attention to *prophylaxis*. Now, it is well known that primary carcinoma of the cervix is practically confined to women who have borne children. This is a fact of the greatest moment, for few women escape laceration and subsequent cervicitis as a consequence of their contributions to the perpetuation of the species. Herein lies the most powerful predisposing factor to subsequent carcinoma. This has only to be realised to cause the practitioner to leave no cervix unrepaired or case of cervicitis untreated."

As a matter of fact, I always deal with these lesions in patients approaching middle life by amputation of the part affected.

In connexion with the subject under discussion an interesting and much-debated point of gynæcological technique arises. Certain surgeons advocate and practise panhysterectomy—that is, removal of the cervix with the body of the uterus—in *every* case in which hysterectomy is performed for fibromyomata uteri. I do not think that such a generalisation is founded on clear reasoning. We know that a majority of fibromyomatous uteri is removed from nulliparous women in whom the cervices are neither lacerated nor infected. In these circumstances supravaginal hysterectomy should be practised, other conditions being equal, since no one who is not a partisan can deny that supravaginal hysterectomy is much less serious an operation than panhysterectomy. If, however, the patient has had children and there are lesions in the cervix, it is always my practice[2] to perform panhysterectomy. For the same reason it is usually necessary to subject the patient to complete hysterectomy when we operate for chronic subinvolution and chronic infection of the body of the uterus.

I am, Sir, yours faithfully,

Liverpool, Oct. 26th, 1919. W. BLAIR BELL.

NURSE ANÆSTHETISTS.

To the Editor of THE LANCET.

SIR,—I have followed the discussion in THE LANCET upon this subject with particular interest, for it so happens that in May last I was asked to deliver an address upon the proposal to a conference of nurses which was then being held. I am therefore pleased to find how completely in accord I am with the views put forward by Dr. Dudley Buxton and other well-known authorities in opposition to what I then called "this amazing proposition." Some figures which I then used may be of interest to your readers. It has been argued by some that nurses might well be employed as anæsthetists "in simple cases" Who is to define what is a simple case from an anæsthetist's point of view? Of 133 deaths which had recently come under my notice no less than 43 were what might well be described as "simple." At any rate, I think that the term would be applied to small sinus operations (19), examinations (9), opening abscesses (7), lumbar puncture (3), tonsils (2), amputation of finger, circumcision, and extraction of teeth (1 each). Then, again, very nearly 50 per cent. of the fatalities occurred during the stage of induction—i.e., at precisely the time when the surgeon would be least likely to be present to advise and assist (? cover).

That the plan has been tried with a certain amount of success under stress of war and other emergencies, is no more an argument in its favour than could be applied to anyone who renders "first aid" and stops a bleeding vessel, and might therefore on similar grounds be entitled to practise medicine. But if nurses are to be permitted to act as anæsthetists, why not hospital porters and orderlies? Shortly before the war a medical man was struck off the Register for administering nitrous oxide for a well-known "bone-setter." How is the General Medical Council to draw a distinction between the two classes of infringement of the Medical Acts? But I believe that the two most serious arguments against the proposition are: (1) the uncertain status of the nursing profession (as the matter now stands one's housemaid of to-day might well act as a nurse (and anæsthetist) to-morrow); (2) the almost universal feeling that the welfare of the patients would in the long run suffer from the arrangement.

I am, Sir, yours faithfully,

Nottingham place, W., Oct. 22nd, 1919. J. FREDK. W. SILK.

IRISH PUBLIC HEALTH COUNCIL.

To the Editor of THE LANCET.

SIR,—The presidential address of Dr. E. Coey Bigger, Medical Commissioner of the Irish Local Government Board, delivered at the first meeting, on Oct. 2nd, of the Irish Public Health Council, is certainly of great interest to the members of the Irish medical profession in two ways—first, for what was expressed in it, and secondly, for what was not stated. First, Dr. Bigger said the Public Health Council as constituted was merely a temporary body formed to advise the Chief Secretary for Ireland (as Minister of Health) as to the steps to be taken for the improvement of the public health, and

> "for this purpose he has been careful to select as its members the representatives of the different existing authorities charged with public health functions throughout the country, and it is now his aim to formulate with the advice and assistance of those members a comprehensive scheme of public health to be incorporated in a Bill to be submitted to Parliament. He [i.e., the Chief Secretary] desires it to be understood that, generally speaking, the functions of the council will be to prepare a legislative programme, and the Minister hopes that the work of preparing material for the Bill will be undertaken with all possible expedition."

Dr. Bigger then proceeded to point out to his Council the problems before them, or, in other words, to describe the present state of public health in Ireland, as follows:

(*a*) "It must be confessed," he said, "that everything possible has not been done to prevent and treat disease in this country" [i.e., Ireland].

(*b*) While he is satisfied with the hospitals in "our cities," he thinks an extension of the system of pay patients would help immensely the class of people who are better off than the working-classes, who do not care to seek free treatment as a charity, and who cannot afford specialists and private hospitals. Dr. Bigger did not say anything about the position of the surgeons in such a scheme, but probably he relies on the inexhaustible pocket of the British income-tax payers!

---

[1] A. E. Garrod and W. H. Hurtley, Quart. Journ. Med., vi., 242.

[2] The Principles of Gynæcology, 1919, p. 539, et seq

(c) The same hospital conditions do not, he remarks, hold in the smaller towns and in the country. What, then, one replies, is the use of Irish union infirmaries and county hospitals?

(d) "Neither in the rural districts nor smaller towns are those who are in the most need of the highest medical or surgical skill or prolonged institutional treatment, radium, X ray, &c., cared for as their condition demands." Is a "Mayo Clinic" to be set up in every village and town in Ireland, and are there no motor-cars (Ireland is full of "Fords") to bring patients needing specialised medical treatment to large centres?

(e) County councils in Ireland are not sanitary authorities within the meaning of the Public Health Acts, and they have not yet in Ireland the power to appoint county medical officers of health.

(f) More nurses are needed. Dr. Bigger says "at present the only nurses available are those of such voluntary societies as the Queen Victoria Jubilee Nurses Association and the Lady Dudley Nursing Association." Those who know that there are nursing societies in Ireland apart from these two excellent associations Dr. Bigger names will rub their eyes in astonishment at such an incorrect statement.

(g) Dental surgeons are urgently required.

(h) Antituberculosis measures "require consideration and enlargement."

(i) "Facilities for laboratory diagnosis of disease are totally inadequate."

(j) The milk-supply is far from satisfactory.

(k) Medical school inspection has not yet come into force.

(l) Improvements in the housing conditions are needed.

(m) The Council is to deal with the initiation and direction of research as applicable to all questions of health.

(n) "The field of preventive medicine in Ireland is as yet almost unexplored."

Who, Sir, is responsible for this truly awful state of the public health of Ireland, as pointed out by the chairman of the new Irish Public Health Council, who is also Medical Commissioner of the Irish Local Government Board? Clearly the fault lies with "the representatives of the different existing authorities charged with public health functions throughout the country," whom, Dr. Bigger says, the Chief Secretary "has been careful to select" as members of the Irish Public Health Council. These are the people who, with a few additional Crown-nominated members not in touch with the public health wants of the whole of Ireland, are selected to prepare a public health "legislative programme." Was there ever a better example of a public health Gilbert and Sullivan comedy? Nowhere but in Ireland would such folly be tolerated.

Dr. Bigger, in his address, never referred to any advisory medical committee being formed—as has been done in England and Scotland—to guide his Council as to what is really wanted in public health matters in Ireland. Does he, or do his Council, imagine that the medical profession in Ireland are to be asked to carry out a new public health scheme, suggested by a body on which they have no members elected by themselves and which they cannot regard as in any way representative of the whole country, or indeed as acquainted practically with the wants—from a public health point of view—of Ireland. How could a Public Health Council, all the members of which lived either in Cork, Limerick, Galway, Belfast, or Derry, and whom the medical profession as a body were not given an opportunity to elect, be said to be representative of the profession as a whole? Yet, of this non-democratically selected Irish Public Health Council just set up, *every* medical member lives in Dublin, and the medical profession, who will be expected to work for the whole of Ireland any measure of public health it may, perchance, evolve, were as a body never permitted to elect their own representatives on it. To suggest such an elaborate scheme for a country in which "the field of preventive medicine is as yet almost unexplored," is, from a practical point of view, either camouflage or a joke.

I am, Sir, yours faithfully,

Oct. 25th, 1919. IRISH PRACTITIONER.

THE BRITISH FEDERATION OF MEDICAL AND ALLIED SOCIETIES.

We have received a further communication from Dr. C. O. Hawthorne in which he considers that the letter from Sir Henry Morris to Dr. Charles Buttar, published in The Lancet last week, confirms his (Dr. Hawthorne's) statements on the main facts of the controversy. More space cannot be found for the discussion of the alleged crimes which attended the birth of the Federation. We have attempted to give to both sides equal opportunities for placing the issues before our readers.—Ed. L.

Obituary.

ADAM BRUNTON MESSER, M.D. Edin.,

INSPECTOR-GENERAL OF HOSPITALS AND FLEETS; HONORARY PHYSICIAN TO THE KING.

The death of Inspector-General Messer at an advanced age removes a naval surgeon whose reputation for personal gallantry, as well as for professional skill, dates from 1864, when he was mentioned in dispatches and promoted besides receiving the New Zealand medal for special bravery under action. He not only attended the wounded under fire but went himself to the rescue of a midshipman who lay wounded in enemy country. At this time he had been five years in the Navy, after studying in Edinburgh and Paris. He served in Hong-Kong and on the flag-ship of Commodore Goodenough at an Australian station. The Commodore was killed in 1875, during a rising of natives of an island in the Pacific, by a poisoned arrow. This incident led Messer to make a study of this subject, and he published a pamphle entitled "An Exhaustive Inquiry into the Nature o Poisoned Arrows," which attracted the attention of the the Medical Director-General and the Admiralty, and for whic he received special commendation.

Inspector-General Messer.

In 1877 Fleet-Surgeon Messer was appointed to th *Temeraire*, and the year after was sent to Plymouth Ho pital. From this time, except for a brief period on th *Northampton*, he remained on land, and was in charge o Malta Hospital when promoted to Inspector-General in 189 His mental make-up included an admirable orderliness, whic served him well in his official work. He retired in 1896, an in 1899 was appointed an honorary physician to Quee Victoria, which position he held throughout the reig of Edward VII. and into that of King George. His tim no longer being constantly claimed by medical and offici duties, he was able to develop his powers as an artis which had only lacked time and opportunity to beco first-rate. A brilliant and many-sided personality, he h left his mark on the service to which he devoted his life.

Dr. Andrew Boyd Fulton, of Cheetham Hi Manchester, who died on Oct. 8th, qualified with commend tion at Glasgow University in 1884, and went to Manchest 21 years ago. He had a large private practice, and was al surgeon to the Bethesda Cripple Home and Orphan Home Cheetham Hill. He was a native of Milton of Camps Stirlingshire, having been born 57 years ago. He marri in 1890 Bessie, the youngest daughter of the late Mr. Jo Barr, of Campsie, leaving four daughters and one son. was a man of great professional ability and strong perso ality, and bravely continued his professional activities spite of suffering, for three years ago he underwent operation at Edinburgh for tumour of the spine.

Medical News.

ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND.—At the Final Examination of the Conjoint Board, held from Oct. 7th to 21st, the following candidates were approved in the undermentioned subjects, but are not eligible for diplomas:—

Medicine.—W. Bowler, Liverpool; H. C. Brayshaw, Edinburgh Univ.; J. P. Brown, Liverpool; W. M. Brown, Guy's; G. L. Clements, Birmingham; A. C. M. Coxon, Cambridge and Guy's; A. N. M. Davidson, King's Coll.; P. M. Desai, Grant Medical Coll.; C. W Empey, London; F. S. Hunter, Birmingham, Guy's, and Bristol; F. James, Charing Cross; P. T. McIlroy, Kingston; M. Mahfooz, St. Thomas's; S. F. Mahmood, St. Bart.'s; T. I. Makar, Westminster; F. A. O'Reilly, Kingston; S. T. Parker, Otago; F. F. Petersen and N. A. M. Petersen, London; G. K. Reeves, Guy's; F. P. Schofield and C. Shaw, St. Bart.'s; C. J. Slim and A. Sudki, Birmingham; A. E. Sutton, Toronto and St. Bart.'s; N. V. Wadsworth, Guy's; C. J. L Wells, St. Bart.'s; May Grant Williams, Royal Free; Grace Elizabeth Winn, Royal Free and St. Mary's; and D. W. Winnicott, Cambridge and St. Bart.'s.

Midwifery.—G. K. Arthur, St. Bart.'s; W. R. Bennette, Liverpool; A. B. Bratton, Cambridge and London; H. C. Brayshaw, Edinburgh; B. W. Briggs, Cambridge and St. Thomas's; K. E. Bury, St. Thomas's; S. Cohen, Guy's; Sarah Annie Cooper, Charing Cross; G W. Dando, Birmingham; S. N. Deboo, Bombay; T. A. Eccles, St, Bart.'s; J. H. France, Westminster; A. C. V. Gosset, Cambridge and St. Thomas's; E. E. D. Gray, Guy's; L. W. Hefferman and F. Hiam, Middlesex; T. B. Hodgson, St. Bart.'s; G. F. W. Howorth, Middlesex; W. E Huddleston, Texas; D. Hunter, London; F. V. Jacques, Bristol; F. J. Jauch, Middlesex; Doris Eleanor Parker Jolly, King's College; E. F. J. Jones, St. Mary's; F. C. Jones, Manchester; W. E. Jones, Toronto; J. S. Lewis, St. Mary's; C. H. Macklin, Middlesex; Ida Caroline Mann, Royal Free and St. Mary's; L. B Maxwell, Cambridge and St. Thomas's; D. G. F. Moore, St. Bart.'s; A. W. Mooro, Cairo and St. Bart.'s; E. O. Morrison, Cambridge and St. Mary's; J. A. Morton, St. Bart.'s; F. A O'Reilly, Kingston; W. A. Owen, London; H. A. A. Pargeter, Guy's; S. T. Parker, Otago; G. J. Preston, Kingston; R. F. Price, McGill; T. Reed, Guy's; Harriet Rowland Louise Reid, Manchester; H. L. Sackett and G. M. J. Slot, St. Bart.'s; S. S. H. Sofi, London; S. D. Sturton, Cambridge and St. Bart.'s; A. E. Sutton, Toronto and St. Bart.'s; E. M. Townsend, Middlesex; A. Weinger, King's Coll.; and A. D Whitelaw, St. Thomas's.

Surgery.—O. B. Brown and G. F. Burnell, Charing Cross; Alison Margaret Collie, St. Mary's; G. W. Dando, Birmingham; C. O. Davies, Liverpool; K. H. Doouss, St. Bart.'s; R. H. Emmett, Cambridge and St. George's; E. A. H. Grylls, Cambridge and London; C A. Hutchinson and F. F. Langridge, London; G. P. Lindsay, Guy's; W. F. Matthews, King's Coll.; T. S. Nelson, Oxford and St. George's; and H. A. Pargeter, Guy's.

UNIVERSITY OF DURHAM: FACULTY OF MEDICINE.—At a special Second Examination for the degree of Bachelor of Medicine the following candidates were successful:—

Anatomy and Physiology.—John Caine Boyde, Robert Archibald Brown, David Davies, Edward Spencer Kirkhouse, George Alexander Mason, Hugh Leslie Mather, Phyllis Mary Walker, and Ella Lees Young.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH, ROYAL COLLEGE OF SURGEONS OF EDINBURGH, AND ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.—The following candidates have passed the Triple Qualification Examinations:—

THIRD EXAMINATION.

Francis Xavier Hayes, Arthur Renwick Lambie, Herbert Brown, William Wolfe Gluckman, Ronald Gillan Clouston, Muriel Keyes, Helen Worthington, John Pringle Crichton, and Joseph Black.

Materia Medica.—Alan Wilson Hart, Ian Fleming McAsh, Adriaan Vintcent Bergh, William Bethune Stott, Richard Francis Kerr, Leonard Edward Murray, Frank Walwyn, and Catherine Millar.

FINAL EXAMINATION.

John Bruce Watson Telford, Henry Jennings, Michel Sidawi, Thomas Ferguson Minford, Thomas Robertson Sinclair, Iain Ross Macphail, John Alfred Alexander Duncan, George Coote Field, John Thomas Dier, John Richard Larson, Lewis Rifkind, Mandayam Anandampillay Parthasarathy Iyengar, William Gibson Wilson, Gordon Beveridge Norman Joseph Patterson, Gilbert Llewellyn Stanley, Alan Herbert Brooke Hudson, and Daniel Augustine Dias.

Medicine.—Walter Frederick Swanton Webb, William McMullan, Frederick William Thompson, John Francis Edward Burns, Alexander Forsyth Caddell, Thomas Hardie, Patabendi Martin Fernando, and Edward Spence.

Surgery.—Walter Frederick Swanton Webb and Frederick William Thompson.

Midwifery.—Walter Frederick Swanton Webb, Mayberry Hugh Carleton, John Francis Edward Burns, Thomas Wyper Stewart, and John Stevenson.

Medical Jurisprudence.—William Frederick George Radford, Jessie Hayna Crawford, Janet Adeline Agnes Sang, Evert Frederick Birkenstock, Peter Fraser Fairley, Percival Charles Holden Homer, John Murray, Thomas Wyper Stewart, and Herbert Brown.

DIPLOMA IN PUBLIC HEALTH

Crichton Raoul Merrillees, Charles Morton Gavin Elliott, Peter Morrison Tolmie, Martha Luella Hamilton, Robert John Maule Horne, Robert Noel McKinstry, Thomas Blackadder Gilchrist, James John Galbraith, John Edwin Allan, Robert Cecil Robertson, William Ashley Lethem, and Annie Mackenzie Madin.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.—At the recent Dental Examinations the following candidates passed:—

FIRST DENTAL EXAMINATION.

Gerrit Johannes Lamprecht, Ernest Joseph Millhouse, Bene Rippen, Harry John Henderson, George Walter Casson, and Wilhelmine Jessie Borrie Duncan.

Chemistry and Physics.—Gilbert Alphonso Loots, Jacobus Myburgh Moll, Rudolph Montague Tren, Oswald Farnington Lowe, Thomas Alexander Eckford, Harvey Goodwin Mackintosh, and Meyers Fouche.

FINAL EXAMINATION.

Ralph Lawson Keith Common, Edgar Gordon Adams, Herbert Daniel Howard, Alexander Miller, and Bene Rippen.

ROYAL INSTITUTION OF GREAT BRITAIN.—A general meeting of the members will be held at Albemarle-street, Piccadilly, W., on Monday next, Nov. 3rd, at 5 P.M.

THE Right Hon. T. J. Macnamara will deliver the introductory address at the postponed opening of the King's College Hospital Medical School. The ceremony will take place to-day, Friday, Oct. 31st, at 3 P.M., under the presidency of Viscount Hambleden. Academic dress will be worn.

THE annual dinner of past and present students of the Charing Cross Hospital, which was postponed from Oct. 1st, will take place at the Adelaide Gallery, Gatti's Restaurant, on Wednesday, Nov. 19th, at 7 for 7.30, Colonel William Hunter, C.B., M.D., presiding.

UNIVERSITY OF LONDON: ADVANCED LECTURES IN PHYSIOLOGY.—The course of advanced lectures on "The Energy Balance of the Human Body" and "Electrical Signs of Emotive Phenomena," by Professor A. D. Waller, will be delivered at 5 P.M. on Nov. 5th, 12th, 19th, 26th, and Dec. 3rd, in the Physiological Laboratory of the University, South Kensington, instead of as previously advertised. These six lectures, of which the first was delivered on Oct. 29th, are addressed to advanced students of the University and to others interested in the subject, and admission is free.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND.—At the annual meeting of the President and Fellows of the Royal College of Physicians of Ireland held on Oct. 18th the following were elected:—President: Dr. James Craig. Vice-President: Dr. S. T. Gordon. Censors: Dr. S. T. Gordon, Dr. Alfred R. Parsons, Dr. William Boxwell, and Dr. J. Spencer Sheil. Representative of the College on the General Medical Council: Sir J. W. Moore. Treasurer: Dr. H. T. Bewley. Registrar: Dr. T. Percy C. Kirkpatrick. At the same meeting Dr. Richard E. Tottenham was elected a Fellow.

ROYAL SANITARY INSTITUTE.—On Friday, Nov. 14th, at 7 P.M., in the Town Hall, Bootle, a discussion will take place on Reconstruction of the Public Health Services, to be opened by Dr. E. W. Hope, medical officer of health, Liverpool. On Saturday, the 15th, visits will be arranged to the school clinics and maternity and child welfare centre (including the remedial exercises and electrical department), to the premises of Messrs. Johnson Bros., Bootle Dye Works, and of Messrs. J. A. Hunter and Co., Ltd., ham and bacon curers. Lunch will be arranged at the Windham Hotel, at a charge of 3s. 6*d*. each.

BRENTFORD UNION INFIRMARY.—At their last meeting the guardians of the Brentford Union adopted recommendations from the infirmary committee providing for a children's and maternity block, the setting up of an X ray department, the appointment of visiting specialists, and such an increase in the nursing staff as will permit of the introduction of a 48-hour week for nurses. The specialists to be appointed at once will include a physician, a surgeon, a gynæcologist, and a radiographer; other appointments will be made hereafter. It is intended that regular weekly visits shall be paid by the medical staff, so that all new admissions may be seen, and the guardians have agreed to meet the travelling expenses of the staff at the rate of a guinea a visit.

ROYAL DENTAL HOSPITAL OF LONDON.—The annual dinner of the staff and past and present students and their friends will be held on Saturday, Nov. 22nd, at the Freemason's Tavern (Connaught Rooms) at 6.30 P.M., with Sir Harry Baldwin in the chair, tickets 10s. 6*d*. each, exclusive of wine. As this is the first reunion since the war began it is hoped there will be a large attendance, but it is earnestly requested that those who intend to be present will send in their names at their earliest convenience, stating also if it be their intention to bring friends. Communications should be addressed to Mr. W. H. Dolamore, dean of the school.

Mrs. Lloyd George has consented provisionally to unveil the Roll of Honour and to distribute the prizes at the school on Wednesday, Nov. 5th, at 5 P.M.

PLAGUE IN THE PORT OF LONDON.—When the s.s. *Nagoya* arrived in the Port of London on Saturday last the assistant medical officer of the port found that six cases had occurred in the native crew which he regarded as cases of plague. The first man attacked was taken ill on Oct. 21st, died on Oct. 23rd, and was buried at sea. The second case fell ill on Oct. 22nd and was removed on Oct. 25th in a moribund condition to the Isolation Hospital of the Port of London Sanitary Authority. Six other cases have been landed and taken to this hospital. The diagnosis of plague has since been confirmed by the bacteriologist of the Ministry of Health from material obtained from the second case. The vessel is being disinfected by the Port Sanitary Authority, and all necessary precautions have been taken.

THE FOOD EDUCATION SOCIETY.—This society, known until lately as the National Food Reform Association, has issued a report, covering the period 1914–1918, which shows a record of good work in helping to conserve the food-supply during the war. That much food is wasted both by unsuitable selection and wasteful methods of preparation has been the burden of many practical lectures and demonstrations. The society has coöperated in certain directions with the National League for Health, Maternity, and Child Welfare, and has been active in approaching Members and candidates for Parliament in relation to food and the health of the people. The chairman of the society is Dr. H. Beckett-Overy, the vice-chairman Dr. Harry Campbell, and the report can be obtained from the offices of the society, Danes Inn House, Strand, London, W.C. 2, price 1*s.* 1*d.* post free.

ROYAL SOCIETY.—A joint meeting of the Royal Society and the Royal Astronomical Society will be held on Thursday, Nov. 6th, at 4.30 P.M. The meeting of the Royal Society on that day has been set aside by the council as a "meeting for discussion," the subject being the Results of the Observations Obtained at the Total Solar Eclipse on May 29th, 1919. The discussion will be opened by Sir Frank Dyson (Astronomer Royal). Professor Eddington and other members of the eclipse expedition will take part. In accordance with the arrangements agreed to in February, 1899, the meeting will be a joint meeting of the Royal and the Royal Astronomical Societies, at which the observers will give the first and preliminary accounts of their observations.

THE RED CROSS IN NORFOLK.—At a recent meeting held in Norwich Sir Arthur Stanley, in his capacity of chairman of the central joint committee of the Norfolk branch of the Red Cross societies, commented on the large number of V.A.D.'s now unemployed, and repeated some of the schemes for their future work recently outlined by him in London. He referred to the proposal (THE LANCET, Oct. 25th, p. 738) to utilise their services in the battle against tuberculosis, after giving them the appropriate preliminary training. A League of Red Cross societies, comparable to the League of Nations, had been formed, and through its agency it was hoped that epidemics, such as that of typhus now raging in the Balkans, might be checked.

The members of the Norfolk branch of the fused society number 3182. Since the termination of the war, during which over 40,000 sick and wounded were carried by Red Cross transport, 11 ambulance cars have been stationed at various centres in the county for the use of discharged and disabled soldiers and sailors, and to meet the needs of the civilian population in cases of urgent sickness or accident. A further extension of this method of transport would be a great boon to the population in country districts.

THE MEDICO-LEGAL SOCIETY.—The annual dinner of the Medico-Legal Society was held at the Holborn Restaurant, Kingsway, on Wednesday last, the President, Dr. R. Henslowe Wellington, barrister-at-law, presiding over a good attendance. Sir William Collins, speaking to the toast of "Medicine and the Law," drew an interesting parallel between the scientific and social positions of the two professions, pointing out that, whereas it was a maxim of the law to take no care for trifles, it had become, since the era of bacteriology, the religion of medicine that in trifles there might lie first causes and the broadest results. The toast was responded to by Mr. Samuel Osborn, the Master of the Apothecaries Society of London, and Master R. T. Watkin-Williams, Master of the Supreme Court in Chancery. The toast of "The Medico-Legal Society" was given by Mr. J. A. Foote, K.C., Recorder of Exeter, who in a humorous exposition of the value in actual litigation of mutual understanding between medicine and the law, resented the phraseology which often had to be employed by the expert medical witness. He gave as an example the fact that he had before him at the moment the proof of some evidence to be tendered by an expert medical witness which was so spattered over with the word "ecchymosis" that he could only describe the whole document as being ecchymosed. Dr. Henslowe Wellington, in reply, expressed the hope that during his term of office as President a Parliamentary Committee of the society would be formed for the consideration of the medico-legal side of any proposed legislation. He added that he had thought that the society would form the foundation of, and eventually develop into, a school of forensic medicine, but he feared that this would not be realised because, among other things, the legal side of medical studies did not promise much pecuniary reward, while jurisprudence was not a compulsory subject in the educational curriculum of the student.

THE LONDON JEWISH HOSPITAL.—Lord Rothschild, who was accompanied by the Chief Rabbi, opened the London Jewish Hospital at Stepney Green last week. This hospital has been founded almost entirely by the Jewish poor, who have contributed small weekly donations since 1907. The site was acquired in 1909 for £5400 and building commenced in 1914, but was interrupted by the war. The front part of the hospital is now being proceeded with, and there will be accommodation for 60 beds. Mr. J. D. Kiley, M.P. for Whitechapel, said that although the institution would be known as the Jewish Hospital the qualification for admission would be need, without distinction of race or class.

MEDICAL SICKNESS SOCIETY.—The usual monthly meeting of the executive committee of this society was held on Oct. 17th, when the secretary reported a gratifying increase in new business as the result of increased publicity amongst the profession, and the greater necessity of cover during incapacity of any kind owing to the high charges for locums. The figures showed that whereas £3 3*s.* to £4 4*s.* a week was the usual fee 10 years ago, such a sum as £8 8*s.* and £10 10*s.* a week was quite common at the present time, and although every other charge had gone up, the society's rates of premium were the same now as in 1884. The results of the new Table for Sickness and Accident for Women Practitioners had been satisfactory and proposals are still coming in under this heading. The sickness claims continued to be under the expectation, but there has been a slight increase in the number of influenza cases during the last few weeks.

A number of claims were dealt with in which there had been omission to give notice in time according to the rules, and members are reminded of the necessity of giving reasonable notice of an illness or accident which is likely to incapacitate them, in order that the required evidence can be furnished.

A new form of proposal and medical examination was approved after careful consideration, and as the rules require all examinations of proposers to be made by appointed medical examiners, a list of names for appointment was ordered to be drawn up for submission to the next meeting. Prospectus and all particulars can be obtained from Mr. Bertram Sutton, F.C.I.I., Secretary, 300, High Holborn, W.C. 1.

Parliamentary Intelligence.

HOUSE OF COMMONS.

MONDAY, OCT. 27TH.

Pension Appeals.

Mr. TREVELYAN THOMSON asked the Pensions Minister if he could expedite the establishment of the appeal tribunals for hearing the claims of the widows and dependents of deceased soldiers, as provided by the War Pensions (Administrative Provisions) Act, 1919; and was he aware that the delay in hearing these appeals was causing much preventable loss and suffering; and could he say how soon these tribunals would be established.—Sir JAMES CRAIG (Parliamentary Secretary to the Ministry of Pensions) replied: The provisions of the War Pensions (Administrative Provisions) Act, 1919, only came into operation so far as the establishment of the tribunals is concerned on Nov. 1st. The procedure to be adopted for bringing cases before the new tribunals has necessitated careful consideration. It is hoped to issue full instructions to local committees during the present week.

Rats and Mice Bill.

In moving the second reading of the Rats and Mice (Destruction) Bill Sir A. GRIFFITH-BOSCAWEN (Parliamentary Secretary to the Board of Agriculture) said that 12 years ago it was estimated that foodstuffs to the value of £15,000,000 per annum were destroyed by rats in this country. During the war rats had enormously increased, and last year the food they destroyed amounted to £40,000,000, which was nearly as much as the bread subsidy paid by the State. These vermin were dangerous to property and to health. Rats had caused fires by nibbling matches and had blocked drains. The Bill laid it down that it was the duty of every man to destroy vermin on his own premises, and if he failed to do so he was liable to a fine not exceeding £20. The duty of enforcing the Act was laid on the local authorities. As ships were a fruitful source of introducing vermin the skipper was made liable to penalties if he did not take adequate measures for preventing the escape of rats from his ship to the land.

The Bill was read a second time.

TUESDAY, OCT. 28TH.

British Military Hospitals at Marseilles.

Colonel LAMBERT WARD asked the Secretary for War whether British military hospitals were still established at Marseilles; and, if so, would he state the number and approximate size of those units.—Mr. FORSTER (Financial Secretary to the War Office) replied: The latest information available in the War Office is dated Oct. 16th. On that date there were at Marseilles one British General Hospital equipped with 750 beds and one Indian General Hospital equipped with 400 beds.

Victory Medal for Territorial Nurses.

Sir WILLIAM SEAGER asked the Secretary for War if he was aware that dissatisfaction existed among the members of the Territorial Force Nursing Service, engaged in our Home military hospitals, by reason of the fact that they were not to receive the war medal or victory medal the same as those who went overseas; that many of these devoted women volunteered for overseas service but were commanded to remain on duty in this country, where they received the wounded from overseas and rendered most efficient and invaluable service in nursing our soldiers and sailors back to health; would he consider their claims for recognition: and did he propose to take any action in the matter.—Mr. FORSTER replied: As I have already stated, the question of a medal to those who rendered services in connexion with the Army at home during the war is receiving careful consideration.

Rats and Mice Bill.

The Rats and Mice (Destruction) Bill passed through Committee and was reported to the House.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

COWAN, B. A., L.R.C.P. & S. Irel., L.M. Rot. Dub., has been appointed Assistant Medical Officer to Bagthorpe Infirmary, Nottingham.

HEWER, C. L., M R.C.S., L.R.C.P., Assistant Administrator of Anæsthetics to St. Bartholomew's Hospital.

STEEN, R. H., M.D., M.R.C.P. Lond., Out-patient Physician for Psychological Medicine, King's College Hospital, Denmark Hill.

Royal Free Hospital: **BLACKWELL, U. P.**, L.R.C.P., M R.C.S., Casualty Officer; **GOWERS, Miss**, M.R.C.S., L.R.C.P., Clinical Assistant Medical Out-patients; **MATLAND, A. M.**, L.R.C.P., M.R C.S., Clinical Assistant Throat, Nose, and Ear Department; **MORRIS, C. W.**, M.B., B.S., Honorary Anæsthetist; **PINKERTON, J. McL.**, M.B., Ch.B. Glasg., Surgical Registrar; **WILLIAMS, LL.**, M.R.C S., L.R.C.P., Junior Obstetric Assistant.

St. Mary's Hospital, Paddington; **LEES, K. A.**, M.B., B.C. Cantab., F.R.C.S. Eng., Assistant Surgeon for Diseases of the Ear, Nose, and Throat; **MATTHEW, A. W.**, M.R.C.S., L.R.C.P., and **NEWMARCH, H. J.**, M.B., B.C., M.R.C.P., Honorary Anæsthetists.

Certifying Surgeons under the Factory and Workshop Acts: **WALKER, L. C.**, M.R.C.S., L.R.C.P. Lond. (Malton); **MACWATTERS, J. C.**, M.R.C.S., L.R.C.P. Lond. (Almondsbury).

Vacancies.

For further information refer to the advertisement columns.

Bath, Royal United Hospital.—H.S. £150.

Birmingham and Midland Ear and Throat Hospital.—H.S. £400

Brighton, Hove, and Preston Dispensary.—Res. M.O. £200.

Brighton, Royal Sussex County Hospital.—S. and Asst. S.

Burnley, Victoria Hospital.—H.S. £250.

Canterbury, Kent and Canterbury Hospital.—Two Res. M.O.'s. £200 and £150 respectively.

Cardiff, Glamorgan County Council.—County M.O. £1000.

Cardiff, King Edward VII. Hospital.—Hon. Asst. S.

Carlisle, Cumberland and Westmorland Mental Hospital, Garlands.—Jun. Asst. M.O. £300.

Central London Ophthalmic Hospital, Judd-street, W.C.—Hon. P. Asst. S.

City of London Hospital for Diseases of the Chest, Victoria Park, E.—P. Also Half-time M O. £200.

Colchester, Essex County Hospital.—H.S. £200.

Croydon Mental Hospital, Upper Warlingham, Surrey.—Sec. Asst. M.O. £500.

Doncaster Infirmary.—H.S. £250 to £350.

Dorset Mental Hospital, Herrison, near Dorchester.—Sec. Asst. M.O. £340.

Dumfries, Crichton Royal.—Asst. P. £350.

Eastbourne County Borough.—Female Asst. M.O. £450.

East London Hospital for Children and Dispensary for Women, Shadwell, E.—Two Asst. P.'s, Two Asst. S.'s, Oph. S., and Throat and Ear S.

East Riding Education Authority.—School Dent. £400.

Ebbw Vale Urban District Council.—M.O.H. and Sch. M.O. £750.

Great Northern Central Hospital, Holloway, N.—Two Clin. Assistants.

Hackney Union Infirmary, High-street, Homerton, E.—Sen. Asst. M.O. £584 10s.

Hampstead General and North-West London Hospital, Haverstock Hill, N.W.—S. to Out-patients.

Hospital for Sick Children, Great Ormond-street, W.C.—Cas. M.O. £200. Also Two Anæs. £15 15s.

Infirmary of the City of London Union, 42, Clifden-road, Clapton, E.—Asst. M.O. £250.

Leeds General Infirmary.—Res. M.O. £200.

London Fever Hospital, Islington, N.—Asst. Res. M.O.

London Society for Promoting Christianity amongst the Jews, 16, Lincoln's Inn fields, W.C.—Missionary for Palestine. £350.

Manchester, Ancoats Hospital.—Two Asst. M O.'s. £50.

Manchester Children's Hospital, Pendlebury.—Anæsth. £1 1s. per visit.

Manchester Hospital for Consumption and Diseases of the Throat and Chest.—Hon. Asst. P.

Manchester Royal Infirmary.—H.S.'s. £25 and £50.

Middlesex Hospital, W.—P.

Mitler General Hospital for South-East London, Greenwich-road, S.E.—Hon. Asst. Oph. S.

Monmouthshire Education Committee.—Asst. M.O.'s. £500. Also School Dentist. £400.

Mount Vernon Hospital for Consumption and Diseases of the Chest, Northwood, Middlesex.—Asst. P.

National Hospital for the Paralysed and Epileptic, Queen-square, W.C.—Hon. Dent. S. Also H.P.

Newport, Mon., Royal Gwent Hospital.—Three Res. M.O.'s £225, £200, and £160 respectively.

Northampton, Northamptonshire County Council Education Committee.—School Dentist. £400.

Norwich, Norfolk and Norwich Hospital.—Cas. O. £200.

Nottingham General Dispensary.—Res. S. £300.

Oxford, Radcliffe Infirmary and County Hospital.—Hon. Obstet., P., Neurol., Asst. S and S. Registrar.

Prince of Wales's General Hospital, Tottenham, N.—Hon. Ophth. S.

Queen Charlotte's Lying-in Hospital, Marylebone-road, N.W.—Asst. Res. M.O. £60.

Queen's Hospital for Children, Hackney-road, Bethnal Green, E.—Asst. P. Ophth. S.

Reading, Royal Berkshire Hospital.—H.P. and Sec. H.S. £200.

Rochdale Infirmary and Dispensary.—Junior H.S. £125.

Royal Chest Hospital, City-road, E.C.—Two Asst. M.O.'s for Tuberc Disp. £350. Also Clin. Assts.

Royal Dental Hospital of London, Leicester-square.—Asst. Dental S.

Royal Free Hospital, Gray's Inn-road, W.C.—H.S's. £250.

Royal London Ophthalmic Hospital, City-road E.C.—Asst. S.

St. George's Hospital, S.W.—Res. Asst. S. £350.

Salford Royal Hospital.—Anæsthetist. £50.

Sheffield Royal Hospital.—Res. Asst. Cas. O. £120.

Sheffield Royal Infirmary.—H.S. £150.

Smethwick County Borough.—Female Asst M O. £500.

Southampton County Borough.—Asst M.O.H. £500.

Spenborough Urban District.—M.O. and Sch. M.O. £600.

Sunderland Education Committee.—Asst. Sch. M O. £500.

Throat Hospital, Golden-square, W.—Hon. Anæst. and Hon. Dent. S.

Torquay, Torbay Hospital.—H.S. £200.

Ventnor, Isle of Wight. Royal National Hospital for Consumption and Diseases of the Chest.—Asst. Res. M.O. £200.

Virol Research Laboratories, Bedford-square, W.C.—Asst. Path.

Wakefield County Council of the West Riding of Yorkshire.—Chief Tuberc. O. £750.

Wakefield General Hospital.—Jun. H.S. £150.

Western Dispensary, Rochester Row, Westminster.—Vacancies on Attending Medical Staff.

Western General Dispensary, Marylebone-road, N.W.—Hon. P.

Westminster Hospital, Broad Sanctuary, S.W.—Asst. P. Also Asst. S.

Winchester, Hampshire County Council.—Two Asst. M.O.'s. £450.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Grassington, Darwen, Gatehouse, Oban, and at Kinsale.

Births, Marriages, and Deaths.

BIRTHS.

BRUNSKILL.—On Oct. 22nd, at Chenies, Headley, Hants, the wife of Lieutenant-Colonel J. H. Brunskill, D.S.O., O.B.E., R.A.M.C., of a son.

CAMPBELL.—On Oct. 24th, at Coates-crescent, Edinburgh, the wife of Basil Patrick Campbell, M.D., F.R C.S. Edin., of a son.

GALBRAITH.—On Oct. 28th, at 14, Sandyford place, Glasgow, the wife of Walter Weir Galbraith, M.B., Ch.B., of a daughter.

PARAMORE.—On Oct. 22nd, at Elmfield, Redhill, Surrey, the wife of W. J. Paramore, M.R.C.S., L.R.C.P., of a son.

DEATHS.

ALLINSON.—On Oct. 20th, at "Stonegate," King's Lynn, Henry Calthrop Allinson, M.R.C.S., L S.A., aged 63 years.

DAVY.—On Oct. 18th, at his residence, Spring terrace, Richmond, Surrey, Francis Arthur Davy, Lieutenant-Colonel, late R.A.M.C., aged 73.

FOWLER.—On Oct. 26th, at Ardvoulan, Poole-road, Bournemouth, Frank Fowler, M.D., aged 54.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Tuesday, Nov. 4th.

SURGERY: SUB-SECTION OF ORTHOPÆDICS (Hon. Secretaries—A. S. Blundell Bankart, R. C. Elmslie): at 5 P.M.

Cases will be shown.

PATHOLOGY (Hon. Secretaries—J. A. Murray, Cecil Price-Jones): at 8.30 P.M.

Dr. Dennis Embleton: Sphenoidal Empyema and Epidemic Meningitis.

Professor Arthur Powell: A Bodo-like Flagellate persisting in the Urine.

Wednesday, Nov. 5th.

SURGERY (Hon. Secretaries—Cyril A. R. Nitch, Herbert J. Paterson): at 5 30 P.M.

Discussion and Exhibition of Specimens of Secondary Deposits in Bone mistaken for Primary Tumours, to be opened by the President, Sir John Bland-Sutton.

N.B.—Members of the Section are specially invited to attend the meeting of the Section of Anæsthetics. (See below.)

OPHTHALMOLOGY (Hon. Secretaries—Malcolm Hepburn, W. H. McMullen): at 8.30 P.M.

Cases (at 8 P.M.). The following will be shown by:—

Dr. Rayner D. Batten: Acute Disseminated Choroido-Retinitis of Doubtful Origin.

Major J. F. Carruthers, R.A.M.C.: Unusual Optic Nerve Tumour.

Mr. G. Winfield Roll: Congenital Abnormality of the Disc.

Paper:

Mr. Rayner D. Batten: The Need of Ophthalmic Physicians for the Advancement of Ophthalmology.

Thursday, Nov. 6th.

OBSTETRICS AND GYNÆCOLOGY (Hon. Secretaries—J. S. Fairbairn, Herbert Williamson): at 8 P.M.

Cinematograph Demonstration:

Dr. Drummond Robinson: The Rôle of the Cinematograph in the Teaching of Obstetrics. (Pictures will be shown illustrating the various stages of normal labour by means of both (*a*) animated drawings and (*b*) photographs of actual labour.)

N.B.—Members of other Sections are invited to be present.

Paper:

Dr. Herbert Spencer: Nine Cases of Inversion of the Uterus.

Friday, Nov. 7th.

LARYNGOLOGY (Hon. Secretaries—Irwin Moore, Charles W. Hope): at 4 P.M.

Cases and Specimens will be shown by:—

Dr. Donelan, Dr. Hill, Dr. Dan McKenzie, Mr. Mollison, Dr. Irwin Moore, Mr. Sydney Scott, Mr. Tawse, Sir StClair Thomson, Mr. Herbert Tilley and Dr. Logan Turner.

ANÆSTHETICS (Hon. Secretaries—R. E. Apperly, Ashley S. Daly): at 8 30 P.M.

Paper:

Dr. F. E. Shipway: Intratracheal Insufflation of Ether in Operations which Involve Bleeding into the Air Passages.

Demonstration of Apparatus for Administering Nitrous Oxide and Oxygen by:—

Professor Desmarest (Paris), Dr. Geoffrey Marshall, Dr. F. E. Shipway.

N.B.—Members of the Section of Surgery are specially invited to attend.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY, West London Hospital, Hammersmith-road, W.

FRIDAY, Nov. 7th.—8.45 P.M., Clinical Meeting. Cases will be shown at 8 P.M.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL INSTITUTE OF PUBLIC HEALTH, In the Lecture Hall of the Institute, 37, Russell-square, W.C.

Course of Lectures on Housing Problems and Town Planning in Relation to Public Health.

WEDNESDAY, Nov 5th.—4 P.M., Lecture II.:—Dr. W. G. Savage: Housing Problems in Rural Districts.

Course of Instruction for Candidates as Tuberculosis Officers, General Practitioners and others. Bacteriological Demonstrations will be given in the Laboratories of the Institute, and visits arranged to Sanatoriums, Tuberculosis Dispensaries, &c.

THURSDAY, Nov. 6th.—5 P.M., Lecture V.:—Dr. A. C. Inman: Remarks on the Value of Some Laboratory Tests in the Diagnosis of Tuberculosis.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.

WEDNESDAY, Nov. 5th.—4.30 P.M., Dr. J. J. Perkins: Demonstrations in the Wards.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, W.C. 1.

MEDICAL SCHOOL.

MONDAY, Nov. 3rd.—2-3 30 P.M, Out-patient Clinic: Dr. Collier. 3.30 P.M., Lecture:—Dr. Tooth: Peripheral Neuritis.

TUESDAY, Nov. 4th.—2-3.30 P.M., Out-patient Clinic: Dr. Grainger Stewart. 3.30 P.M., Ward Cases: Dr. James Taylor.

WEDNESDAY, Nov 5th.—2 P.M., Lecture:—Mr. Armour: Surgery of the Spinal Cord. 3.30 P.M., Lecture:—Dr. Collier: Progressive Muscular Atrophies

THURSDAY, Nov 6th.—2-3.30 P.M., Out-patient Clinic: Dr. Farquhar Buzzard. 3.30 P.M., Lecture:—Dr. Aldred Turner: Neuroses.

FRIDAY, Nov. 7th.—2-3.30 P.M., Out-patient Clinic: Dr. Gordon Holmes. 3.30 P.M. Ward Cases: Dr. Tooth.

Fee for Post-Graduate Course £5 5s. C. M. Hinds Howell, Dean.

NATIONAL HOSPITAL FOR DISEASES OF THE HEART POST-GRADUATE COURSE, Westmoreland-street, W.

MONDAY, Oct. 3rd.—11 A.M., Out Patients: Dr. Goodall. 2 P.M., In-patients: Dr. Moon.

TUESDAY.—2 P.M., Out-Patients: Dr. R. Wells. 2.30 P.M., In-patients: Dr. Gibbes.

WEDNESDAY.—2 P.M., Out-patients: Dr. Moon. 5.30 P.M., Lecture:—Dr. Moon: Aortic Disease.

THURSDAY. 10 A.M., In-patients: Dr. Hamill. 2 P.M., Out-patients: Dr. Price.

FRIDAY.—2 P.M., Out patients: Dr. Gibbes. 2.30 P.M., In-patients: Dr Wells.

SATURDAY.—10 A.M., Out-patients: Dr. Hamill.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE CLINIC.

TUESDAY, Nov. 4th.—Lecture:—Mr. A. H. Burgess: Clinical Types of Gall-stone Disease.

Communications, Letters, &c., to the Editor have been received from—

A.—Mr. R. J. Albery, Lond.; Army Medical Service, Director-General of, Lond.

B.—Mr. A. E. Boher, Taunton; Dr. J. Brown, Blackpool; Mr. H. W. Bayly, Lond.; Bombay Medical Council, Registrar of; Miss M. C. Bone, Hove; Board of Agriculture and Fisheries, Lond.; Dr. A. Blackhall-Morison, Lond.; Dr. R. Burges, Hartley Wintney; Dr. H. W. Barber, Lond.; Mr. W. G. Ball, Lond.

C.—Dr. F. G. Crookshank, Lond.; Dr. H. P. Cholmeley, Forest Row; Dr. F. G. Cawston, Durban; Miss C. Chaundler, Lond.; Dr. R. Cruchet, Bordeaux; Charing Cross Hospital Medical School, Lond., Dean of; Prof. R. S. Conway, Lond.; Conjoint Board of Scientific Societies, Lond.

D.—Dr. T. N. Darling, Lond.; Dr. V. Dickinson, Lond.; Mr. A. S. Dutton, Lond.; Dr. S. Davies, Worthing.

E.—Mr. W. H. Evans, Sutton; Dr. H. A. Ellis, Middlesbrough; Dr. E. Evans, Cardiff; Dr. J. R. Earp, Lond.; Mr. D. L. Eadie, Edinburgh.

F.—Dr. A. Francis, Lond.; Factories, Chief Inspector of, Lond.; Dr. A. Fleming, Lond.; Dr. W. J. Fenton, Lond.; Dr. R. F. Fox, Enham; Capt. H. Fraser, R.A.M.C.

G.—Dr. W. E. Gye, Lond.; Mr. H. Green, Brighton.

H.—Dr. C. L. Hewer, Lond.; Dr. E. Hobhouse, Brighton; Dr. C. T. W. Hirsch, Lond.; Harveian Society of London; Lieut.-Col. A. F. Hurst, O.B.E., R.A.M.C.

I.—India, Secretary of State for, Lond.

J.—Mr. H. Johnson, Lond.; Dr. R. R. James, Lond.; Dr. F. Wood Jones, Lond.

K.—Prof. A. Keith, Lond.; King's College Hospital Medical School, Lond., Committee of Management of.

L.—Miss E. Leaf, Lond.

M.—Mr. A. M. Murphy, Lond.; Miss H. M. M. Mackay, M.D., Lond.; Sir G. H. Makins, G.C.M.G., C.B., Lond.; Dr. H. A. Macewen, Lond.; Ministry of Health, Lond.

P.—Dr. G. K. Paterson, Edinburgh; Sir D'Arcy Power, K.B.E., Lond.; Dr. J. F. Porter, Lond.

R.—Dr. W. G. A. Robertson, Ashford; Royal Society, Lond.; Dr. J. D. Rolleston, Lond.; Royal Institution of Great Britain, Lond.; Royal Dental Hospital of London, Members of the Staff of; Royal Institute of Public Health, Lond.

S.—Dr. C. F. Sonntag, Lond.; Dr. A. G. Sbera, Eastbourne; Société de Biologie, Paris; Sir G. H. Savage, Lond.; Dr. J. E. Sandilands, Lond.

T.—Sir John Tweedy, Lond.; Capt. J. W. T. Thomas, R.A.M.C., Cardiff; Messrs. C. Thomas and Bros., Ltd., Bristol.

W.—Dr. G. A. Watson, Rainhill; Dr. D. White, Lond.; Dr. H. Williamson, Lond.; Mrs. C. M. Wenyon, Lond.; Dr. E. M. White, Lond.; Dr. F. P. Weber, Lond.; Dr. J. D. Wynne, Norwich; Dr. A. M. Webber, Nottingham; Mr. A. R. Walker, Lond.; Dr. G. D. H. Wallace, Rochester; Woolwich, Medical Officer of Health of.

Communications relating to editorial business should be addressed exclusively to the Editor of THE LANCET, 423, Strand, London, W.C. 2.

THE LANCET: SUBSCRIPTION RATES.

		£	s.	d.
INLAND	One Year	£1	16	0
	Six Months	0	18	0
	Three Months	0	9	0
ABROAD	One Year	£2	0	0
	Six Months	1	0	0
	Three Months	0	10	0

Subscriptions may commence at any time, and are payable in advance. Cheques and P.O.'s (crossed "London County Westminster and Parr's Bank, Covent Garden Branch") should be made payable to Mr. CHARLES GOOD, THE LANCET Offices, 423, Strand, London, W.C. 2.

ADVERTISEMENT RATES.

Books and Publications ... ... Official and General Announcements Trade and Miscellaneous Advertisements	Four lines and under ... ... 4*s*. 0*d*.

Every additional line, 9*d*.

Quarter Page, £2. Half a Page, £4. Entire Page, £8.

Special Terms for Position Pages.

Dr. J. E. Sandilands, medical officer of health since 1909 to the Borough of Kensington, has been appointed to succeed Dr. J. A. Turner as executive health officer to the city of Bombay.

Notes, Short Comments, and Answers to Correspondents.

POVERTY IN RELATION TO PULMONARY TUBERCULOSIS.

IN the course of a lecture recently delivered at the Royal Institute of Public Health, Dr. L. S. T. Burrell said that if it were possible to kill poverty we should have gone a long way towards stamping out consumption. The disease was rare among the wealthy, common among the poor; poverty plays a great part as a predisposing cause of the disease, and as overcrowding increases the consumption death-rate also increases. There is a constant relation between overcrowding and poverty which, in consumption statistics, also forms an index to tuberculosis incidence. However, though the cottages are overcrowded there is little real poverty in the country. The people live for the most part in the open air and do not continuously change their residence; whereas in towns one small room may be occupied in the course of a few months by two or three families. Again, in a country cottage filth occurs frequently but rarely squalor. Dr. Burrell emphasised the difficulty in estimating what factors arising out of poverty most assisted the tubercle bacillus. Food was certainly important. One would expect to find an increase in consumption in countries that had bad bad food during the war. Consumption had certainly increased in England, but no one could say the food had been bad; the majority of people had lived better than at any other time in their lives. In Germany and other places, where the food really had been bad, the consumption death-rate had gone up enormously. Another important factor was undoubtedly size of houses. Obviously, if infection exists, a patient living in a small ill-ventilated room was in greater danger than one living in a large room where the dose was diluted. In the eighteenth century at Florence a commission was held on the causes of consumption, and the opinion recorded that in small houses it was necessary to burn the belongings and bedding of the occupants, but that in large houses it was only necessary to whitewash the walls of the rooms up to the height of a man; thus the difference between large and small houses was clearly recognised even at that time. Mental depression, again, might prevent a man from resisting tuberculosis. The frame of mind induced by a life of real crushing poverty, with its dull monotony and absence of mental stimulation, might well have a bearing on the subject. The strain on many people during the war might have had a similar effect, as consumption incidence began to rise from the earliest days of the war, while food was not in any way affected till much later. Tuberculosis used to be considered exceptionally common among the mentally weak, but since it was also found in barracks and other institutions, it would be unfair to say that asylum patients were more susceptible.

A further predisposing factor among the poor was the exposure to wet and cold. While the prosperous could take a hot bath and change their clothes after unavoidable exposure the poor had to remain in wet clothes. Many soldiers who developed consumption showed a pre-war history of pleurisy. When the next war came along it would be well to give those men who had had pleurisy work which did not expose them to cold and wet. The incidence of consumption, according to Dr. Burrell, did not vary greatly in the cold or hot climates. The passage from a stuffy atmosphere into a cold one caused consumption or any other disease to flare up. Other factors were air and light. People who visited cottages sometimes forgot that the poor often had to choose between living in a cold or in a stuffy atmosphere. It was often worse for a family to suffer from cold than to keep warm in a fog, if fresh air implies an east wind or a fog. He said that acute tuberculosis often followed acute influenza, and although it was extremely unhealthy to live in a stuffy room it was unfair to blame the poor for so doing. Even in sanatoriums there was at present a strong movement for giving more warmth. During the recent influenza epidemic hardly anyone at Brompton had colds doubtless owing to the well heated wards. Overcrowding thus plays some part, but only an indirect part. In the presence of happiness, good food, and cleanliness, actual overcrowding in itself would not, in his opinion, predispose to consumption, provided that no one of the individuals inhabiting the overcrowded house was himself tuberculous. Overcrowding did not lower the general health to such a degree as to make the patient more liable to consumption.

In summing up, he suggested that under poverty, in relation to pulmonary tuberculosis, should be included insufficient and bad food, the serious risk of exposure to undiluted infection, unhappiness and mental depression, exposure, lack of fresh air and light, and overcrowding. All these factors prevented the individual from resisting tuberculosis and the ultimate cause of them all was poverty.

MEDICAL APPOINTMENTS UNDER THE MINISTRY OF PENSIONS.

INQUIRIES with regard to appointments for posts of medical referees should be addressed to the Commissioner of Medical Service of the region in which the appointment is desired. The following is a revised list (see THE LANCET, July 19th, p. 119) of the regions with their respective Commissioners and county boundaries (C.B.):—

1. Scotland: Dr. George R. Gibson, D.S.O., 59, Cockburn-street, Edinburgh. C.B., the whole of Scotland.
2. Northern: Dr. Hugh Richardson, D.S.O., 47, Pilgrim-street, Newcastle-on-Tyne. C.B., Northumberland, Berwick, Durham, Cumberland.
3. North-Western: Dr. A. H. Williams, 15, Piccadilly, Manchester. C.B., Westmorland, Lancs, Cheshire, Isle of Man.
4. Yorkshire: Dr. C. H. Milburn, O.B.E., Basinghall Buildings, Basinghall-street, Leeds. C.B., Yorkshire.
5. Wales: Dr. Bickerton Edwards, O.B.E., Angel Hotel, Westgate-street, Cardiff. C.B., the whole of Wales and Monmouthshire.
6. West Midlands: Dr. F. R. Hill, Bethany, Loveday-street, Birmingham. C.B., Staffs, Shropshire, Hereford, Worcester, Warwick.
7. East Midlands: Dr. A. B. Ward, D.S.O. (temporary address, care of C.M.S., Yorkshire Region), Nottingham. C.B., Derby, Notts, Lincoln, Leicester, Rutland, Northants.
8. South-Western: Dr. James Young, Cliftondown Buildings, Bristol. C.B., Glo'ster, Wilts, Dorset, Somerset, Devon, Cornwall.
9. Eastern: Dr. Basil Rhodes, 80, Westbourne-terrace, Paddington, W.2. C.B., Norfolk, Suffolk, Cambs, Oxford, Huntingdon, Beds, Berks, Bucks, Hereford, Essex, and Middlesex.
10. London: Dr. H. I. Neilson, C.B.E., Hotel Windsor, Victoria-street, S.W. 1. C.B., Administrative County of London.
11. South-Eastern: Dr. McLeod Veitch, 22, Grosvenor-gardens, S.W. 1. C.B., Kent, Surrey, Sussex, Hants, Isle of Wight, and Channel Islands.
12. Ulster: Dr. A. E. Knight, D.S.O., M.C., Grand Central Hotel, Belfast. C.B., the Province of Ulster.
13. Ireland, South: Dr. D. A. Carruthers, 9, Upper Mount-street, Dublin. C.B., the Provinces of Connaught, Leinster, and Munster.

A PROSECUTION UNDER THE VENEREAL DISEASES ACT, 1917.

A HERBALIST was recently prosecuted at Bootle under the Venereal Diseases Act, 1917, the charge being that he had treated for reward a person suffering from venereal disease. Found guilty, the herbalist was fined £20. The deputy town clerk, prosecuting on behalf of the medical officer of health, invited the magistrates to send the defendant to prison without the option of a fine, pointing out that they had the power to impose a fine of £100 or a term of imprisonment of six months with or without hard labour. The bench, however, took the view that as the case was the first under the Act to come before them a lesser penalty would be sufficient. As the defendant had to ask for time in which to find the moderate fine it is possible that a heavier imposition would have put a term to his activities, but the magisterial decision should make him less dangerous to the public. He and others will have received a warning by which potential patients will profit. It was a typical case of its kind, the quack charged the man who chose to put himself in his hands, 5*s.* a visit, and on one occasion 7*s.* 6*d.*, and his victim paid these fees until he found himself so much worse that he was obliged to go to the Borough Hospital, where an operation was performed upon him.

It will be remembered that the Act is applied to a particular district not by the local authority but by the Government Department, which first has to satisfy itself that there is a satisfactory scheme in the area in question under which cases of venereal disease will be treated gratuitously. Of course, under the Act all advertising of alleged curative treatment or remedies for venereal disease is forbidden, but at the same time to prevent it entirely, if discreetly carried on, is difficult, and the attraction exercised by specious advertisement in such matters is well known. Again, prosecutions are instituted under twofold difficulties. In the first place, it is by no means easy to find out that a case of venereal disease is being treated by an unqualified person whose patients may be doctored by him for any other complaint without violating the law. In the second place, the victim will probably be extremely unwilling to appear in court as a witness, but his, or her, evidence can hardly be dispensed with. In the case at Bootle the man had evidently satisfied himself before he went to the hospital that he had paid money which he could ill-afford for treatment which had done him no good or actual harm, and this may have made him willing to come forward. The desire of the witness to avoid publicity was met by the prosecuting advocate handing in his name on paper, a course which the bench wisely sanctioned. In this way the prosecution was brought to a satisfactory conclusion, upon which the medical officer of health at Bootle is to be congratulated.

The obtaining of a conviction in such a case suggests the question whether the Venereal Diseases Act, 1917, may prove to be a first step towards the forbidding by law of all unqualified practice. This would be easier in some respects than the depriving of the unqualified person of one class of patients only. With regard to the condition of the provision of free treatment referred to above, without which the Venereal Diseases Act is not applied to any area, if this be regarded as a precedent which future legislation must follow, free treatment for all diseases would hardly be provided. The Insurance Acts, however, combined with the voluntary hospitals would cover most of the ground, and the unqualified person does not treat his patients for nothing, as the above case demonstrates.

FISH-MEAL AS A FOOD FOR LIVE-STOCK.

THE Board of Agriculture and Fisheries point out, in a useful circular issued last week, that there is available in this country a very material supply of fish-meal suitable as a food for all classes of live-stock. It appears that before the war the production of fish-meal had attained the dimensions of a considerable industry at the larger fishing ports of the United Kingdom. It is estimated that in 1913, out of a total production of 40,000 tons of fish-meal, 30,000 tons were exported to the continent, mainly to Germany, where it found a ready sale. Owners of live-stock in this country would do well to bear these facts in mind, for fish-meal used intelligently, has been proved to be a valuable acquisition in the food-supply, not only for pigs and poultry, but other classes of live stock. Yet so far this highly nutritious product has been little used for horses, cattle, sheep, and pigs, the total demand being still far below what the potential supply will be when the fishing industry is fully restored. It is to be hoped that a return to export trade will be avoided, and that British farmers will realise that in fish-meal they have a cheap and abundant source of nitrogenous food. The circular gives instructions how best to employ the meal, blending it with other food products.

A USEFUL MATERNITY BELT.

WE have received from the medical officer to the Archer Street Antenatal Welfare Centre a pattern of an inexpensive belt devised by the sister-superintendent to replace corsets in pregnant women. The belt has been found useful in practice and is warmly recommended by the medical officer. The patients at such centres present themselves complaining of painful varicose veins in the legs, and occasionally in the vulva, and are found on examination to be wearing tight garters and cheap corsets that press the abdomen downwards. The substitution of suspenders for garters can be effected without much argument as a rule, but the women cling obstinately to their corsets. However, when they are persuaded to try this boneless contrivance they admit that it gives at least as much support to the back and is more comfortable. This belt has been tried on a dozen patients, and in every case there has been marked improvement in the patient's condition and comfort. The belt consists of a shaped band about 10 inches in width in the front with tapering ends which pass round the body, through a slit in the side, and are fastened to the specially thickened lower edge of the belt in front by safety-pins. It is intended to be put on before rising in the morning, and is kept in place by soft elastic tubes passing under each thigh; suspenders can be attached to its lower surface. It can be obtained at 7*s.* 6*d.* in swansdown and double flannel, or at 5*s.* in unbleached calico-lined flannelette, from Miss Edith Haslam, Sister-Superintendent of the Welfare Centre, 20, Archer-street, W. 11.

COLONIAL HEALTH REPORTS.

Zanzibar.—A report on the Blue-book for 1918 states that at the last Census the population of the island of Zanzibar was 113,624 (42,991 adult males, 49,210 adult females, and 21,423 children), and that of Pemba 83,109 (28,463 adult males, 31,894 adult females, and 22,752 children): total, 196,733. The birth-rate (births registered) for the year was 19·4 per 1000, as against 21·0 per 1000 in 1917. Measures are being taken to ensure more accurate registration of births, and it is considered probable, when the registration of all births is secured, that it will be found that the births equal or even exceed the deaths, contrary to opinion based on the figures now available. The islands were free from any severe epidemic of disease except influenza, which made its appearance in October. There were 44 deaths from tuberculosis, 26 from malaria, 6 from dysentery, 3 from cerebrospinal meningitis, and 2 from blackwater fever. There was no case of plague. The systematic collection of rats in the town of Zanzibar was carried on as in past years. 15,960 were examined microscopically with negative results. Cases of influenza had occurred in British East Africa in October, following the arrival in Mombasa of two ships from Bombay on Sept. 23rd and Oct. 17th. Deaths had taken place *en voyage* on each of these ships. On Oct. 26th a circular was issued by the medical officer of health of Zanzibar requesting all local medical practitioners to notify suspicious cases. On Nov. 7th a meeting of the medical practitioners of the town was held to decide on means to be adopted to check the spread of the disease, and a circular of instructions was issued. On Oct. 28th the death of an Ithnasheri khoja from influenza symptoms and pneumonia was reported. By Nov. 15th the deaths numbered 33. On Nov. 17th the medical officer of health himself succumbed after a week's illness. On Nov. 18th all public meetings, processions, and entertainments were prohibited by a decree, schools were closed, and church services reduced to a minimum. Free dispensaries were established in the town and all stations in the island, and all headmen of villages were supplied with medicines and printed instructions in Kiswahili and Arabic for their administration. Inspectors were sent travelling throughout the island to report cases and progress of the disease. A central soup kitchen was established at the Health Office, and there was systematic distribution of soup free to all needing ready nourishment. The different Indian communities in the town were induced to open their own community hospitals, and four were opened. In addition cases were treated at Government hospitals and at the Infectious Diseases Hospital. The total number of deaths in both the islands was 1446.

NATIONAL BABY WEEK COUNCIL.

A MEETING of the National Baby Week Council was held on Oct. 21st, when the following resolutions were passed:—

That it is the duty of all interested in infant welfare to use every effort to secure that the Borough and District Councils carry out as speedily as possible adequate housing schemes.

That, in view of the continuous and conclusive evidence that the measures of liquor control in this country since 1915 have directly saved the lives of very many infants, and have been of indirect service in various ways to motherhood and infancy, it is imperative in the interests of the race that some effective control should be permanently maintained.

A NEW SURFACE MARKING.

To the Editor of THE LANCET.

SIR,—When recently examining a pensioner suffering from fractured femur I tried to ascertain the amount of shortening in the usual way, by measuring from ant. sup. spine to int. malleolus. The man then informed me that when he was a prisoner in a German hospital the surgeon measured from the umbilicus. I tried this way and obtained the same result as by the more orthodox measurement. I have never heard of this method before and it appears to have some advantages: (1) The proximal end of the tape does not require to be shifted; (2) the umbilicus is more of a fixed point than the skin over the ant. sup. spines (which themselves are not always easy to ascertain exactly). I do not know if the tilting of the pelvis would alter the correctness of this measurement. Possibly there is nothing new about it.

I am, Sir, yours faithfully,

Oct. 20th, 1919. MEDICAL REFEREE.

RADIOLOGY AND RADIUM THERAPY.

To the Editor of THE LANCET.

SIR,—Radiology has been defined as "the study of radioactivity and radio-active substances," and radiography as "photography with the Roentgen rays." "Radiology" in England apparently includes radiography, X ray therapeutics, and radium therapy; but in France "radiologie" includes radiotechnique, radiodiagnostic, and radiothérapie, and radiumlogie includes the study of radio-active substances, their physical and biological properties, and radiumthérapie. This word "radiumlogie" looks strange; and I should like to know if any English equivalent has or will be selected by experts. "Radiologie" in French seems to exclude radium.

I am, Sir, yours faithfully,

London, Oct. 25th, 1919. LOGOMACHIST.

THE CULT OF THE SCRUBBING-BRUSH.

To the Editor of THE LANCET.

SIR,—In the hospital to which I am attached there are hundreds of yards of corridors with stone or concrete floors, as there are in most hospitals and many public buildings. These are scrubbed constantly from end to end by kneeling women with pails and scrubbing-brushes. They tell me that they prefer this to the use of mops. It is cold, fatiguing work, which is not wholly desirable for women on health grounds. Can any of your readers tell me whether there is any alternative process for the purpose? Can no mechanical arrangement of rotating brushes or the like be devised which would save time and labour and obviate the necessity of continuing the present system. We can sweep our floors, mow our lawns, and mark our tennis courts by appropriate machines; can we not cleanse our stone floors by some suitable appliance? It would be a real boon if someone would take up this domestic problem. I am, Sir, yours faithfully,

Oct. 15th, 1919. A HOSPITAL PHYSICIAN.

THE LANCET, November 8, 1919.

Some Remarks
ON
MEDICAL EDUCATION.

An Address delivered before the Manchester Medical Society, Oct. 29th, 1919,

BY SIR GEORGE MAKINS, G.C.M.G.,
PRESIDENT OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND;
CONSULTING SURGEON TO ST. THOMAS'S HOSPITAL.

MR. PRESIDENT AND GENTLEMEN,—Of the many questions needing an early solution at this time of change and reconstruction, that of medical education is far from the least important. We may do well, then, to consider what changes are possible in dealing with the preliminary and intermediate subjects, and, further, whether the teaching of the final subjects as at present carried on is adapted to the production both of the ordinary practitioner and of those whose duty it is to further the advance of the science of medicine and to serve as pioneers and teachers of others.

The spirit of this address is in no sense to raise any question as to the necessity of employing a scientific method in the teaching of medicine, but its object is to lay stress upon the fact that the "Doctor," in the ordinary sense of the term, is of necessity a practitioner of "*the art of medicine.*" He is in a position to further the advance of the science by intelligent observation and logical reasoning, but the nature of his duties and the calls upon his time render it unnecessary to deal with him as a student of pure science, and hence the character of his education should correspond with the nature of the duties he will be called upon to perform.

DEVELOPMENT OF MEDICAL EDUCATION.

The development of our present system has been a gradual process of which one of the most important features, that of fitting a man for the actual practice of his profession, has been removed from the preliminary to the post-graduate stage. Under the ancient system of apprenticeship a boy acquired a knowledge of the essential qualities for successful practice, both from the humanitarian and the economic points of view, before he was compelled definitely to make a choice of his life's work. Some experience of his aptitude for the calling of a doctor was gained, not only by himself, but also by others well qualified to judge of his character, disposition, and mental capacity.

These advantages, of capital importance to the production of the medical craftsman, have had to be sacrificed to meet the requirements of the ever-increasing share taken by science in the advance of medicine. The casual knowledge acquired during the period of apprenticeship, supplemented by a course of "walking the hospitals," became gradually supplanted by the "medical school" and a more strictly defined curriculum, to which from time to time constant additions have been made, with again a curious fluctuation in the importance assigned to the earlier and later subjects included.

Fifty years ago anatomy and chemistry provided the chief sources of scientific instruction, supplemented by limited courses of physiology, botany, and perhaps comparative anatomy. The science of physiology was at that time in its infancy, and the essential facts regarding the functions of the various organs and structures of the body required but a small exercise of the mental powers of the student. The same remark may be applied to pathology as a constituent part of the curriculum.

With the growth of the latter two sciences an ever-increasing amount of time was required for the acquisition of the modicum of knowledge to be acquired by the student, until they, together with the other early subjects, began to engross the greater part of the entire medical curriculum. Meanwhile advance in the whole field of medicine, and especially the development of the so-called "specialities," rendered the time available for the acquisition of actual professional knowledge hopelessly inadequate, and as a consequence the curriculum had to be lengthened, and the share to be devoted to the study of the preliminary and intermediate subjects strictly limited. This expedient has since been rendered inoperative by the constant addition of subjects of prime importance, such as the branches of pathology, and pharmacology.

This is the position in which we find ourselves to-day—the student burdened with a task well-nigh impossible, worried with the frequency and multiform character of examinations, and yet, perhaps, less broadly acquainted with the general principles of medicine than he was after passing through a much simpler course.

THE POSITION OF MEDICINE AMONGST THE SCIENCES.

It may be well here to pause for a moment to consider what place medicine holds among the sciences and how far it is necessary that the practising medical man should be held to be a follower of medical science rather than a practitioner of the art. A suitable preface to this consideration may be found in a dictum of Professor Huxley's laid down in an address to the medical profession "On the Connexion of the Biological Sciences with Medicine"[1]:—

> "It is so difficult to think of Medicine otherwise than as something which is necessarily connected with curative treatment, that we are apt to forget that there must be, and is, such a thing as a pure Science of Medicine—a Pathology—which has no more necessary subservience to practical ends than has Zoology or Botany."

This is an undeniable statement, and I think it behoves all concerned in the education of the medical practitioner to bear it in mind in the decision how far that education should be directed towards the development of the science of medicine, and how far towards the production of the efficient practitioner of the art.

The science and the art of medicine are alike founded on the exact observation of the conditions of health and disease, both owe much of their development to the use of the experimental method, by which observations are confirmed, additional facts are obtained, and new fields of inquiry are opened up. In either the science or the art advance depends upon logical reasoning and upon conclusions drawn from the facts observed. The methods employed differ little from each other in character, but while the worker in pure science seeks for the extension of knowledge as to the causation and the process of disease, the practitioner of the art mainly strives to perfect his knowledge of such phenomena of disease and the means and methods of combating it as have already become familiar. Hence the objects of the art of medicine are more limited in scope and confined to a comparatively narrow field, while those of the science are illimitable and pursued independently of any utilitarian aim. Nevertheless, the science of medicine owes its birth to the observations of the practitioners of the art, and even under the altered conditions which obtain to-day its followers can only work satisfactorily for the advance of knowledge by maintaining an intimate collaboration with the practitioner of the art.

A survey of these considerations should exert a definite influence upon the determination of the nature of the course of education best suited to the development of the doctor upon whose efficiency the happiness and health of the nation so largely depends. It is clear that for the great bulk of the profession a path must be found by which advances in science are utilised for the perfection of the art of medicine, but it cannot be possible to elevate every medical man to the position of an apostle of pure science.

All men are not endowed with the truly scientific spirit, the power of evolving great principles is reserved to the few, and even the correct appreciation and application of those which have been laid down is not a faculty universally enjoyed. Again, the power of reasoning, the possession of initiative and invention, and the facility of developing technical skill, are qualities very unevenly distributed amongst the class of man who adopts medicine as a profession. The reasons which lead to his choice are by no means always governed by the degree of aptitude he possesses for the calling he decides to follow. To some the science of medicine appeals, some adopt medicine from the lofty motive of desiring to benefit mankind, some boys are born to succeed to a family practice, some become students of medicine because the choice coincides with that of a friend, in some business capacity is nil, in others it is the mainspring of the future career and dominates all other feelings or aspirations, lastly, in not a few instances the

---

[1] Proc. Seventh Internat. Med. Congress, 1881, vol. i., p. 91.

No. 5019.

initial choice has never been made the subject of serious thought or consideration.

The student of pure science in the past chose a career which for many was equivalent to a vow of poverty and chastity; from single-minded love of the subject and an abnegation of all thought of personal gain or advancement. Matters have perhaps changed somewhat of late in this direction, but a large proportion of the newer recruits are to departments of technical science of a purely utilitarian nature the practice of which is in no sense to be distinguished from that of an art.

Medicine, therefore, is not a calling which can be held to stand alone as to the difficulty in determining what relative share science and art must take in the moulding of its followers, and it is evident that, except in the initial stage, one and the same course of study can hardly be calculated to produce the desired end, that on the one hand of producing a student of science, or on the other a practical medical man.

Hence it appears evident that in the education of the doctor medicine itself must be allowed to take a more prominent part as an exercise of scientific thought and method, and the attempt to develop a scientific turn of mind by administering smatterings of the ancillary sciences should be abandoned.

Objectionable Features in the Existing Curriculum.

Modern tendency has been in the direction of relegating the study of the preliminary scientific subjects, chemistry, physics, and elementary biology to the secondary schools, and to define the extent of the work to be done by a syllabus which limits the scope of knowledge which will be required at the examination. Can it be maintained that such a method of teaching is that most suitable for the inculcation of broad lines of scientific principle, or does it not rather tend to the initiation of a habit of accumulating a number of details learned more or less by rote for the purpose of passing an examination

A further objectionable feature in the existing curriculum lies in the hurried acquisition of a minimum of knowledge in short successive stages, at the end of each of which the medical student starts afresh with new teachers and to him a new subject which he is apt to regard as quite unconnected with the subjects he has left behind him. Even in a university the limited scope of the knowledge demanded from the student of medicine, and the short period of time allowed for its acquisition, places him at a disadvantage when classed with others who are making a serious study of subjects such as chemistry, physics, and biology, hence courses directly adapted to meet his modest needs are commonly arranged for his convenience. Yet no one can deny the necessity of his acquaintance with the principles and many of the facts of chemistry, physics, and biology as a part of his training as a medical man.

Two difficulties therefore have to be met, one the short period of time which can be allotted to the subjects, the other the want of coördination and continuity in the instruction given, consequent on the present method. In both particulars a retrograde step appears to have been made in the sharp separation of the so-called preliminary and intermediate subjects, and in making the former rather antecedent to than ancillary to the latter.

A difficulty of exactly the same character has become more and more evident in the case of the intermediate and final subjects, and here an attempt is being made to coördinate and render them continuous by appointing teachers of applied anatomy and physiology to demonstrate practically the intimate connexion of these sciences with medicine and surgery in the wards.

It may appear presumption on the part of one who has spent his life as a practising surgeon to venture to suggest an alteration in the method of teaching the purely scientific subjects; but it must be accorded that the teaching of these subjects is but a means to the end of producing an individual whose life will be spent in the same manner with or without the addition of allotting a good half of the time to the service of a hospital and school. I would first point out that those entrusted with the direction of the education of the medical man are not justified in relegating the teaching of the preliminary subjects to the secondary schools, and washing their hands of any further responsibility. This procedure corresponds in character with the feeling of the student that the acquisition of knowledge in these subjects is but a means to the end of placing an examination behind him. There is every reason to encourage the teaching of science in secondary schools, but it is necessary at the same time to ensure that the proper relation of the subjects dealt with to those which are to follow is never lost sight of.

Suggested Regrouping of Subjects.

I would suggest that a remedy from some of these evils might be found by regrouping the subjects and returning in some degree to the simpler course laid out for the student in earlier days. With these objects in view the following changes are recommended:—

Elementary biology as a separate course to be excluded from the curriculum, and the congeries of subjects dealt with in the existing syllabus relegated to their respective positions at the commencement of the courses of anatomy, physiology, and pathology.

The first year of study to be devoted to anatomy, chemistry, and physics.

The second year to be mainly devoted to physiology, together with classes in anatomy so arranged that the subjects dealt with run concurrently with those to which they relate in the course of physiology.

The third year to be devoted to the study of pathology and pharmacology, including such elements of the course of materia medica as may be retained.

During the summer session of this year elementary instruction in clinical methods.

The fourth and fifth years to be entirely devoted to professional subjects as at present.

Examinations.—An examination in anatomy and physiology at the end of the second year.

No examination in chemistry and physics to be held by the licensing bodies, but the whole responsibility for sufficient instruction in these subjects to be thrown upon the respective teachers in the schools, who would satisfy themselves by means of class examinations.

An examination in pathology and pharmacology at the end of the third year.

The final examination in professional subjects to be held as at present after the termination of the fifth year.

The first criticism of this scheme which may be made is that it tends still further to curtail the time to be devoted to the practical study of anatomy. As an old teacher of anatomy this point has been thoroughly debated in my own mind and the objection dismissed for the following reasons. The dissecting room has of necessity long ceased to be the centre of life in a medical school which it used to be, and this depends upon (1) the need for economy in time, (2) the scarcity of anatomical material for dissection. Neither of these difficulties is likely to become less; in fact, there is unfortunately reason to apprehend that the latter is likely to become increasingly urgent. Hence the tendency is for the practical teaching of anatomy to pass still more from the dissecting bench to the class room, with, it is true, a risk in decline in delicacy in manipulation and in intimate knowledge of the finer details of structure, but with a distinct economy of time.

Advantages of the Scheme.

Against these disadvantages the following points must be considered. Allowing intimate knowledge of the anatomy of the human body to be the most important item in the earlier study of medicine, the plan proposed gives to the anatomical teacher the manifest advantage of virgin soil into which to instil instruction, while the class teaching in direct connexion with the course of physiology in the second year ensures a proper sense of the relation of the structure of the body to its functions to be grasped. Again, the use of sections of the body and of X ray photographs allow the student to gain a true sense of the relations of the various structures in the architecture of the body more readily than used to be the case.

A more weighty argument lies in the urgent necessity which exists of carrying on the knowledge gained in the anatomical department and utilising it in relation to the study of the later subjects. Its relation to the course of physiology has already been dealt with, and it is no less important that as an applied subject it should take its proper place in the courses of pathology and in all the different sections of medicine and surgery. If this be properly kept in mind and arranged for, the study of anatomy will only cease with the termination of the medical course.

I think that the relegation of the commencement of the study of physiology to the second year is justified by the assumption that it is better for the student to become first acquainted with the structure and mechanism of the human machine, and that the purely mechanical side of function is a more suitable path of entrance to the study of physiology than consideration of the more intimate problems dependent upon an appreciation of vital action.

It would be presumption on my part to make any further suggestion regarding the teaching of physiology beyond making the broad statement that it should be so designed as not only to progress together with the study of anatomy, but also in sympathy with that of the chemical laboratory, the pathological laboratory to which it is an introduction, and later that a special course should carry the application of physiological knowledge to the wards.

A Rational Sequence of Progress.

In considering the question as to how far the student in the past has benefited by the physiological course, it should be pointed out that the responsibility lies equally between the teachers of the intermediate and advanced subjects, and that while the physiologist should strive to make his course strictly appropriate to the needs of the student of medicine, the clinician himself should point out and dwell upon the light that physiology sheds upon the many problems of disease that are dealt with in the wards. The direct passage of the student from the study of anatomy and physiology to that of morbid anatomy and pathology is becoming more and more generally recognised as the rational sequence of progress in acquiring an elementary knowledge of the science of medicine, and the same may be said for the combination of pathology and pharmacology as the logical introduction to the clinical study of disease. The sequence is not only rational but also an easier one for the student, freshly primed as he is with the facts of anatomy and the methods by which the normal vital functions of the body have been investigated and determined.

The allocation of the whole of the third year to these subjects, moreover, is not so prodigal of time as may appear on first consideration, since the student becomes acquainted with a large part of the general principles of medicine, and during the summer session commences to acquire familiarity with clinical methods while the lessons of the physiological laboratory are fresh in his mind.

Readjustment of Departments.

To obtain the full advantage of this rearrangement of the preliminary and intermediate cases some readjustment would be necessary in the various departments, particularly in the case of the assistant teachers or demonstrators. The first element for success would lie in a close coördination between the heads of the several departments concerned, the teachers forming a small board to meet frequently to discuss matters connected with the course of instruction and also the progress of the individual pupils. The second would lie in establishing a closer bond of intercommunication between the demonstrators; this could best be effected by arranging that as many as possible of the demonstrators should work in more than one department. Thus anatomy and physiology, particularly with regard to histology, physiology and pathology, physiology and pharmacology, chemistry with chemical physiology and chemical pathology, while demonstrators of anatomy and physiology might take part in the courses of practical surgery, and those concerned with instruction in clinical methods. There can be no doubt that in a medical school the class of man willing and able to undertake such combined duties would be easily found, and for those who take up the duties of a demonstrator only as an educational phase of their career the appointments would be particularly valuable.

The Development of the Practitioner's Art.

I do not propose to dwell upon the work of the two clinical years, because the existing system appears to me the only remaining portion of the old curriculum calculated to evolve the type of man fitted to undertake the duties either of the consultant or the general practitioner. These two years of hospital life now furnish the sole opportunity to the student of acquiring confidence to face the responsibilities which lie before him, and to learn by precept and example what should be the attitude of the doctor towards his patient. It is during this period that the student gets to know his teacher and the teacher his pupil. It is now that the student gets an insight into professional manners, acquires the proper humanitarian feeling towards his patient, and gains his first intimate knowledge of human nature. Science alone, apart from a knowledge of human nature and the capacity to read men and sympathise with their weaknesses and difficulties, can do little towards the evolution of the successful practitioner.

I would only enter a plea for the utmost simplification in methods of diagnosis, and the need for exactitude of observation being constantly kept before the student. It should be impressed upon him that an X ray examination is to be regarded as affording corroborative evidence, and not as a means of making a diagnosis; that surgeons long before the days of bacteriology were able to draw a distinction between staphylococcic and streptococcic infections; in fact, that the natural senses properly cultivated suffice for the very great majority of the work that he will be called upon to perform. The habitual resort to special methods, and the belief that complicated apparatus is necessary in the investigation of the ordinary problems of disease, is likely to do as much towards the destruction of the art of the practitioner as the methods of science can do to help it.

THE DEMAND FOR GRADUATE TEACHING.

Up to this point we have been concerned with the undergraduate and the attempt to inculcate in him a broad acquaintance with the principles of medicine and of the practice of the art, and it is claimed that in a scheme such as has been outlined, proper compromise has been effected to ensure a sufficiently scientific basis upon which his future life's work can be built up. From this stage a great majority of the men pass from the schools, some after fulfilling the duties of the various junior posts in the hospitals, to the actual practice of their profession, and a new sphere is opened up to them in which they will need to rely on the experience and example of their senior fellow practitioners to complete their education as a doctor.

A minor proportion will desire to remain and increase their store of knowledge and experience, to become workers at the science of medicine, or eventually to take part in the education of others.

Can it be said at the present time that the best opportunities exist for this latter class, or that arrangements allow such a course of study as has been suggested to be amplified to meet their needs? It is true that a man in his own school and amongst his own teachers is in a position to follow out some line of investigation he may wish to embark in, and again certain special hospitals not directly connected with a medical school may offer him opportunities for following their practice or even to undertake a research in neurology, ophthalmology, laryngology, urology, &c. He also has the opportunity of meeting financial difficulties by undertaking the duties of a junior teaching post in his own school. Nevertheless such men have in the main to work out their own salvation, and conditions are far from favourable for easy or continuous study.

For the graduate from the provinces, from the dominions, or from abroad, except for the possibility of establishing an arrangement with an individual teacher, matters are far more difficult, and should he desire to follow up more than one subject he will probably require to visit a number of institutions, neither of which he can regard as his home.

I do not think that graduates from abroad are to be regarded merely from the point of view of men who may carry the prestige of the British school of medicine into other lands, but rather as members likely to contribute an important share towards the success of the school to which they may become attached. The same advantages obtain to the entry of students from any source in the British Empire; each introduces a different experience of men and of methods, the diffusion of which may exert a vivifying and stimulating influence on existing lines of thought and on the direction of action. Under existing circumstances these men are in a position to do little beyond "walk the hospitals," or to undertake a research in a laboratory as individuals and not as members of a school for which they may develop a lasting pride and affection. Their presence in the past in a primary school of medicine has been an actual source of embarrassment, for, if in any numbers, they necessarily either engross a large part of the attention of the teachers to the detriment of the undergraduates, or they fail to attain the object for which they have come.

A still larger class of graduate student needs to be alluded to—the practitioner who wishes to refresh, modernise, and augment his store of knowledge, and fill in the gaps in his powers which experience has made him realise; or those who wish to perfect themselves in the practice of one or more of the so-called specialties. Certain provision exists for men of this class, but even in dealing with them it has come to be realised that special arrangements are necessary. In London successful attempts have been made by the West London and the Seamen's Hospitals, both of which institutions are entirely devoted to this object. They have performed particularly valuable work for members of the services and for many practitioners, but their resources are not sufficiently large to meet the future needs. The attempt made to provide for post-graduate instruction by the polyclinic, even supported by the energy and enthusiasm of Sir Jonathan Hutchinson, a pioneer in this field, failed from the fact that the essential element for success, an attached hospital, was lacking.

Want of Success in the Past.

At the present moment, therefore, powerful incentives to the establishment of an efficient system of graduate instruction exist. A strongly awakened desire to further the advance of medicine in this country, the wish to attract the student who has been accustomed in the past to seek post-graduate teaching in the schools of the continent, and the need to meet the growing tendency of the practitioner to fit himself to practise one or more of the so-called specialties with efficiency. In the light of the assumption that this latter class may augment enormously in numbers, if the system of out-patient clinics be developed by the Ministry of Health, the wants of these men may become urgent.

Recent movements (in London) have been in the direction of trying to organise and coördinate the teaching of the large medical schools and the special hospitals, and by a common effort to supply the opportunities desired. It must, however, be allowed that this is by no means the first occasion upon which the establishment of such a scheme has been attempted, and that previous attempts have been attended by very modified success or by absolute failure.

The reasons of this want of success in the past are probably not far to seek, the main elements being the absence of a strongly organised centre, and the fact that schools adapted to the purpose of primary instruction in medicine are ill-suited to the needs of the graduate student. The combined demands of hospital practice and duties in a medical school are as much as any consulting physician or surgeon is in a position to meet. To add a separate series of lectures and classes is to throw an additional task upon an already over-burdened man.

The courses of work suitable for the instruction of undergraduates are practically useless for the man who has already obtained his degree or diploma. The most successful teachers of undergraduates, probably by reason of the dogmatic nature of the instruction given and the necessary limitation of its scope, are by no means necessarily those who can interest and enthuse the graduate, as anyone who has passed his life in a medical school is well able to appreciate. Many teachers who are able to enforce broad general principles founded upon practical experience, may lack the necessary knowledge of literature and acquaintance with the results of the most recent methods of scientific research needed by the graduate. Yet, literary erudition and extensive acquaintance with the latest methods and results of research, while not essential for a teacher whose task it is to produce an efficient practising "doctor," are necessary qualifications for the leadership of the graduate who aspires to follow the higher paths of medicine.

The Relation of Primary and Secondary Medical Schools.

In the foregoing remarks it is not intended to suggest that the highest qualifications are not advantageous in imparting the most elementary instruction. If we consider the example of the greatest teachers of the past, such as Huxley or Michael Foster, we find them expending a great part of their energy in imparting the fundamental principles to the junior students, and entrusting to their younger colleagues the detail that the pupil himself is apt to regard as the more difficult part of the subject.

The atmosphere of a primary medical school, where the main object is to impart elementary and practical instruction, is unsuitable to the acquirement of intimate acquaintance with detail, and in a considerable degree to the freedom of thought, the sceptical attitude towards received and adopted views, and the single-minded desire to advance medical science by research, which should animate the graduate who seeks to follow the higher paths of medicine. In the primary medical school the performance of the whole of the practical work in connexion with the patients in the hospital is engrossed by the undergraduate students and the house officers. In the laboratories, again, the main energies of the departments are more or less monopolised by the class teaching, and the graduate engaged in a research, except for his direct association with his chief, must work as an individual and the valuable stimulus of a close relationship with his fellows is missing.

How gladly, for instance, would many a graduate undertake the duties of the ordinary junior posts in the hospital, with the abundant opportunities afforded of observation, from which he is debarred by the simple fact that no room exists for his services. In fact, under existing conditions, except as the occupant of one of the junior teaching posts, the graduate student forms the fifth wheel of the coach in a primary medical school.

THE TRUE PRINCIPLES OF GRADUATE INSTRUCTION.

If these premises be correct it is clear that, in making provision for the many sides of graduate study which exist, adaptation of the present system will scarcely suffice; for the needs of the student of advanced medical science and those of the practitioner of medicine are of different degree and nature, and even for the latter the position of the graduate is quite distinct from that of the undergraduate.

Graduate instruction requires to be utilised for more exacting purposes than that of merely improving the capabilities of the practitioner; it must also include facilities for workers at the science of medicine engaged in experimentation and investigation, and afford opportunities for those preparing to occupy professorial chairs. It cannot be restricted to affording help to the practitioner and giving foreign visitors a glimpse of the views held and the methods in use in this country. We cannot be contented alone with a series of courses such as have been held in the past in Vienna, in which the greatest amount of information is given in the shortest possible period of time:—a system in many respects comparable to the cramming for a scholarship or other examination in the early part of a students' career. The question requires to be solved not only by establishing a system which coördinates the extensive fields of observation and sources of instruction which already exist, but also by the founding of secondary schools of medicine, one of which might form a centre for the whole country.

The former of these objects is already the subject of serious consideration and organisation, and I propose to make little further allusion to it than to express the opinion that the entire direction of this work should be under the control of the secondary medical school to be now outlined.

Staff and Equipment.

The first essential for a graduate school is the possession of a large and well-appointed hospital entirely devoted to the purpose, with sufficiently well-equipped and extensive laboratories directly attached. In speaking of laboratories no distinction should be made between these two departments of the school; for the hospital is the first line laboratory of the student of medicine—it provides him with his field of observation; here he discovers the points which require investigation; it is the ever-welling fountain that engrosses his thoughts; and its inspiration tends to keep him on the direct track and prevents him from wandering into the bye paths of abstract lines of investigation.

The greatest of the services of the great war has been to demonstrate the advantages which accrue from the presence of the worker in pure science in the field of practical medicine, an observation definitely substantiated by the experience gained in all attempts to establish laboratories for pathological research except in direct connexion with a working hospital.

Speaking in the presence of a number of members of a large and important University in the provinces, where medical education is already centralised, I am aware that some of the further remarks I am about to make may not be strictly suitable; but while the arrangements which may have to be made may not be of a similar nature in consequence of the better organisation and equipment of the departments for the teaching of the preliminary and intermediate subjects, yet the principle suggested, that graduate instruction needs special provision to be made for it quite independent of undergraduate instruction, is equally applicable.

Out-patient Medical Clinics.

It is also, I believe, certain that the need for post-graduate instruction throughout the country is likely to become a much more general and urgent matter should the system of out-patient medical clinics be set up in the near future by the Ministry of Health. London, with its many medical schools under only nominal University control, and the numerous hospitals, laboratories, and museums already in existence, offers a more complex question. I believe, however, it is in some respects a more easy one of solution, in consequence of the greater number of graduates likely to avail themselves of any advantages offered and the more numerous teachers who could be called upon.

The staff of the school should be of the professorial type, but I think it would be neither practical nor advantageous for it to be composed entirely by permanent whole-time professors. In the laboratories this would probably be necessary, but in the case of the clinical work any difficulty might be surmounted by adopting the system followed by the Assistance Publique of Paris in appointing physicians and surgeons to the individual hospitals for a limited period. Under such a system officers from the various schools in London might be seconded, say for a period of five years, to serve as professors in the secondary school. The method would possess the advantages of regularly infusing new blood into the graduate school, of giving a valuable experience to the teachers of undergraduates, and in establishing a common bond of sympathy in mode of thought amongst the several schools. It might do much to raise the general standard of education, while at the same time it would not disturb the time-honoured and successful method of clinical teaching now in vogue.

Not a few of us must, I think, have been interested in the views put forward by Sir James Mackenzie concerning the difficulties which attend the teacher whose life is passed in consulting practice in his limited opportunity of observing the beginnings of disease or of tracing the continuous progress of the disease in the individual when it has once become established. Mackenzie argues that the general practitioner is the only man suitably placed to elucidate the problems of the commencement of disease and their progress towards their eventual termination. Hence he asks that the general practitioner should take a more active and prominent part in the education of the student. I do not think that this proposition affects the question of primary medical education. In the short period at the disposal of the undergraduate it is enough for him to master the fundamental facts regarding the normal structure and functions of the body, the effects upon them of disease, and the characters of disease when developed. The first steps in his education must necessarily consist of the investigation and appreciation of the strongly marked types, and the extension of his knowledge by following the gradually weakening links which stretch backward to the normal must be the study of the man who has at least reached the status of a graduate. In the secondary school, then, the accomplished general practitioner might find a proper place.

Observation and Research.

The hospital would furnish a certain number of graduates with opportunities for observation and research, and also afford facilities for practical work and technical development of the highest class. The graduates would take the place of the junior officers in a hospital attached to a primary medical school, acting as assistants to the professors. These advantages, however, could be enjoyed by only a limited number, and the occupants would need to be selected with care and due consideration of the aims they had in view.

The further field of action is identical in intention with the efforts that are at present being made for the coordination of existing sources of instruction, and making them available for the practitioner who desires to go through a limited course for purely utilitarian purposes. It is obvious that, if the scheme of a central secondary school should find favour, the associations who have the work of coördination in hand are the proper agency through which the entire scheme could be completed.

THE CENTRAL GRADUATE SCHOOL OF MEDICINE.

This being the case, the school would be the centre to which all graduates of either class would gravitate, and from it the men would be allocated in whatever special direction and to whatever special teacher they might desire. Thus the whole wealth of material possessed by the hospitals, infirmaries, laboratories, and museums of the metropolis would acquire a bond of union, and a vast amount of opportunity, now so cursorily utilised, might be opened up to any graduate student.

The graduate provided with such a central institution would no longer be a wanderer tilling a solitary furrow, for his school would not only provide a vast field of action, but would also bring him into contact with workers from every school and land—an association which could hardly fail to widen his horizon and extend his experience not only of methods but of men.

The advantages to be gained, moreover, would not be confined to the student alone; the teacher also would benefit in no small degree from contact with the different class of pupil to whom his duty would consist in stimulating the acquisition of knowledge of the highest grade and arousing the faculty of research. Again, the existence of a school of medicine with this scope and these ends in view could not fail to react inspiringly upon the primary medical schools around it. It would tend still further to the elimination of dogma and empiricism from the practice of medicine, and to heighten the standard of education throughout.

Some Considerations
OF
PREVENTABLE DISEASE.

Abstract of Presidential Address Delivered before the Society of Tropical Medicine and Hygiene on Friday, Oct. 17th.

BY W. J. SIMPSON, M.D. ABERD., F.R.C.P. LOND., C.M.G.,
PROFESSOR OF HYGIENE AND PUBLIC HEALTH IN KING'S COLLEGE, UNIVERSITY OF LONDON.

Professor Simpson began by thanking the society for conferring the honour upon him of electing him as their President in succession to such eminent epidemiologists as Manson, Ronald Ross, Bruce, and Leishman, going on to point out that the chronicles of the knowledge recently acquired in tropical medicine and hygiene would involve, for the most part, a summary of the work done by Fellows of the Society of Tropical Medicine and Hygiene. As ample evidence of the great bearing which exact knowledge, the outcome of scientific research, plays in the hands of sanitary administration, he mentioned the work done by Ross at Ismalia, in the Mauritius, and Greece, by Malcolm Watson in the Malay States, and by Gorgas in Havana and at the Panama Canal; and he pointed out that these results competed with the earlier results of the bacteriological or botanical era, when the ætiology of infectious disease was first found to involve man's relationship with the lower animals, as well as with the vegetable world. He continued:

Our ancestors attributed outbreaks of disease to an epidemic constitution of the air and its influence on man's economy. That epidemic constitution has still to be studied. It has been lost sight of in recent years, though earlier it engaged the attention of philosophers who ascribed the origin and exceptional spread of epidemics to unusual meteorological conditions which caused floods, drought, and famine. Who shall prove that they were wrong? What effect have floods, drought, and famine on the parasites of disease or on the various animal and vegetable micro-organisms that teem in the soil? Do the parasites gain virulence and increased powers of diffusion in the soil or in the diseased vegetable world subjected to these conditions, or in the herbivorous animals that subsist on it, or in the vermin and insects that feed on the diseased animals and plants, or in man who, when famished, is glad to eat any vegetable, seed, grass, fruit, or meat, even if diseased.

Apart from the virulence and diffusiveness gained by the sojourn of the microbe in one or several of these media, what are the factors which combine to form an endemic area for a predominant microbe? The geological nature of the soil often limits the geographical distribution and kind of animals living underground, and probably the kind of insects and micro-organisms. Is it in this direction that the explanation may be found concerning the endemic homes of cholera, plague, influenza, yellow fever, and cerebro-spinal disease. Was Cunningham, of Calcutta, on the right track when investigating the nature and composition of the soil and its gaseous, organic, and inorganic contents? Is it the interaction of unusual meteorological conditions on the local fauna and flora of certain limited areas, that prepares the micro-organisms for their migration beyond their endemic homes—not by the air, as Bryden and others thought of cholera, but by making use of man, the lower animals and insects, and sometimes inanimate objects, as carriers. As regards sudden predominance of a particular microbe, I remember once in Calcutta a pond or tank which contained in its water the ordinary microbes found in others. Suddenly it developed only one kind, the remainder having disappeared. What produced it I was unable at the time to determine. Was it some slight alteration in the organic or inorganic constituents in the water that favoured the growth of a single organism at the expense of the other? It appeared to me if this could occur with one kind of microbe it might do so with another, such as the cholera bacillus, and if in the water, why not in the soil, where on the surface of earth drains the cholera bacillus was found? There must be explanation for all these phenomena if we could only lift the veil.

Investigations Needed in the Endemic Centres.

It is necessary to know more about the endemic areas of disease; they should be sought out and classified. It is there that the natural history of the disease in man can best be studied in relation to the geology, fauna, flora, and other conditions existing in the locality, and it is there that the conditions have to be investigated to give us a clue to the factors which change a sporadic or endemic non-spreading or self-limiting disease into a diffusive and wide-spreading epidemic or pandemic. This knowledge will also allow us to adopt successful measures at the fountain-head.

Although much has been learnt regarding preventable disease there are still vast problems awaiting solution by research in preventive medicine. We require to know more about plague, cholera, small-pox, leprosy, influenza, cerebrospinal fever, trypanosomiases, yellow fever, blackwater fever, and many other tropical diseases and their relation to man's environment, not only in his home but also in Nature. Where these diseases most commonly prevail research laboratories are necessary, well equipped with all the modern resources which bacteriology, protozoology, parasitology, biochemistry, and geology place at our disposal. The investigations need to be on a comprehensive scale and not, as I found in Uganda in 1913, where Miss Robertson and Dr. Fiske were the only representatives investigating trypanosomiases in a part of the country that in ten years had been denuded of nearly a quarter of a million of its inhabitants from this disease and where rinderpest was attacking the cattle.

The Dissemination of Disease in Peace and War.

Professor Simpson under this heading pointed our that endemic disease has now acquired greater diffusing qualities because of the ample means for its transport and dissemination, supplied by the movements of commerce, labour, and emigration, while advancing and retreating armies, with their accompanying refugees, favour the spread in times of war. At these times, also, deficiency of food accentuates the conditions, and the longer the war lasts, and the larger its scale, the greater the effects must be, so that the trials of the five years just passed would possibly leave an aftermath of great epidemics He asked if it were a mere coincidence that the pandemic of influenza of the twentieth century, like that of the fourteenth century, was followed by widely spread manifestations of mental disorder, hysteria, and unbalanced judgment, and quoted Clouston as saying in respect of the milder epidemic of 1890, that it had left the nervous and mental tone of Europe and America lower by many degrees. After reminding his hearers that cholera and plague are now epidemic in Russia, that typhus and relapsing fever are spreading in Poland, and that small-pox is pervading the continent, he continued:—

War and epidemics bring out the weak spots in our armour of defence against disease, but their after-effect is generally to set men's minds actively in train to devise means for future protection and ideas and schemes that have for many years only created a languid interest suddenly get energised into activity and become a reality.

This is seen to-day in the creation of a Ministry of Health in this country, which has been advocated for 50 years but which the war and epidemic of influenza has quickly brought into being. It is seen also in the determination to grapple with the housing question and the problem of the C3 men, women, and children in the population.

It was the Boer War, with its enormous number of dysentery and typhoid cases, that led to the reinstatement of the sanitary officer in the army. There had been a reactionary movement for some ten years before the Boer War, gradually undoing the efficiency of the organisation of sanitary officers which had been the outcome of the Sanitary Commission reporting on the Crimean War. For nearly that period no sanitary officer was appointed at Aldershot, a position formerly held by a deputy sanitary officer. The first fruits of this policy were the large numbers of officers and men who lost their lives from preventable disease in the Soudan Campaign. The navy led the way in protecting her fleets against disease in the tropics. During the wars with France and Spain in 1778 and following years the West Indies was the principal seat of naval operations and much greater fleets were then employed in that quarter of the world than in any former period. There was much sickness in the fleet, varying greatly in different ships and consisting of dysentery, scurvy, and fever. Dr. Blane (afterwards Sir Gilbert Blane), when physician to the fleet under Lord Rodney, had monthly returns sent to the headquarters of the fleet recording the sickness and deaths in each ship, and anything else that related to the health of the ship. He found that the average mortality in 12 months was 1 in 7 of the seamen, and on an average 1 man in 15 was on the sick list. In 1781 he addressed a memorial to the Board of Admiralty pointing out the excessive mortality and expressing his conviction that if certain proposals which he suggested were carried out, more than two-thirds of the seamen who died in that climate would be saved.

These recommendations were similar to those proposed by Dr. James Lind, a naval surgeon in 1757, in his essay on the most effectual means of preserving the health of seamen in the Royal Navy, containing cautions necessary for those who reside or visit unhealthy situations, &c. Sir Gilbert Blane early recognised the fact that little improvement could be effected in the health of the fleet when left to the initiative of individual officers, and that sanitary rules and regulations, based on scientific knowledge, must be issued by the Admiralty for them to be carried out systematically and efficiently. His recommendations were first put into practice in the West India Fleet with excellent results, and later they were extended to the whole of the navy. The improvement of the health of the navy, and the reduction in its death-rate contributed to the victories in the Revolutionary War. Sir Gilbert states at a later period that "if some new means of preserving the health and lives of seamen had not been discovered and put into practice, the whole stock of them must have been expended before the conclusion of the Revolutionary War—that is, between the years 1793–1815." The improvement has continued notwithstanding the changes in the warships, and instead of the mortality being 1 in 7 it is now about 1 in 310. We know what the navy has done in the great war of 1914–18.

We are apt to forget the lessons of the past. For instance, in the Mesopotamian campaign there would have been no scurvy if the history of the navy in relation to that disease and its abolition in the latter part of the eighteenth century had been borne in mind and acted upon. It should not have required the valuable and admirable work of the Lister Institute to resuscitate the necessity of the supply of vitamines in the foodstuffs supplied to the army. One is apt to forget that the use of cinchona bark as a prophylactic goes back to at least the early part of the eighteenth century. Dr. James Lind, the pioneer of sanitary reforms in the navy, more than 160 years ago mentions that the continuous use of bark is an effective preservative against a relapse of malarial fever, and that "on the coast of Guinea the factories were furnished with proper quantities of the bark by the late African Company, which was taken by way of precaution during the rainy and sickly season, and it was attended by remarkable success with such as could be brought to a regular course of life and refrain from eating such quantities of animal food as they were wont to do in England, which yearly destroyed many on that Coast" (Guinea).

One sometimes wonders whether the many relapses of the soldiers from Salonika and other seats of war were due to our preference for the alkaloids of quinine, for which there has been an unprecedented demand, and some of which may have in their preparation lost the complete qualities of the cinchona bark, which itself varies in quality. Are we quite sure that the procedure which destroys the vitamines of canned food may not affect some of the properties of the alkaloids?

The Crimean War, with its tragedies owing to want of organisation, sanitary and otherwise, and the success which followed the work of the Sanitary Commission, of which Miss Nightingale was an important member, led to important sanitary reforms in the army at home, and later to a Royal Commission to inquire into the health of the army in India, which disclosed a deplorable condition of things and a death-rate of 69 per 1000, although in the later years of the Honourable East India Company, the conditions in regard to the health and comfort of the soldier had been materially improved and the mortality had been reduced from 80 to 69. In consequence of this report, remedial measures were at once applied to the army in India and were extended to the towns and districts adjacent to the cantonments.

THE BEGINNINGS AND PROGRESS OF SANITARY ORGANISATION IN INDIA.

The Royal Sanitary Commission were convinced that if sanitary measures were applied to India under an organised public health service the health of the people of India would in time reach a high standard. It was recommended that such an organisation should be created both in urban and rural areas in India. In 1864 a sanitary commissioner was appointed for each province in India for the purpose of improving the sanitary conditions of the people, and the civil surgeon, who is the Indian Army surgeon, was empowered to advise the civil commissioner of the district on sanitary questions, and later to act as sanitary adviser to municipalities newly formed for the purposes of local self-government. Gaols were also placed under medical supervision, and special health officers were appointed for Calcutta, Bombay, and Madras. Later a very important addition was made by the establishment of central boards of health in each province having for their function the drawing up of special schemes of water-supply and drainage. The work which the organisation here described has been able to accomplish is very creditable, considering that a province in India is sometimes about the size of France, and a civil surgeon's district in which he practises is often as large as a third of Scotland. Vaccination was at first the chief concern; then followed the introduction of conservancy, drainage, and water-supply into some of the more important towns, the registration of deaths, the compilation of statistics, and the regulation of large fairs and pilgrimages which experience showed to be always dangerous centres of disease.

The effect of these and subsequent health measures has been to reduce the death-rate of British troops from 69 to 4·59, of Indian troops from 20 to 6·78, and of prisoners from 82·7 to 30·8 per 1000. Notwithstanding these successes, it is obvious that an organisation which consists of a sanitary commissioner, sanitary engineer, and sanitary board for each province, even with the assistance of the civil surgeons, is quite unequal to the task of dealing with the sanitary administration of these enormous populations, both rural and urban. It must be remembered that civil surgeons of districts, or, as they are called in the Madras Presidency, "district medical and sanitary officers," who ordinarily during peace are officers lent temporarily by the Military Department to the local governments, are expected to attend to the medico-legal work of the district, the medical necessities of civil officials, perform the executive medical and surgical work of all local hospitals and institutions, including gaols, and hold administrative and inspecting charge of numerous hospitals and dispensaries scattered throughout their districts. ...... It is certain that the organisation was quite incapable of dealing with an epidemic even though a sanitary commissioner was appointed with the Government of India. The defenceless state of the country invited attack from any epidemic disease indigenous or imported into the country. It was these considerations that induced me to bring forward in 1894, at the Indian Medical Congress, a scheme for the special sanitary service for the civil population of India. The most advanced sanitary administration at that time was that presided over by Colonel W. G. King, C.I.E., as Sanitary Commissioner of the Madras Presidency, in which there were district sanitary officer and assistants. Here, in 1881, on the recommendation of the then sanitary commissioner (Cornish) there was attached to each district medical and sanitary officer, an assistant surgeon capable of taking charge of the headquarters station during the absence of that officer on sanitary duty in his district. To this then existing staff, in 1893, Colonel King advised the compulsory addition of technically trained sanitary inspectors qualified by examination. The scheme was sanctioned in 1894, and the men now number over 600. But his efforts to secure permanent appointments for these beyond municipal areas, although approved by the Madras Government and successful in some districts, was largely inhibited by local authorities. The surplus men now form a reserve for epidemic duties on the old principle of locking the door after the horse is stolen, and may find, after further technical training, ad hoc appointments as deputy inspectors of vaccination. By later elaboration of staff (1904) there was secured sanction by him from that Government for a second assistant surgeon attached to each district medical and sanitary officer intended solely for sanitary duties in the district, as well as a public works overseer capable of making plans and estimates to aid the district medical and sanitary officer in formulating recommendations for minor sanitary and anti-malarial works. Here again there has been some inhibition by local authorities of districts. So that even in this comparatively advanced area of India there is failure to reach the reasonable ideal suggested by me at the congress of 1894—namely, that a specially trained and separate sanitary service should be arranged for, quite independent of physicians, in connexion with the hospital or of those in private practice; that there should be schools of hygiene and preventive medicine, and also of sanitary engineering, and that diplomas should be granted to those who were trained in these schools, and fourthly, that laboratories for research should be established in various parts of India. It was approved by the Government of India in 1895. Colonel King, in a remarkably able and statesmanlike address before the East India Association in July, 1914, points out that, notwithstanding the advice of the Royal Commission conveyed in the report of 1863, the urging of provincial sanitary commissions, successive sanitary commissioners with local governments, the first Indian Medical Congress, and the Royal College of Physicians of London, the proposed organised efforts of 1914 were confined to municipalities which only represented the provision of a sanitary service for the protection of 10 per cent. of the population. It may be asked, what is to become of the other 90 per cent.? As shown by Colonel King, the death-rate in India varies in 64 towns from 30 to 70 per mille and the expectation of the young Indian at birth is 23½ years less than that of an English child. He mentions that there are annually one million deaths from malaria and over a quarter of a million deaths from cholera, that small-pox destroys thousands of lives annually, and that there were in the 16 years since plague began in 1896 some 8 million deaths from that disease. This number has since increased to 10 millions. No one can be satisfied with this condition of affairs. The scheme is to have 25 sanitary commissioners, 12 deputy sanitary commissioners, 34 first-class medical officers of health, and 104 second-class medical officers of health for a country which, excluding Russia, is the size of Europe and has a population under direct British rule of over 244 millions and a total population of over 315 millions. The area of British India is 1,097,901 square miles, against 58,308 of England and Wales. Compare these figures with England and Wales, which has 1700 local medical officers of health, 40 county medical officers, and 26 medical inspectors, besides the inspectors attached to the Board of Education and the Home Office, and which now has an additional staff under the new

Ministry of Health. The war cut short even this Liliputian scheme of the Indian Government, and the last announcement is that it will be put into operation as soon as possible. One cannot recognise this as an adequate service for India, and I am convinced that until a proper sanitary service for India is formed, which would be a splendid outlet for young Indian medical men and women, there will be no real progress and India will remain defenceless against epidemics. The root of the matter is there is no Minister of Health in India whose duty is concerned solely with sanitation and the health of the population. Public health should not be as it is in India, a by-wash of the education department in which it is placed as a sort of miscellaneous item along with archæology, and in which the money goes to education and public health is starved and in which the topsy turvy doctrine is held that the people must be educated before they can be protected against disease. No country has waited until its people are educated before it introduced sanitary reforms, and least of all England. Major Justice, the Sanitary Commissioner with the Government of Madras, in his official report for 1911 states that "to wait till the people are educated will be to indefinitely postpone the evil," and Dr. Turner, the late health officer of Bombay, remarks that the Millennium will have arrived when the people voluntarily carry out sanitary matters. The only education in sanitary matters the people understand is sanitary laws and by-laws, and this is the form education should take. As quoted by Colonel King, the Education Minister, thus defines the position: "Our first and signal objective is to educate the people as to the value and the necessity of measures for protecting them in their homes and their lives and those dearest to them from the ravages of plague and malaria, cholera, and other communicable diseases, and all the miseries which follow in their train. Fortified by the results of research in India, we can leave the future with confidence to preventive medicine and preventive sanitation." When a question was asked in the Bengal Legislative Council what this implied, the reply was that protected water-supplies were to be arranged for the people *when they have been taught to appreciate them.* It is difficult to have any patience with such an attitude of mind, and it is no matter of surprise that with such views the troops in Mesopotamia were not furnished with the ordinary requisites and organisation to protect them from the ravages of disease and all the miseries which followed in their train. They were left to be educated. Research can be made an excuse for doing nothing. My views concerning this in regard to India were expressed some years ago in the following terms: "We hear a good deal about research, and research is much cheaper than the *application* of sanitary matters." No one has a greater respect for research than I have. A few years ago I urged that sanitary research and administration should go hand in hand. That is the real position. At the present time a good deal of research has been done, very valuable in its way, and, no doubt, it will be fruitful of results if applied; but I consider that the application of sanitary measures on the basis of what we already know is the urgent need of India. I will give you an illustration of this. Supposing the Government of India had been asked to construct the Panama Canal, the kind of proceeding they would have introduced with the present regime would have been to send out men to make researches—they would not have based their actions on the discoveries already known of Ross and Findlay, as the Americans have done. These investigators would have found that the mosquitoes there were a little different from what they were in other places where malaria and yellow-fever existed, and under the circumstances the recommendations would have been made to postpone the matter until a further discovery was made. I am convinced that sanitation will not receive adequate attention in India until there is a Minister of Health whose duty is concerned solely with sanitation and the health of the population. Then will the organisation required for urban and rural sanitation be formed and India will at last be able to throw off the incubus of plague and cholera and protect itself against other preventable diseases.

The Egyptian campaign led to the formation of a civil sanitary service in Egypt, which did some excellent work but which is, as shown by the Commission of which Colonel Balfour was chairman, inadequate for the public health of the country. The reorganisation which this Commission recommends covers what a public health service should be under a Minister of Health. It is a most complete scheme, and one worthy to be followed in other countries, modified, of course, according to local requirements. I am glad to see that the United States of South Africa are to have a Minister of Public Health and a General Public Health Act. It is, indeed, a great advance.

A BROADER VIEW OF TROPICAL HYGIENE NEEDED.

AN IMPERIAL HEALTH MUSEUM.

Professor Simpson then discussed the housing question in our foreign and tropical possessions, claiming that our outlook in regard to native populations must be wider and more sympathetic from a health point of view than it hitherto has been, and he concluded an address, which was a powerful plea for the realisation of our material responsibilities in the matter of sanitary science, in the following words:—

We have an illustration in West Africa, though its sanitary progress has been set back temporarily by the war, that with even a small but well-trained sanitary service supported by the Local Government and encouraged by the Colonial Office with the advice of the Medical and Sanitary Committee there can be a great change effected in a comparatively short time. It is ten years since this sanitary service was created. In that time water-supplies have been and were being introduced, drainage was being attended to, breeding places of mosquitoes were destroyed, extensive marshes were filled up, building laws were enacted, town planning was engaging the attention of the authorities, laboratories were established; a special research laboratory was built in Nigeria and has been carrying out valuable investigations; a Commission on Yellow Fever has been a means of having the circumstances connected with outbreaks investigated and the disease promptly dealt with. The result has been a healthier life for the Europeans and a greater freedom from disease for the African. There is much more work to be done, and I hope that there will soon be a college of medicine and hygiene established where the African can be educated in both these subjects, and that he will then be able to assist in the work of sanitation and in the medical treatment of his fellow countryman. Much of this success is due to the active and harmonious coöperation of the officials of the Colonial Office with the expert members of the medical and sanitary committee, whose president has been for these ten years Sir Herbert Read, one of the Under Secretaries of State for the Colonies, and the interest of the different Secretaries of State in the work. The function of the medical and sanitary committee has been extended to East Africa. I should like to see it extended to the whole of the Crown colonies with suitable additions to its number of members, so that it might act as a Ministry of Health for them. The East and West African colonies, which before the war were more than three-quarters the size of British India and which, by the additions since the war, are larger than that dependency, are not the only Crown colonies that need supervision and advice in health matters.

Following on this I should like to see a great colonial medical and sanitary service, the members of which well trained in tropical diseases and their prevention in our tropical schools should be available after good service and experience in one colony for transfer to others if required. Associated with this service should be a local service of native medical men and sanitary inspectors who have been trained locally and whose knowledge of their compatriots would be of great assistance to the hospital physician, sanitary officer, and Government and their health administration and their campaign against disease.

I should like to see a league of the Local Governments of the Crown colonies vying with one another to improve the conditions of life of the inhabitants under their charge.

When His Majesty King Edward VII. died I wrote to the Lord Mayor of London, who was chairman of a committee to consider a suitable memorial to commemorate his reign. I pointed out that His Majesty had always taken an active interest in the health of his people at home and in the tropics. When Prince of Wales he had been a member of the Royal Commission on the Housing of the Working Classes. He had interested himself in the Commission to India to inquire into leprosy, and he had been President of the International Congress of Hygiene held in London in 1891.

I venture to suggest an Imperial Health Institute for research with an Empire Health Museum, on a similar or larger scale than that of the British Museum or the Victoria and Albert Museum. My suggestion was not accepted at the time. Now that there will be an Empire War Memorial worthy of the far-reaching victory which has secured safety for us all, I would suggest that in addition to the War Memorial there should be a Peace Memorial in the form of an Empire Health Museum in London in every respect to celebrate the means by which we can triumph over preventable diseases, which, in the long run, is far more destructive to human life and to health than even the greatest war.

The Empire Health Museum would contain models, plans, and other arrangements for illustrating the causes of preventable diseases, the conditions under which they spread and the methods by which they can be prevented; the diseases communicated by animals, insects, and vermin; the diseases of occupations liable to occur in different industries, manufactures, trades, foundries, workshops, and mines, and the known methods of prevention. Side by side would be be healthy houses, cottages, flats, and huts, contrasted with those that are unhealthy, both at home and in other parts of the Empire; slums and garden cities, town planning and insanitary areas; schools, healthy and unhealthy; foods and their adulterations; alcohol and tobacco and their effects in excess; infant and child welfare; mothercraft; water-supplies; clean and pure milk as contrasted with the dirty and adulterated article, &c. There would be tropical, industrial, domestic, personal, housing, urban and rural, and preventable diseases sections. The museum would be open to all. The stonemason, the pottery and earthenware worker, the wool-sorter, the workers in hides and horsehair and flax, the dairyman, the schoolmaster, the housewife, the painter, the miner, the brass-founder, the electrician, and the worker in any industry or trade should be able to go and see the risks, if any, to which he or she may be subjected, and the means by which they may be prevented. There should be sections to represent not only the British Isles but also Canada, Australia, South Africa, India, Burma, and our Crown Colonies and Protectorates. Lectures and demonstrations illustrated by models and the kinematograph should be given, and there should be attached a bureau of information.

The museum would be a standing reminder to our administrators that next to the safety of the Empire is the health of the people.

NOTES ON AMŒBIC DYSENTERY

FROM THE POINT OF VIEW OF MICROSCOPICAL DIAGNOSIS.

By H. A. HAIG, M.B., B.S. LOND., M.R.C.S.

IN the successful examination of specimens of stools sent to the laboratory for report upon presence of protozoa it is necessary (*a*) for the specimen to be quite fresh; (*b*) that a glass receptacle be used in preference to a metal one; (*c*) that no antiseptic should have been added. If by any chance the specimen cannot be examined at once it should be placed in an ice-incubator, as it has been shown that degenerative changes take place rapidly in amœbæ, &c., at ordinary room temperature or at 37° C. incubator temperature, owing partly to bacterial invasion and partly to intrinsic autolytic changes. A fresh preparation should always be examined in the first instance and will usually establish the diagnosis, but if any doubt exists as to identity of species (see notes on staining methods at end) an iodine preparation—e.g., Weigert's solution: iodine 1 g., Potassium iodide 2 g., distilled water 100 c.cm.—or a fixed and stained smear should be made. Where amœbæ are encysted diagnosis becomes at times a matter of no small difficulty. The naked-eye character of stools is not an entirely reliable clue to the type of dysentery, and in all cases microscopical examination should be carried out, since both amœbic and bacillary dysentery may co-exist. Pus from amœbic abscesses in the liver or elsewhere is usually examined fresh, but in the first pus removed it is quite common to miss amœbæ; although a few days later the discharge from the drainage-tube may show them, unless emetine has been injected into the abscess cavity or given subcutaneously.

Encysted Amœbæ.

For the examination for encysted amœbæ small portions of the stool can be emulsified in (*a*) normal saline; (*b*) iodine solution. As a rule the nuclei of *Entamœba histolytica* cysts do not show up in a fresh preparation, but iodine renders them visible. Cysts of *E. coli* need no iodine for demonstration of nuclei, although this reagent brings them out more clearly. Other protozoa, such as *Lamblia* or *Trichomonas* when motile, are best examined fresh, but encysted *Lamblia* show up well when treated with iodine, the nuclei and division between the two parasites being rendered apparent. According to Wenyon, cysts suspected to be those of *E. histolytica* should always be measured with the micrometer eyepiece, as a very constant figure obtains (10μ–14μ) in these cysts.

After being in an ice-incubator for some time motile amœbæ contract and become non-motile temporarily, but motility can often be restored by placing the specimen for a short time in the 37° C. incubator, or in warm climates by simply leaving it at laboratory temperature for an hour or so. Gentle warming of the slide upon which the fresh preparation has been made is sometimes sufficient to restore motility.

Microscopical Diagnosis of Amœbic Dysentery.

The microscopical diagnosis of amœbic dysentery from a fresh preparation presents few difficulties as a rule, but confusion may arise when the same stool contains both *E. histolytica* and *E. coli.* Moreover, in mixed cases of amœbic and bacillary types *E. histolytica* may be so overshadowed by the presence of large macrophages and cellular exudate of various types of cell that it may be missed altogether, the case being reported upon as a pure bacillary infection. Again, a small type of *E. histolytica* (so-called *E. minuta*) is occasionally met with, more especially in early cases, accompanied by the presence of encysted forms, and this type is sometimes missed. In addition a first specimen may be almost or quite negative, whereas later specimens may show relatively enormous numbers of amœbæ. It is also possible for *E. histolytica* (motile and cysts), *E. coli* (motile and cysts), *Lamblia*, and *Trichomonas* to be present in the same specimen, possibly in symbiosis, where *E. histolytica* has been found, but the stools still retain their muco-sanguineous or muco-purulent character under emetine. Bacteriological search for dysenteric bacilli must be carried out also in any case with a high temperature and marked constitutional symptoms which cannot be referred to other causes (liver abscess, blood infection, &c.).

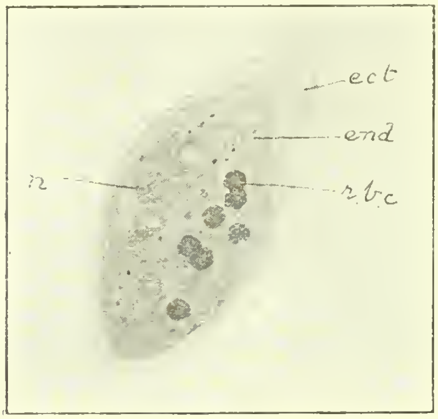
Differential Characteristics: E. histolytica, *Motile and Encysted.*

Motile forms.—*E. histolytica* occurs in fresh preparations as an actively amœboid mass of protoplasm which has: (1) a clear refractile ectoplasm; (2) a somewhat granular and vacuolated endoplasm containing a nucleus, at times one or more erythrocytes, and a few food-granules. Sometimes a semi-digested erythrocyte may be seen surrounded by a "digestive vacuole." The chromatin of the nucleus is scanty and lies next the nuclear membrane in the form of several rod-like or angular masses, and a nucleolus or plasmosome is usually present. The nucleus is not easy to make out unless dark-ground illumination be used, but the vacuoles are sometimes very prominent and numerous (see Figs. 1 and 6). The pseudopodia are pushed out from the ectoplasm very rapidly, the endoplasm flowing into them at once; as a rule the protrusions appear more on that side towards which the amœba is moving, but at times they occur irregularly and at several points at once. Entamœbæ, usually in groups but sometimes scattered, are often seen in a mass of mucus, containing also red cells. The presence of erythrocytes engulfed by the amœba is diagnostic, but the latter should not be confused with large macrophages (see Fig. 5) with red cells sticking to them. Such macrophages rarely, if ever, show motility, although whilst still in the intestines or submucosa they must be endowed with a certain degree thereof.

Fixed and stained preparations of *E. histolytica* (see note infra) are necessary for a clear view of the details of structure, but artefacts appear however carefully fixation has been carried out. Such preparations are, however, useful for reference, especially with regard to the chromatin content of the nucleus.

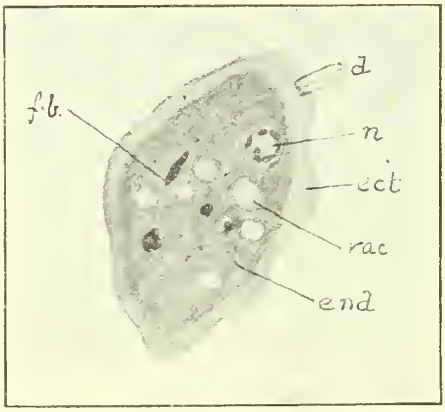
MICROSCOPICAL ILLUSTRATIONS OF ENTAMŒBA HISTOLYTICA AND ENTAMŒBA COLI.

FIG. 1.



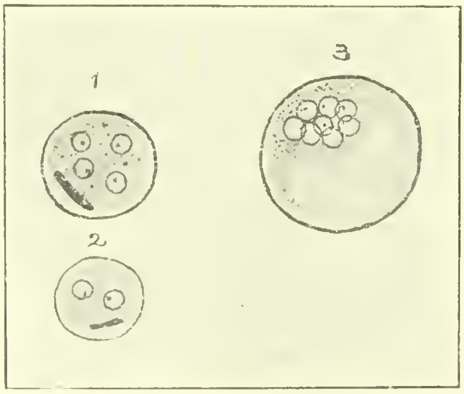
E. histolytica, motile, showing *ect*, Ectoplasm; *end*, Endoplasm; *n*, Nucleus; *r.b.c.*, Engulfed red corpuscles.

FIG. 2.



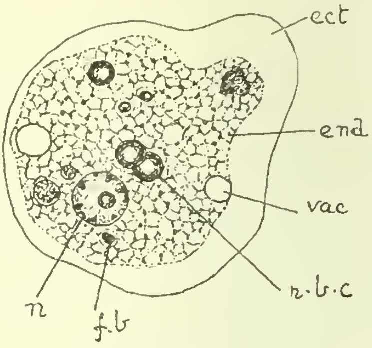
E. coli, showing *ect*, Ectoplasm; *end*, Endoplasm; *vac*, Vacuoles; *n*, Nucleus; *d*, A diatom; *f.b*, Engulfed foreign bodies.

FIG. 4.



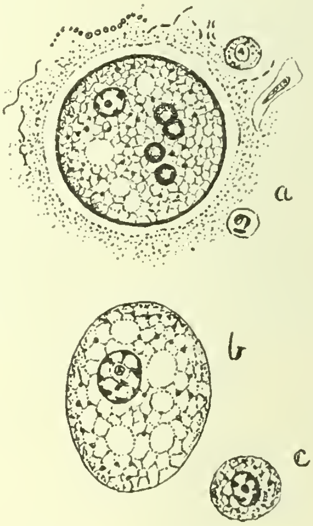
Encysted amœbæ: (1) Cyst of *E. histolytica* with four nuclei. (2) Cyst of *E. histolytica* with two nuclei. (Note iodophil body in both.) (3) Cyst of *E. coli*, showing eight nuclei.

FIG. 3.



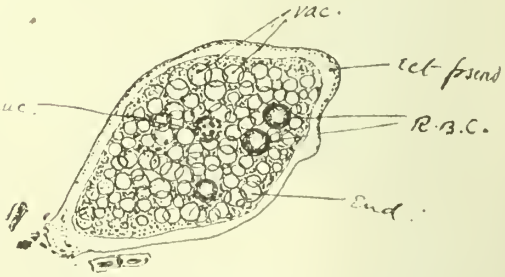
E. histolytica, fixed and stained, to show structural details.

FIG. 5.



a, Contracted *E. histolytica*, fixed and stained. The space immediately surrounding the amœba is due to shrinkage and is not the ectoplasm. *b*, Macrophage from cell-exudate of bacillary dysentery. *c*, Smaller cell from same.

FIG. 6.



E. histolytica showing highly vacuolated endoplasm.

In a fresh preparation motility ceases after a time and the amœbæ contract into spheroidal masses (see Fig. 5) in which erythrocytes are still quite visible, and at times, in rare cases, encysted entamœbæ are to be found with motile amœbæ in the same preparation.

Cysts.—The cysts (Fig. 4) of *E. histolytica* are small, refractile, spheroidal bodies, measuring about 10μ–14μ, i.e., nearly twice the diameter of a red corpuscle. In a fresh preparation they appear almost homogeneous, but although careful examination will sometimes reveal the nuclei, it is always as well to confirm by an iodine preparation. Usually four nuclei are present, but uni- and bi-nucleated cysts are sometimes seen. In addition, iodine stains a somewhat rod-shaped mass (iodophil substance) in the cyst which is absent from cysts of *E. coli.* The search for cysts is at times a most tedious performance, but since cases of liver abscess generally occur in those instances where a cyst-carrier has been missed the importance of finding even one cyst far outweighs the labour spent.

E. coli, *Motile and Encysted.*

Motile forms (Fig. 2).—*E. coli*, an apparently harmless occasional inhabitant of the large intestine, is as a rule larger and of more sluggish motility than *E. histolytica.* Erythrocytes are never engulfed, and the amœba has not the same power of "eroding" (by means of cytolytic enzymes) the epithelium and capillaries of the mucous membrane, as *E. histolytica.* Consequently in the absence of dysenteric bacilli or protozoal parasites other than *E. coli* or of a purely secondary cause, erythrocytes are not found in the stool. The endoplasm of *E. coli* is vacuolated and granular; ingested vegetable matter is nearly always present (diatoms, vegetable debris, &c.), and one pole of the amœba will often attach itself to a mass of mucous debris. *E. coli* is frequently found co-existing with *E. histolytica.*

Cysts.—The cysts of *E. coli* are larger than those of *E. histolytica* (15μ–20μ), and are often very numerous; they possess eight well-defined nuclei, visible even in a fresh preparation, but better seen in iodine. They are not always quite spherical, being at times oval and rather variable in size.

Blastocystis hominis (a vegetable organism) may at times be confused with cysts of *E. coli* or *E. histolytica.* They are, however, often larger (5μ–15μ) and the cytoplasm is arranged in two polar crescentic masses, containing four nuclei in each.

Fixation and Staining of Amœbæ, Motile and Encysted.

Thin smears from the fresh stool, selecting, where present, a portion containing mucus and blood, are made upon cover-slips, and floated, without drying, smear downwards upon the following fixing solution:—

Corrosive sublimate (saturated aqueous solution)	2 pts.
Absolute alcohol	1 pt.

Fixation is complete in about 30 minutes. The smears are then placed film upwards in *iodised* alcohol in order to remove the last traces of sublimate; washed in distilled water; then stained as follows [1]: (1) Soak for some hours in a 4 per cent. solution of iron-alum (made with *violet* crystals); (2) wash in distilled water; (3) stain in Heidenhain's hæmatoxylin for several hours (or over night); (4) wash in distilled water; (5) place in 1 per cent. iron-alum solution until decolorisation has reached a satisfactory stage; (6) wash in distilled water and counter-stain with 5 per cent. aqueous eosin solution; dehydrate through the alcohols, clear in xylol, and mount on a slide in Canada balsam.

---

[1] Method partly modified from Wenyon, THE LANCET, Nov. 27th, 1915.

THE BORSTAL SYSTEM.—The method of dealing with young offenders of the law known as the Borstal system has recently been discussed in the public press, and the annual report of the Borstal Association, which has just been issued, will be read with interest. During the year which ended March 31st, 1919, 610 boys were released to the care of the association, and of these 499 cases proved satisfactory, 66 unsatisfactory, and 45 have been reconvicted. Of 113 girls 58 have proved satisfactory so far, 40 have been unsatisfactory, and 15 have been reconvicted. The report, which can be obtained from 15, Buckingham-street, Strand, W.C., makes an appeal for financial support, and is a document which should be carefully read by all who are interested in the coöperation of the State with voluntary workers in penology.

ON THE
MECHANISM OF IMMUNISATION,
WITH SPECIAL REFERENCE TO LIPASE.

BY J. A. SHAW-MACKENZIE, M.D. LOND.

(*From the Physiological and Bacteriological Laboratories of King's College, London.*)

SOME years ago I [1] suggested that the increase of tissue erepsin noted by Vernon [2] in cases of cancer, as well as in tuberculosis and septicæmia, might be a defensive response of the body. The same principle of a defensive mechanism underlies the well-known work of Abderhalden, whose views have been much criticised, although his facts have been confirmed in certain directions. During the past few years my attention has been concerned with another enzyme—namely, lipase, the lipolytic or fat-splitting ferment, and I [3] have suggested that it is an important factor in the defence of the body against cancer and bacterial invasions.

Summary of Investigations.

This work may be briefly summarised as follows: When serum is added to glycerine extracts of pancreas, or to pancreatic juice itself, fat-splitting is markedly accelerated. The serum itself does not split fats, but contains an activating agent. In progressive and advanced cancer this power of the serum is decreased, and at the same time its antitryptic power rises. Accompanying improvement or recovery the accelerating action on lipase is increased in the serum, whilst the antitryptic power falls. The same holds good in those cases of infectious disease which I have examined. The lipase of glycerine extracts of pancreas is separable into two parts by filtration (O. Rosenheim [4]); the residue on the filter (inactive lipase) is thermolabile; the filtrate contains a thermostable coenzyme. Each by itself has no action on fats, but on mixing the two parts together the fat-splitting action is raised to its original value. Subsequently, I [5] adduced evidence that the lipase of the juice itself is separable into these two components, and that most of the enzyme in the freshly secreted juice is in an inactive condition (pro-lipase). There are a number of substances, of which the most familiar are the bile salts, which can take the place of the coenzyme and activate pro-lipase. I found that diluted serum (or auto-serum), whether previously heated or not, possesses the same activating action on lipase, whether that enzyme is in an extract of pancreas or in the natural juice.

Inoculation of animals with normal and cancerous material or with normal and cancerous serum is followed by a similar increase in the power of their blood to accelerate fat splitting; a similar increase is noticeable in mice which have proved "negative" to mouse tumour inoculations or have recovered spontaneously. I have assumed in such observations that the introduction of a normal or specific activator or coenzyme into the blood activates the pro-lipase of the tissues, which, being common to all, and thermolabile, may be compared to complement. This led me to suggest treatment of inoperable cancer in man by injections of the patient's own serum, and believing as I did in the protective action of the fat-splitting factor I suggested its use later in the treatment of the wounds of war.

Lipase in Therapeutic Immunisation.

I have been led to take up the question again on account of an article by Sir Almroth Wright in THE LANCET of March 29th, 1919 (p. 516), on therapeutic immunisation. He does not allude in that article to any part that might possibly be played by the fat-splitting enzyme. I believe that it plays an important rôle in treatment by autogenous vaccines whether injected into the tissues or intravenously. Vaccines and antitoxic sera in vitro increase the fat-splitting properties of pancreatic extracts in varying degree. Their action in this direction is less than that of serum, and their antitryptic power is small or absent. In the process of sterilisation by heat the bacterial enzymes are destroyed, but even 100° C. is not destructive to the thermostable activating material which they contain. From this point of view part of the value of the vaccine must be due to this material, and its power to increase fat-splitting is a factor in its protective mechanism.

Attention may here be drawn to the work of J. W. Jobling and W. Petersen. [7]

These observers have pointed out that in experimental animals the intravenous injection of bacteria, protein split products, and other substances "is almost invariably followed by more or less marked mobilisation of serum protease and usually of lipase (esterase). In the patient a similar reaction occurs following the intravenous injection of vaccines and proteoses, but not to the same degree nor with the same regularity as in animals. ...... The influence of the fat-splitting ferments mobilised is as yet obscure. In the ultimate analysis, of course, we must turn to ferments of this nature for the attack on the invading organism, because it is more than probable that the actual surface of the bacterium consists largely of lipoids, or intimate lipo-protein combinations, for the destruction of which fat-splitting ferments are essential. In certain infections with lipoid-rich organisms such as tubercle and lepra bacilli, the clinical demonstration of the association of a high lipase titre in the serum, with a favourable prognosis, has been well established." In interpreting the results of a protective lipolytic mechanism the protective action of the products of fat-splitting or fatty acids in the tissues in cancer (Freund [8]), as well as their inhibitory action towards bacterial growth (Taylor [9]), must not be ignored.

In Sir Almroth Wright's method a donor's blood was immunised in vitro by an autogenous vaccine from the case, the serum was separated and transfused, with immediate success; or, as described in Sir Almroth Wright's preliminary test, "portions of the donor's blood were digested for three hours in vitro with a series of graduated dilutions of a staphylococcus and also of a streptococcus vaccine." Of all the sera thus obtained the serum of the blood portion which had been digested with 1000 staphylococci per c.cm. gave the best bactericidal result when inoculated with a mixture of staphylococcus and the patient's own streptococcus.

Experimental Evidence.

These statements have led me to repeat an experiment I made in the course of my above-mentioned work, in which the addition of pancreatic coenzyme to serum appeared directly to produce the fat-splitting enzyme. In 1914 1 c.cm. of coenzyme with 3 c.cm. of water was added to 1 c.cm. of apparently normal serum of a patient who, some years previously, had been operated upon for breast carcinoma. The mixture was incubated for half an hour at 37° C., and then 5 c.cm. of olive oil emulsion were added. After further incubation for 18 hours, 3·1 c.cm. of decinormal potash were required to neutralise the fatty acids liberated. The serum and the coenzyme alone, after being brought up to volume with water and added to 5 c.cm. of the emulsion, under the same conditions of experiment and at the same time, required only 0·5 c.cm. respectively of the decinormal potash.

Previously to this, in 1911, a similar experiment with horse serum gave me a doubtful result which possibly may be explained by the relatively small amount of complement in horse serum. At the same time my notes show that bile salts gave no better result than the coenzyme, but with sodium oleate 3 c.cm. of the decinormal potash were required to neutralise the fatty acids liberated. In the result with coenzyme it was considered that either a slight amount of lipase or of pro-lipase in the serum was accelerated or activated by the coenzyme, or the slight inactive residue present usually in the coenzyme itself was activated by the serum.

In the following tables are given the results I have obtained in the past summer which confirm my former result with coenzyme, and I give the results of a few experiments made with the addition of vaccine to serum or blood. The technique is that which I have described in previous communications. The coenzyme or vaccine was added to the serum; the mixture brought up to volume with 0·85 per cent. NaCl solution and incubated for three hours. The olive oil emulsion was then added and the mixture incubated at 37° C. for a given time, usually 18 hours; alcohol was then added and the liberated fatty acids estimated by titration with decinormal potash, phenolphthalein being used as the indicator. The figures given are the number of cubic centimetres of the decinormal potash required to give the neutral point. A good olive oil and a good emulsion are necessary. The latter is effected by neutralising the amount of free acid present in the oil—0·5 c.cm. of decinormal potash for 5 c.cm. oil being usually required. When the coenzyme or the vaccine was added to blood the mixture after incubation was centrifuged, brought up to volume, and added as before to the emulsion. In all cases the serum, coenzyme, and vaccine, brought up to volume, were examined separately and the results given, after addition to the oil emulsion and incubation, under the same conditions and at the same time of experiment.

TABLE I.—*Action of Pancreatic Coenzyme and of Vaccine (Staphylococcus) on Serum and Blood.*

—	Coenzyme.	Vaccine staph.	Serum (S.). Cit. blood (C.B.) Whole blood (W.B.).	NaCl. 0·85 %	Olive oil emulsion.	N/10 KOH required.
	c.c.	mills. c.c.	c.c.	c.c.	c.c.	c.c.
Guinea-pig.	—	—	2·5 (S.).	2·5	2·5	0·5
	1	—	" "	1·5	2·5	*3·3*
	1	—	—	4·0	2·5	0·6
	—	2500	2·5 (S.).	1·5	2·5	*1·4*
	—	"	—	4·0	2·5	0·2
Rabbit.	—	—	2 5 (S.).	2·5	2·5	0·5
	1	—	" "	1·5	2·5	*2·6*
	1	—	—	4·0	2·5	0·7
	—	5000	2·5 (S.).	1·5	2·5	*4·1*
	—	"	—	4·0	2·5	0·4
Sheep.	—	—	5 (C.B.) (3·5 cfgd.)	1·5	2·5	0·5
	1	—	" "	0·5	2·5	*2·3*
	1	—	—	4·0	2·5	0·8
	—	5000	" "	0·5	2·5	*1·2*
	—	"	—	4·0	2·5	0·2
Man.	—	—	2·5 (S.).	2·5	2·5	0·5
	1	—	" "	1·5	2·5	*2·8*
	1	—	—	4·0	2 5	0·5
	—	5000	2·5 (S.).	1·5	2·5	*4·1*
	—	"	—	4·0	2·5	0·3
	1	—	5 (W.B.) (2·0 cfgd.)	2·0	2·5	*1·0*
	—	5000	5 (W.B.) (2·2 cfgd.)	1·8	2·5	*0·9*

TABLE II.—*Action of Living Staphylococci on Serum and on Blood (Man).*

The vaccine was found in control subculture to have been not entirely killed by heating at 60° C. for one hour. The experiment was repeated with living staphylococci with a corresponding result.

Staph.	Serum.	Blood.	NaCl 0·85 %	Olive oil emuls.	N/10 KOH required.
Mills. c c.	c.c.	c.c.	c.c.	c.c.	c.c.
—	2 5	—	2·5	2·5	0·5
5000	2·5	—	1·5	2·5	*2·2*
"	—	—	4·0	2·5	0·3
"	—	5 (3·5 cfgd).	0·5	2·5	*1·1*

TABLE III.—*Action of Vaccine on Rabbit Serum and Blood, and on Serum and Blood (Man).*

Staph.	Rabbit: Serum (S.), blood (B.).	Man: Serum (S.), blood (B.).	NaCl 0·85 %.	Olive oil emuls.	N/10 KOH required.
Mills. c.c.	c.c.	c.c.	c.c.	c.c.	c.c.
—	2·5 (S.).	—	2·5	2·5	0·7
5000	"	—	1·5	2·5	*5·6*
"	—	—	4·0	2·5	0·3
"	5 (B.) (3·5 cfgd).	—	0·5	2·5	*2·2*
"	—	2·5 (S.).	2·5	2 5	0·5
"	—	"	1·5	2·5	*3·1*
"	—	—	4·0	2·5	0·3
—	—	5 (B.) (2·2 cfgd).	2·8	2·5	1·3

TABLE IV.—*Action of Vaccine Staphylococcus (Repeated); Action of Vaccine Typhoid, and Action of Heated Malignant Serum, on Serum (Preliminary).*

The latter experiment is one of two, with corresponding results.

Staph. (S.), typhoid (T.).	Serum: Malgnt., heated (M., H.), rabbit (R.), man (M.).	NaCl 0·85 %.	Olive oil emuls.	N/10 KOH required.
Mills. c.c.	c.c.	c.c.	c.c.	c.c.
—	2·5 (R.)	2·5	2·5	0·5
5000 (S.).	"	1·5	2·5	*8·8*
—	—	4·0	2·5	0·2
1000 (T.).	2·5 (R.)	1·5	2·5	*2·2*
"	—	4·0	2·5	0·2
—	2·5 (M.)	2·5	2·5	0·5
—	1·0 + 4 NaCl sol. heated to 100° C. (M., H.), 2·5 (R.)	—	2·5	*2·2*
—	Ditto (M., H.), 2·5 (M.)	—	2·5	*2·2*
—	Ditto (M., H)	2·5	2·5	0·2

It would appear from the results of the investigation described above that the addition of pancreatic coenzyme and of vaccine to serum (or blood) exerts in vitro a lipolytic or fat-splitting action. It was ascertained further (one experiment) that in both cases when the living streptococcus (0·05 c.cm. of approximately 100,000,000 per c.cm. suspension) was subsequently added to 5 c.cm. mixture of the serum, treated with coenzyme or with vaccine, incubated for 18 hours, and subcultured, there was growth, but an inhibitory bactericidal action was exerted compared with controls of inoculated serum and of sodium chloride solution, similar to the inhibitory effects described by Sir Almroth Wright.

In the above experiments a staphylococcus vaccine has been chiefly investigated. 1000 staphylococci per c.cm. were found insufficient to show an appreciable lipolytic action, and for the purpose a heavy dose was taken. Any production of a tryptic or other enzyme has not been investigated in these experiments, though the addition of vaccine to serum or blood in my experiments has shown no increased antitryptic action; nor at this stage is it possible to do more than indicate some of the points noted or met with in the technique.

Hæmolysis.

The mixture of coenzyme and serum appears to be hæmolytic to red blood corpuscles tested in the usual way, whereas the vaccine mixture is not hæmolytic. It is well known (Wells[10]) that bacterial hæmolysis has been attributed variously to the proteolytic enzyme trypsin (Abbott and Gildersleeve[11]), to the alkalinity of filtrates (Jordan[12]), and to physical effects (Quinan[13]). The association of lipolysis and hæmolysis is also well known, hæmolytic effects having been described by pancreatic juice activated by lecithin, although it is not in this way rendered tryptic (Neuberg[14]). The absence of hæmolysis in my experiments on the addition of vaccine or of vaccine and serum mixture to red corpuscles (man) suggests that the induced tissue lipolysis is different to pancreatic lipolysis. The addition of coenzyme and of vaccine to blood is likewise followed by lipolysis, but the action is much less marked. The presence of a trace of blood in the serum or of hæmolysed blood exerts an antilipolytic effect. The addition of the living organism to serum shows lipolysis, but the action is much reduced. The addition of the living organism to blood produces hæmolysis and increased antitryptic action of the serum. It is important that the serum should be fresh and sterile. Longer periods than three hours of the preliminary incubation appear to lower the resulting lipolytic action.

Summary.

1. The addition of pancreatic coenzyme and of vaccine to serum or blood in vitro exerts a lipolytic action.
2. The serum so treated has bactericidal properties.
3. The resulting tissue lipolysis in the case of vaccine appears in certain details to be different to pancreatic lipolysis.
4. Preliminary experiments indicate that serum (autoserum) diluted and heated in which the coenzyme or coenzymes of the serum is present activates in a similar way the inactive prolipase of fresh serum.
5. In induced tissue lipolysis an explanation in part is afforded of natural and therapeutic immunisation.

References.—1. Shaw-Mackenzie, J. A.: Med. Press and Circ., ii., p. 61, 1907; THE LANCET, i., p. 1720, 1914. 2. Vernon, H. M.: Journ. Physiol., xxxii., 1904, and xxxiii., 1905. 3. Shaw-Mackenzie, J. A.: Proc. Physiol. Soc., p. xi.; Journ. Physiol., xlii., 1911; Proc. Roy. Soc. Med. v, (Therap. and Pharm. Sect.), p. 152, 1912, and vi., p. 114, 1913; Internat. Congress Med., Lond. (Therap. Sect.), 1913. 4. Rosenheim, O.: Proc. Physiol. Soc., p. xiv., Journ. Physiol., xl., 1910. 5. Shaw-Mackenzie, J A.: Journ. Physiol., xlix., p. 216, 1915. 6. Shaw-Mackenzie, J. A.: Proc. Roy. Soc. Med., v. (Therap. and Pharm. Sect.), p. 152, 1912. 7. Jobling, J. W., and Petersen, W.: (Dpt. Pathol. Vanderbilt Univ., Journ. Amer. Med. Assoc.), Med. Press and Circ., i., p. 117, 1917. 8. Freund, E.: Internat. Congress Med., Lond. (Sub-Sect. Chem. Pathol.), 1913. 9. Taylor, K.: THE LANCET, i., p. 294, 1917. 10. Wells, H. G.: Chem. Pathol., p. 194. 1907. 11. Abbott, A. C., and Gildersleeve, N.: Journ. Med. Res., 10, 1903. 12. Jordan, E. O.: Ibid. 13. Quinan, C.: Ibid. 14. Neuberg: Biochem. Zeitschr., xi.

ROYAL INSTITUTION.—A general meeting of the members of the Royal Institution was held on Nov. 3rd, Sir James Crichton-Browne, treasurer and Vice-President, in the chair. The special thanks of the members were returned to Mr. Richard Pearce for his donation of £100 to the Fund for the Promotion of Experimental Research at Low Temperatures; to Mr. Robert Mond for his gift of laboratory material; and to Sir Humphry Davy Rolleston for his gift of a drawing of Sir Humphry Davy's birthplace, and a water colour of his statue in the Market Place, Penzance.

A FURTHER NOTE ON

PICRIC-BRASS PREPARATIONS IN THE TREATMENT OF LUPUS.

BY HENRY A. ELLIS, M.B., CH.B. DUB.,
TUBERCULOSIS MEDICAL OFFICER FOR MIDDLESBROUGH AND LATE SUPERINTENDENT, COOLGARDIE SANATORIUM, W. AUSTRALIA.

IN my previous paper[1] on the use of basic salts of copper and zinc (brass) in the treatment of lupus and cutaneous tuberculosis generally attention was drawn to the difficulty of treating the deeper deposits and isolated nodules. To this should have been added the difficulty occasioned by the undermined edges of certain forms of lupus in which the progress of the disease at the edge does not reach the surface, but, travelling along intracutaneously, is covered by a considerable amount of healthy or pseudo-healthy tissue. It was stated "the problem is only one of contact; if contact can be obtained the result is always assured."

During the past few months my attention has been almost entirely devoted to the limitations of the brass treatment, which, in certain cases, materially interfered with the complete removal of the disease, and in all cases lengthened the time of treatment. The method of investigation has still been the empirical one of following along the track showing increasing results by actual application, and it is believed that a material advance has again been made towards removing those final deposits and in shortening the time of the treatment.

Mode of Action and Limitations of the Remedy.

It may be recalled that the action of the brass paste was found to be specific, producing rapid caseation of the tuberculous masses that were easy of access, while the brass oil ("bro") assisted matters by removing the subsidiary thickening of the surrounding tissues produced by the tuberculous irritation. In the case of the brass paste contact was found essential to produce a satisfactory result. Its action was a destructive one along the area of deterioration between the normal tissue unaffected by the treatment on the one hand, and, on the other, by the subnormal resistance of the invaded area, which was, by means of its application, caseated and destroyed. This action appeared to be due not so much to the direct action of the paste as to the release of a ferment in the diseased area, which by attacking the deteriorated tissue, hastened the destruction already started. Even a small amount of healthy tissue or slightly subnormal tissue appeared able to offer a considerable resistance, and was in some cases effective in interposing a barrier to the remedy, varying noticeably in strength in different individuals. The brass oil, on the other hand, apparently conveyed along the lymphatics a similar substance, and was thus able to act at a much greater distance; it effectively removed the various thickenings produced by tuberculous invasion, and was more slow of action. The action, in the case of bro, was principally confined to what may be called secondary deposits, primary conditions only being removed indirectly by the increased resistance and vascularity produced by the removal of the deleterious action of the swelling produced by the tuberculous deposits.

The problem presented was to find an agent with a still higher power of destruction than that of which the brass was capable, but still below the point at which the healthy tissue would be seriously injured. This preparation must be selective or specific to the variety of deterioration produced by the tuberculous invasion. In the nature of things, to achieve this, some slight injury to the healthy tissue might be reasonably expected, but it must be of limited amount to avoid any caustic action. Considerable instability of the preparation must be expected, as instability is the quality on which the hope of selective destruction largely depended.

Those who have used picric-brass preparations have generally recognised the immediate improvement, which is so rapid and satisfactory as to be almost dramatic. But this improvement gradually slows down as the contact nodules are removed, the remaining deposits being more or less protected by their healthy surroundings; consequently the subjects for further investigation were afforded by those cases that, already treated by brass, had come more or less to a condition of stability.

---

[1] THE LANCET, 1919, i., 415.

Search for a More Potent Preparation.

For some time attempts were made to produce a greater destructive power by varying the proportions of the zinc and copper in the picric brass. It was found that when the balance was altered the paste could be made more destructive, but it had lost its selective character, and its penetration had also disappeared; the destruction of the tissue became uniform and the specific character of the action had been changed. The paste also caused more pain; in fact had become an ordinary caustic. As far as could be ascertained, the greatest effect compatible with its specific nature had been reached. This was all the more emphasised during a series of observations extending over a period of some four months, when the basic material that had been used suddenly went off the market, necessitating the investigation of some 20 other preparations, until another one of similar quality to the first was obtained. During this period the specific action of the brass was lost, the caustic action of the copper only remaining.

In the search after a more destructive specific a number of experiments were made with the nitro-phenyl series, with its nine standard combinations and its many unstandardised ones, to see if any of them would yield a more penetrative material. Once success seemed almost to have been achieved with a clear dinitro-phenyl combination, but, unfortunately, although very many attempts were made, the same combination was never obtained, so at last that series was abandoned. Then the sulpho-phenyl series was investigated, and ultimately the material sought for was found in a saturated solution of picric in sulphanilic acid. This is made by adding picric acid to sulphanilic acid and raising to a temperature of 100° C., a subsequent addition of 1 per cent. of carbolic acid being made. This preparation is of a brown colour, the golden colour of the lower preparation having been replaced, as it proved too caustic in its action. The preparation remains fluid at an ordinary temperature. The effect is always tested with regard to its action on the tuberculous tissue. The combination has been named sulphanilic-picric. The amount of picric acid taken up is about 2 per cent., and the liquid does not show the presence of free picric acid. It is not certain if there is any chemical union; if there is, it must be of a very weak character. But its power of selection of tuberculous tissue is immediately apparent on application, and its destructive force is deeper and more extended than is the case in the picric-brass preparations. In addition to its own power of attack it has the value of increasing the effectiveness of the picric-brass preparations, and it is possible, when the two are applied together, to reach the nodules in healthy tissue, so that the series is now complete. When applied to tuberculous tissue its rapid penetration is demonstrated by the deep yellow colour which the tissue acquires owing to the release of the picric acid. Healthy tissue is either not stained at all or much more slowly. If applied to healthy skin it has very little effect, producing a desiccation, not sufficient to produce desquamation. The sensory effect on healthy, fine skin is just that of heat and creates a desire to scratch. With the tuberculous tissue the condition is far different, the rapidity of the invasion depending on the amount of degeneration that has occurred. Where tuberculous tissue is exposed it is penetrated with a deep yellow in a couple of minutes. Where less degenerate, the tissue is more slowly invaded and is generally completely penetrated in five or ten minutes. It is well to use some local anæsthetic before it is applied, as its application is more or less painful, varying enormously with the character of the case; even the dry, smooth, elevated ridges accompanying the healing of verrucosa are penetrated and broken down when used in combination with the picric brass, although they are more or less impervious to the brass alone, yielding slowly to the steady application of bro.

Local and General Action of the Preparations.

Curiously enough, sulphanilic-picric used alone has the same disability which so long restrained the publication of the plain brass results before the picric addition had been discovered. It has a tendency to produce the lighting up of other and sometimes more important foci, and there is also the tendency to produce the gradual constitutional deterioration that was the great drawback of the plain brass. But when used in combination with the picric-brass paste, or with bro, this secondary series of effects is never produced. There is apparently something in the combination of the brass and picric that limits the deleterious power of the dissolved and absorbed material from tuberculous destruction. There is little doubt that this health deterioration is produced by the deleterious action on the tissue resistance of the absorption of the products of decomposition produced by the caseation of the tuberculosis material, which is naturally absorbed in larger quantities when the tuberculous tissue is further destroyed. The effect is somewhat similar to that produced when too large a dose of tuberculin is administered. But the thought-compelling factor in this case is that both ends of the series produce this result when applied alone, the combination not only producing an increased destructive deterioration, but at the same time controlling the factors which produce the health deterioration. It is this effect which emphasises the specific nature of the combination. The whole subject becomes of greater importance when the internal application of the brass treatment comes to be considered, for it is this constitutional control that offers a ray of hope, in that most complicated series of effects, which otherwise upsets the protective balance, giving rise to the large amount of failures in the treatment of tuberculous disease.

While the brass paste increases the specific action of the sulphanilic-picric locally, the bro rather controls that local action, but it prevents the injury from absorption that might otherwise occur by preventing any constitutional reaction. As far as it is possible to state anything of a preparation that has only been under observation for 12 months, it is believed that final effectiveness has been reached, but increased rapidity of action is still desired. The combination of sulphanilic-picric and the brass paste has proved itself capable of penetrating any tissue, however dense, and of producing complete local destruction without constitutional danger. In fact, the general impression obtained is that the whole resistance of the individual seems to be rather increased by the combined use of the two preparations, brass and the sulphanilic-picric applications, and this is surmised because other untreated parts seem to show an improved condition.

Method of Application.

The present method of application to an ordinary case of lupus is first to clean up the affected area by a few bro fomentations at two or three days' intervals, and when the area has been cleaned up in this way the selected piece of tissue where treatment is most desired is rendered anæsthetic by applying adrenalin and cocaine or other local anæsthetic.

After drying off the moisture the sulphanilic picric is applied with a glass rod, and a short interval is allowed while it penetrates the tuberculous tissue. If the surface is broken and not sufficiently anæsthetised, the pain may be considerable, but bearable. If the surface is unbroken the pain is usually slight. The time of waiting for the picric to penetrate is from five to ten minutes. The sulphanilic gradually stains the affected tissue yellow. The way in which it picks out the tuberculous invasion is quite interesting. If the area is reasonably small and the destruction of the tuberculous tissue the primary consideration the whole area is then dressed with brass paste under strapping, in the usual way, or, if a lesser action is desired, it may be smeared over with the picric brass and left exposed, in which case the action is not so vigorous. If the case is at all a bad one and extensive deposits exist it is better to apply a bro foment or even to only paint it over with the bro. These applications are applied twice or thrice weekly, as circumstances dictate, with occasional rests so as to be sure what progress has been made. There are thus four degrees of destruction available. The destruction produced by picric-brass paste under strapping, after the application of sulphanilic-picric, is very extensive and sometimes painful, but the destruction is limited to the tuberculous tissue, the neighbouring tissue only being engorged from the irritation produced; the destruction is quite considerable and removes the tissue most efficiently, rarely wanting the application more than three or four times, each time being less painful as the destruction and reaction become more limited by the removal of the tuberculous masses. In this connexion one of the valuable side features of the treatment is one application usually removes any painful points; so much so that painful points are now selected for the first application. As a rule, sulphanilic-picric is not applied to more than a couple of inches of growing edge at one time unless one is dealing with an insensitive case, when as much as a couple of square inches have been treated at once. Curiously enough, it is not at first painful when applied to the mucous membrane inside the nose, where it seems extremely efficient in removing lupus invasion. It is applied in the same way and painted afterwards with bro on a camel's-hair brush, and it has also proved effective in the buccal invasion of lupus erythematosus, as well as on the face. The application to the deeper sinuses of the neck, when not strictly intradermic, must be done with some caution on account of the very efficiency of the treatment, and the depth of application must be gradually increased, as it is necessary to control the reaction by the bro dressing; owing to absorption along the lymphatics, foci of considerable depth may be reached, and their solution be followed by a considerable reaction. It is always well to prepare the deeper cases with bro fomentation so that as much of the subsidiary deposits and swelling as possible may be first removed, and even then the attack of the deeper masses must be gradual, as I obtained one or two quite considerable reactions before I learnt caution. The rapidity and effectiveness with which these deep neck thickenings disappear is one of the most satisfactory results of the sulphanilic-picric. One of the most complete demonstrations of the innocuousness of sulphanilic-picric except to tuberculous tissue, is demonstrated when applied to the mucous membrane of the eyelid, which has been done, using a local anæsthetic, and it produced no more than a temporary congestive disturbance of the eye, while it removed entirely the lupus invasion of the lid itself.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A CASE OF

TRYPANOSOMA RHODESIENSE INFECTION WHICH RECOVERED.

BY C. W. DANIELS, M.B. CAMB., F.R.C.P. LOND.,
SENIOR PHYSICIAN, ALBERT DOCK HOSPITAL;
AND
H. B. NEWHAM, C.M.G., M.D. DURH., M.R.C.P. LOND.,
DIRECTOR, LONDON SCHOOL OF TROPICAL MEDICINE.

CASES of trypanosomiasis in man in which recovery has taken place have been recorded from time to time, and of the many patients treated for this disease during the last 15 years at the Albert Dock Hospital attached to the London School of Tropical Medicine a fair number have been cured. In all these cases, however, the infecting agent has been *T. gambiense*, whether contracted in Central Africa, West Africa, or on the Congo, and hitherto, as far as we are aware, no case of cure has been noted in individuals who have been unfortunate enough to become infected with *T. rhodesiense*. The publication, therefore, of a few details of the following case may not be without interest:—

Account of Case.

The patient, E. H., a young man of 20, was an elephant hunter by profession. He had lived in Great Britain all his life until September, 1913. He then went to Nyasaland, tobacco planting. He stayed there for six months. During that time he enjoyed good health; he did not go into the "bush" or come into contact with tsetse-fly. From Nyasaland he went, in March, 1914, to Fort Jamieson. During his journey (350 miles) to Northern Rhodesia he was bitten about 20 times in three days by tsetse-flies whilst passing through the "fly belts." He stayed at or near Fort Jamieson until December, 1914, during which period he was bitten frequently, but was not alarmed, as he was unaware that sleeping sickness existed there. Whilst in the region of Fort Jamieson he had several attacks of malarial fever and also suffered from "tick fever," with symptoms of diarrhœa and fever in December, 1914, but recovered completely. In December, 1914, he moved to the frontier of German East Africa, where he remained till April, 1915. During this time he was on patrols and consequently in fly-infested areas. He started back from the frontier to Fort Jamieson in April, 1915, and in September, 1915, shortly after returning to Fort Jamieson, a journey of about 500 miles, he began to get attacks of what he thought was malaria. Knowing that he had been recently in a sleeping sickness area he went into hospital, where his blood was examined and malarial parasites found. Quinine did not stop his "fever" and a gland in his neck was punctured and trypanosomes found. His attacks took the form of fever each night with great weakness, constant headache and constipation, but no vomiting. He did not notice any rash at the time. He complained also of "specks" floating in the eyes and of blurring of vision, but of no other eye symptoms. He had atoxyl (3½ gr. every third day) whilst in hospital in Rhodesia and continued this for a period of six weeks—i.e., until he landed in England. The temperature tended to settle down, but he still had "fever" about every five days. He arrived in England about the beginning of November, 1915, when he was admitted to the Albert Dock Hospital under Dr. Daniels.

Condition on Admission.

On admission he was a tall thin young man, weight 9 st. 4 lb., of sallow complexion and complaining of weakness and fever. On examination the heart was not enlarged, apex beat in normal position and with a faint systolic murmur over the mitral area. Pulse averaged 90/100 and rose easily on slight exertion. Liver not enlarged; spleen moderately enlarged, not tender. Urine normal; no rash seen; no enlarged cervical glands. No Kerandel's symptom, orchitis, periostitis, or œdema of the eyelids or face was to be found and nothing abnormal was detected on ophthalmoscopic examination. Examination of the blood showed trypanosomes in fair numbers, no malarial parasites: Red cells, 4,600,000 per c.mm.; white cells, 3750 per c.mm.; hæmoglobin, 75 per cent. Differential count: Polymorphonuclears, 49 per cent.; large mononuclears, 10 per cent.; lymphocytes, 30 per cent.; eosinophiles, 11 per cent.

Injections were made of his blood into white rats and infection of these animals readily obtained in the first passage, parasites being demonstrated on the twenty-first day after inoculation, whilst the period of incubation on subsequent passages from rat to rat was on an average five to seven days. The so-called posterior nuclear forms were readily found in the inoculated animals and the animals died, as a result of the infection, in 16 to 18 days on the average from the time of inoculation. The temperature chart during the first five months of the patient's stay in hospital was of a markedly irregular type with exacerbations of the fever every two or three days. Thereafter the temperature ran an almost normal course except for short sharp rises as a result of injections of antimony tartrate. Parasites were found in the blood from time to time up to April 6th, 1916, after which date, although repeated examinations were made, no further trypanosomes were ever detected.

Treatment.

Treatment at first consisted of the administration intramuscularly of atoxyl gr. 3½ thrice weekly, together with antiluetin gr. ½ in solution once daily by the month. On Dec. 8th, 1915, injections of antimony oxide (Martindale) subcutaneously were begun, starting at first with a dose of 30 minims per diem and increasing this gradually until as much as 130 minims were given in 24 hours. At the same time the administration of atoxyl and antiluetin was continued, although it was found necessary from time to time to drop the use of the latter drug for a week or so owing to the severe nausea it was liable to produce if taken for too long at a time. In March, 1916, the characteristic circinate rash was first noticed; it was more or less all over the body. The feet and hands swelled and there was marked tonsillitis. The rash lasted about a week and then disappeared gradually, the tonsillitis subsiding at the same time. This combined course of treatment was persevered in until March, 1916, when, as trypanosomes still appeared in the blood from time to time, it was decided to drop the administration of the antimony oxide and to try the effects of repeated intravenous injections of tartar emetic. These were accordingly started, giving a dose of 2½ gr. twice a week. The administration of atoxyl was also discontinued at the same time, though he continued to take the antiluetin. These injections of tartar emetic were repeated twice weekly until April, 1918. At first the injections caused a short sharp rise of temperature, sometimes accompanied by a definite rigor, but later there was frequently no response to the administration of the drug beyond some cough coming on towards the end of the injection. No pain in the abdomen or diarrhœa was ever caused by the drug. As already stated, it was on April 6th, 1916, that the last trypanosome was seen, but in view of the difficulty of deciding when a cure had been effected in trypanosomiasis it was decided to continue the injections of tartar emetic over a prolonged period, and such was done until two years had elapsed from the last appearance of the causative parasite. All treatment was stopped in April, 1918, and since that time the patient has been working on a farm in England. He is able to do a good day's work, and has regained his normal weight of 11 st. and feels quite fit.

Remarks.

The case is chiefly remarkable from being the first on record in which one may feel fairly confident that a definite cure has resulted in a true case of Rhodesian trypanosomiasis, and for the really enormous amount of tartar emetic it was found possible to administer. In all the patient had considerably over 500 grains of the drug, and no untoward effects of such administration have manifested themselves.

A CASE OF

CHLOROMA SIMULATING MASTOID DISEASE.

By E. Catherine Lewis, M.B., B.S. Lond., F.R.C.S. Eng.,
SENIOR RESIDENT MEDICAL OFFICER TO THE ROYAL FREE HOSPITAL.

Chloroma has been known and described for something over 50 years, and has been variously regarded as a carcinoma (the so-called "green cancer"), a sarcoma and a variety of lymphatic leukæmia. In looking up the literature I have found records of some 65 cases of this malady, but as the following appears to have some points of interest I venture to add it to the number.

The Case Described.

J. M., male, aged 10, was admitted to hospital on June 14th, 1919, complaining of pain and discharge from the right ear. His temperature was 99·6° F. and pulse 104, and on examination he was found to have a tender swelling behind the right ear over the mastoid process, enlargement of the upper cervical glands on that side, and right facial paralysis of the complete type. A diagnosis of tuberculous mastoiditis was made, and the mastoid antrum was opened, revealing the presence of a small amount of pus and a quantity of greenish-looking granulation tissue. The patient's condition improved steadily for about a week, and he then began to suffer from retention of urine and marked constipation; there was no vomiting or headache, and the optic discs were normal. From this time onwards the temperature fluctuated, rising to 100° or 101° every evening, with corresponding increase of pulse-rate, which varied from 90 to 116. Examination of the cerebro-spinal fluid showed it to be normal as to pressure, content, and sterility; the Wassermann reaction was negative in cerebro-spinal fluid and blood.

The first blood count, done on June 23rd, revealed an apparent condition of lymphatic leukæmia; the figures were: R.B.C. 2,091,000, W.B.C. 19,800, Hb 40 per cent., polymorphonuclears 7·5 per cent., lymphocytes 91 per cent., eosinophiles 1 per cent., basophiles 0·5 per cent. On June 30th the patient had severe epistaxis and complained of pain across the back at about the level of the eighth dorsal spine, and on July 16th he developed a left-sided facial paralysis. By this time the facial paralysis on the right side had greatly improved, and it had recovered completely before his death on August 4th. There was at no time any affection of the other cranial nerves. On July 21st a very slight bilateral enlargement of the inguinal glands was noted, and also a movable nodule the size of a pea about 1 inch to the left of the sternum in the third intercostal space. The liver was slightly enlarged. The blood count showed a steady increase in the number of leucocytes, and the last one taken before his death gave the following numbers: R.B.C. 945,000, W.B.C. 37,200, Hb 23 per cent., polymorphonuclears 2 per cent., lymphocytes 90 per cent., large mononuclears 6 per cent., myelocytes 2 per cent. The lymphocytes were all of the large variety and a very few normoblasts were seen; there was slight polychromasia and variation in shape and size of the red cells. The urine was normal throughout. The patient became gradually weaker and the pulse and temperature higher, fluctuating respectively between 130 and 150 and 100° and 104°. Death occurred on August 4th, seven weeks after the apparent onset of the disease.

Post-mortem Appearances.

Unfortunately, permission for a complete autopsy could not be obtained, so that practically no examination of the head was possible. The mastoid wound was reopened and somewhat enlarged, and it was found that the bone was rather soft and looked greenish-yellow on the cut surface; the antrum was filled with a soft greenish substance which was removed for examination. Spinal column and cord: There were numerous flattened greenish-yellow masses on either side and in front of the bodies of the vertebræ in the thorax and abdomen, and the largest, which measured 6 in. by 3 in., was invading the right psoas muscle. These masses were all closely incorporated with the periosteum, but did not invade the bone; the periosteum could be stripped cleanly off the bone, bringing the tumour with it. A similar substance was found in the posterior part of the vertebral canal in the mid-dorsal region and was pressing on the spinal cord. Skeletal system: A nodule of greenish-yellow tissue the size of a florin was situated immediately to the left of the sternum between the second and third costal cartilages towards the anterior surface. On the posterior surface this mass extended from the first to the fourth costal cartilage. Numerous greenish masses were incorporated with the periosteum on the inner surface of the ribs. In the upper end of the right femur the periosteum and bone appeared normal; the marrow was slightly greenish-yellow in colour. Lungs: There were small masses of lymphoid tissue on the surface of both lungs and numerous petechial hæmorrhages on the external and cut surfaces. Large lymphatic glands were found at the roots of both lungs; these showed no greenish-yellow colouration. Pericardium: Many petechial hæmorrhages. One or two greenish nodules the size of a pea on the cardiac surface. Heart: Many petechial hæmorrhages. Blood-vessels normal. Thymus normal. Stomach: Mucosa showed several irregular raised greenish-yellow patches, firm and hard to the touch; some small submucous hæmorrhages. Duodenum: A few large greenish-yellow masses on the mucous surface, chiefly in the first part. The remainder of the small intestine was normal. Large intestine: Numerous similar nodules the size of a pin's head. Liver: Surface slightly nutmeg with some fatty change. Spleen: Surface mottled; pulp a dirty yellowish-brown. Pancreas: Invaded by a few small greenish-yellow nodules. Kidneys: Left—The whole surface was studded with greenish-yellow masses from a pin's head to a farthing in size; these masses were firm and hard to the touch and scattered throughout the whole kidney. The intervening tissue was mottled dark red with hæmorrhages. The capsule stripped easily. Right—Condition similar, but less marked. Suprarenal capsules appeared normal. Lymphatic glands somewhat enlarged in neck, axillæ, and groins; the latter only could be examined and showed no greenish colouration. The mesenteric glands were enlarged, discrete, and purplish-red. Mouth and tongue appeared normal on external examination. Larynx, trachea, and thyroid gland could not be examined.

Microscopic appearances.—The bone marrow from the femur showed great hyperplasia of all the normal marrow cells, no particular type of cell predominating. In the kidney a section through one of the nodules showed many cells resembling plasma cells together with small round cells and a few with multiple nuclei. The (?) plasma cells contained an excentric nucleus approximately the size of a lymphocyte, and their protoplasm stained a faint mauve in an eosin-hæmalum preparation. There were numerous thin-walled vessels and the whole appearance was strikingly reminiscent of granulation tissue. In other regions of the kidney the tubules were separated by collections of similar cells. In the pancreas there was a similar infiltration, with pushing apart of the acini. The spleen and lymph glands appeared normal. In the stomach the mucous membrane showed evidence of post-mortem necrosis, and contained a few small collections of cells as above. In the liver the cells forming the greater part of the centre of each lobule were necrosed, and the intralobular veins were widely dilated. There were no lymphoid masses, such as occur in lymphatic leukæmia, and no infiltration resembling that in the other organs. The tissue from the mastoid antrum was composed of the same type of cells as above, as were also the nodules growing from the periosteum of the several bones; in the parts where muscle had been invaded the fibres were degenerate.

Remarks.

In nearly all the cases reported examination of the tumours and of the bone-marrow has shown them to be composed almost entirely of lymphocytes, mainly of the large variety. McCallum, in his "Text-book of Pathology," describes a type which he calls "myeloid chloroma," in which cells resembling plasma cells predominate and masses of myelocytes appear in the bone-marrow. In the present case it will be noted that there was a hyperplasia of *all* the elements of the bone-marrow, together with a variety of type in the cells composing the tumours. Further, in none of the reported cases have I been able to find an onset resembling mastoiditis, although, considering the frequency with which head symptoms are the first indication of the disease, this would not seem to be an unlikely occurrence.

I am indebted to Mr. J. Gay French and to Dr. J. W. Carr for permission to publish this case.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF MEDICINE.

ANÆMIAS OF THE HÆMOLYTIC JAUNDICE GROUP.

A MEETING of this section was held on Oct. 28th, Dr. A. F. VOELCKER, the President, being in the chair.

Dr. GORDON WARD read a paper on Anæmias of the Hæmolytic Jaundice Group. He said that there was a group of anæmias or of morbid states without anæmia which were characterised by (*a*) a tendency to familial, hereditary, and congenital incidence ; (*b*) an occurrence also in the form of sporadic, sometimes frankly infective cases ; (*c*) an intermittent or paroxysmal course ; (*d*) changes in the red cells, peculiar in most cases to these diseases ; (*e*) prior changes in the plasma on which the changes in the red cells depended ; and which (*f*) are of a nature to render the red cells more prone to destruction either by the normal mechanism of portal hæmolysis or by phagocytosis, or by both. This group comprised five diseases :—1. Hæmolytic jaundice or cholæmia, which included all cases, whether congenital or acquired, idiopathic or symptomatic. In these there was a predominance of portal hæmolysis, and the red cells were peculiar in their susceptibility to saline hæmolysis. 2. Dresbach's syndrome, of which only three examples were on record. It was accompanied by good health, but the red cells were elliptical in shape and very variable in size. There was no anæmia. 3. Herrick's anæmia, of which four cases were recorded. In all of these there were sickle-shaped red cells, but in one case these peculiar cells only developed after culture ; the patient's daughter had, however, the typical syndrome. There was severe anæmia, probably fatal in some cases, and although this was chiefly due to portal hæmolysis phagocytic cells had been found in the peripheral blood. 4. Malin's syndrome. Three cases were known. Splenomegaly was accompanied by severe, progressive, fatal anæmia, the circulating blood containing a great excess of white cells and large numbers of phagocytes. The latter appeared to be partly endothelial in origin and contained both red and white cells. An abnormality of the red cells and a primary defect in the plasma were presumed from various theoretical and experimental considerations. 5. Clough and Richter's syndrome, in which there was familial auto-agglutination of red cells. Very few cases were recorded, and the condition did not appear to be associated with anæmia.

Splenectomy was undoubtedly beneficial for some diseases of this group, and by considering them together this operation could be placed on a rational basis. Within recent years it had been proved possible to control disorders of the plasma to a considerable extent, usually by injection of various protein bodies. It was therefore of importance to realise the plasma defects underlying diseases which were not amenable to other forms of treatment, even if the knowledge could not yet have practical application.

SECTION FOR THE STUDY OF DISEASE IN CHILDREN.

EXHIBITION OF CLINICAL CASES.

A MEETING of this section was held on Oct. 24th, Mr. J. P. LOCKHART-MUMMERY, the President, being in the chair, when many interesting cases were shown. Among other cases were the following :—

Lipodystrophia.

Dr. F. S. LANGMEAD showed a case of Lipodystrophia. The patient was a girl, aged 7 years, who was quite well and normal in development until Christmas, 1917, about which time wasting was first observed ; it was not noticed to be localised. About two months later, after an attack of measles, the wasting became more obvious and progressed more rapidly. After the measles the child had an attack of acute rheumatism, for which she was confined to bed for six weeks. Later, with convalescence, the wasting was remarkable, and led to her admission to hospital. Dietetic treatment was followed by no improvement in her gaunt and emaciated appearance, and repeated examinations failed to reveal any cause. A stay in the country was attended with no better results. Examination showed that the wasting was confined to the upper part of the body and ended about the level of the umbilicus. The face and neck were markedly affected, all the fat seeming to have disappeared. Her face was consequently gaunt, with prominent bones and hollow cheeks and eyes, reminiscent of a "famine picture." The arms were wasted, but to a less extent, and the thorax and abdomen showed the same condition progressively less in a downward direction. The lower limbs were normal, straight, and slim, and, though not wasted, had no appearance of pseudo-hypertrophy, as was sometimes seen. The disappearance of fat was accompanied by no loss of power or other symptom, the child being in good general health. The only disability was a cosmetic one, which caused much anxious inquiry after tuberculosis or cancer by well-meaning friends, relations, and strangers.

Dr. F. P. WEBER and Dr. T. H. GUNEWARDENE communicated a report of the autopsy of a case of Lipodystrophia previously shown before the Section. The cause of death had been sepsis, and post mortem no changes had been found other than those of the cause of death. The ductless glands were normal. The absence of fat in the lipodystrophic area was more complete than is found in any variety of wasting disease. The disappearance of fat was limited to superficial structures, and had not occurred within the thorax or abdomen or about the viscera.

Familial Osteo-arthritis.

Dr. R. A. ARMSTRONG showed two cases of Chronic Joint Disease in the same family from Dr. H. Thursfield's out-patients' department at St. Bartholomew's Hospital, the condition being regarded as an osteo-arthritis. The boy, aged 12 years, was brought to hospital complaining of pain in the left knee-joint. He had had occasional attacks of indefinite pains in the joints since the age of 4, which were localised in the left knee at the age of 7. He had never complained of his hands, although his mother noted that his finger-joints were swelling as early as the age of 4. A year ago he had had general rheumatic pains affecting most of his body ; he was not feverish at the time, but had a slight swelling of the left knee- and ankle-joints, which were tender to the touch. Nothing could be found on palpation, nor was there any limitation or undue freedom of movement in the left knee and ankle ; the other major joints were normal. There was very marked enlargement of the finger-joints—the more pronounced for the relative slenderness of the phalanges themselves, due to wasting of the soft parts—and this condition was especially marked in the distal interphalangeal joints, particularly of the second and third fingers. There were well-marked knobs or bosses on the sides of the distal joints, which might fairly be likened to the Heberden's nodes characteristic of the type of osteo-arthritis of the smaller joints which occurred in adults. Skiagrams showed at present only atrophy of the ends of the shafts and epiphyses. The terminal phalanx of the little finger of each hand had undergone actual pathological dislocation towards the radial side. There was no grating and no evidence of erosion of cartilage could be obtained, but the movements of the fingers were somewhat limited and the boy was unable to make a satisfactory fist. A similar but less advanced condition existed in the toes, and his habit of everting his left foot when walking expressed an unconscious attempt to lessen the stress of walking on the toes of that foot, of which he complained more than of the right. In all joints the pathological condition was articular with wasting of surrounding tissues and tendons, rather than periarticular. In appearance the boy was rather pale and small, and he was below the average physical development for his age. No focus of infection had been found in the naso-pharynx or teeth. There was no enlargement of lymphatic glands and the spleen was not palpable. His sister, aged 11 years, showed a similar but less advanced condition of the finger-joints, the bony changes being relatively slight. The condition was slowly progressive, but she was to all appearance otherwise a healthy child. The mother had a typical osteo-arthritis of the smaller joints, which was becoming slowly worse. The two other children of the family—both girls—were free from the condition and both healthy. One child of a maternal aunt, a girl aged 20 years, developed a similar affection of the joints in childhood, and now had crippled fingers, and the maternal grandfather and great grandfather were also affected. Dr. Thursfield had devoted considerable time to a search through current literature and failed to find any reference to a condition similar to that described. It would seem that the cases afforded strong evidence in favour of the view that osteo-arthritis might truly be described as a disease of degeneration rather than due to an infective agent or to toxic absorption.

Köhler's Disease.

Mr. MAYNARD HEATH showed a case of Isolated Disease of the Tarsal Scaphoid (Köhler's disease). The patient was a boy, aged 7 years, who had knocked his left foot six months previously. He walked badly after the accident, and the foot became swollen a little, but gradually recovered. After about three months the swelling of the foot began again without pain or redness. When first seen the swelling had decreased, but was still present. It was diffuse over the inner border of the foot and most marked over the scaphoid. There was no redness or local tenderness, and no other bony lesions. The boy walked with the foot abducted. There was no paralysis, but the calf was a little wasted. The foot was put in plaster-of-Paris in corrected position, and he was allowed to walk on it. Recovery ensued in three months. There was a strong history of tuberculosis on the father's side, and the boy looked delicate; he had suffered from "bronchial trouble" since the cold weather, his mother had said, and when his chest was bad his foot swelled again slightly. X rays showed that the diseased scaphoid was smaller than normal, its outline was irregular, the architecture was impossible to recognise owing to the cortex and spongy portion running together, and its density was greatly increased. These changes agreed with the description originally given by Köhler, except that in his cases the outline of the bone was regular. Recent X rays, taken after an interval of six months, showed that the bone had returned to normal size, its density was very much decreased, but it was apparently divided into two parts by a cleft. The boy had now no symptoms.

Leukæmia.

Dr. GUNEWARDENE showed a case of Leukæmia with Scalp Nodules. The boy, aged 3 years and 4 months when first seen, suffered from an unexplained anæmia with a hæmoglobin percentage of 11, and 760,000 red blood cells per c.mm. He responded to treatment in five weeks, as evidenced by his general condition and blood examination. He then contracted measles, and about three months later developed nodules mainly on the scalp. The blood picture at this time showed a hæmoglobin percentage of 72, 5,500,000 red blood cells and myeloblasts. At this stage there were 69,000 white blood cells and 88 per cent. myeloblasts. Without treatment some of the nodules disappeared and others became smaller, but the hæmoglobin and red blood cells diminished. After treatment by injections of soamin and iron citrate the temperature rose, and a soft tender tumour developed, apart from the site of injection, but the general condition and blood condition seemed to be improving. The spleen was never palpable or enlarged to percussion, but the liver and superficial lymphatic glands were enlarged. The case was regarded as one of myeloid leukæmia.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.—A clinical meeting will be held to-day, Friday, Nov. 7th, in the society's rooms, West London Hospital. Cases will be shown at 8 P.M.

LEEDS AND WEST RIDING MEDICO-CHIRURGICAL SOCIETY.—At a meeting of this society held on Oct. 31st Dr. L. A. Rowden presented a paper dealing with the Principles of the Treatment of Hyperthyroidism by Radiations. The technique of treatment was explained and indications given as to the most suitable type of case for which radiations had proved their utility. An interesting discussion followed.—Amongst the cases and specimens shown at the meeting were the following:—Dr. R. A. Veale: A case of Oriental Sore.—Mr. W. Thompson: A case of Carcinoma of the Breast. The other breast had been removed for carcinoma 16 years before.—Mr. J. F. Dobson: Skiagram from a case of Ureteral Calculus removed by transvesical uretero-lithotomy.

Reviews and Notices of Books.

Naval Hygiene. By JAMES CHAMBERS PRYOR, A.M., M.D., Medical Inspector, United States Navy, Head of the Department of Hygiene, U.S. Naval Medical School. London: Wm. Heinemann. 1919. Pp. 508. 12*s.* 6*d.*

THERE is need in this country for an authoritative work on naval hygiene, if for no other reason than to lay down a standard of sanitary conditions on board ship which could be accepted by the Navy and the Merchant Marine. But just as the Navy 30 years ago allowed naval history to be rewritten by an American admiral, though the Reader of Modern History at Oxford happened at that time to be a retired captain in the Navy, so now it leaves the writing of books on naval hygiene in the hands, capable enough, first, of Gatewood, and now of Medical Inspector Pryor, of the United States Navy. We think the appearance of this book somewhat of a reproach to our initiative as a nation considerably interested in the health of those who go down into the sea in ships.

Dr. Pryor's book is smaller than Gatewood's, and is bright, gossipy, and interesting. It is also easy to handle. There is little account of methods of ventilation, or of the drift of air currents aboard ship, but it provides a good account of Fleet Surgeon R. C. Munday's investigations. U.S. ships give their men 150 to 200 cubic feet of air space, and fresh air warmed to 70° F. is supplied by thermo-tanks. As to filtration of water, the writer tells very humorously the story of a black railway-car porter who assured him that the water in his car was all right, saying, "It is filtheyed every day," and as the writer says, "No doubt it was." The U.S. naval ration is not detailed, but it works out at 4384 calories. No table of calorie values of foods is given—a pity when any naval surgeon may in emergency have to advise on a daily ration—and there is no statement of the food value of condensed milk. The wide variety of topics is indicated by the following samples. Oysters, we are told, should never be eaten raw, and smoking should not be permitted in the cells, or, as they are termed "brigs." It is recommended that the latrine troughs shall be daily disinfected with a steam hose. This is the first book on naval hygiene to have chapters on aviation and submarines. The U.S. Navy dived about a lost submarine at 51 fathoms, air being supplied compressed from flasks the divers took down with them, but the time they remained down safely is not stated. Carriers of typhoid are apparently allowed to serve on board, for it is noted that they should not be allowed in the galley or laundry.

"It is said," which so frequently appears in American newspapers, occurs too often in this book, thus disclaiming for the writer any responsibility for the statements that follow. Thus when the sterilisation of water is being discussed, we find that "chloramine-T is said to be a more powerful disinfectant than sodium hypochlorite"; should not the author, with the hygiene laboratory of the Navy behind him, have decided that question for the benefit of his readers if he was to load their minds with chloramine-T as well as with sodium hypochlorite? The book is insufficiently dogmatic, too many statements and alternatives are given without clear selection of the most important, and the reasons for a decision are not always clearly stated. There is, perhaps, too little history given us here to guide us among the alternatives. A naval surgeon can have but a small library. If in his book of naval hygiene the old problems and their solutions are recounted, the surgeon learns how to meet and deal with the new troubles he finds. Thus we are sorry that there is no story of how beri-beri was extinguished in the Japanese, or Mediterranean fever in the British Navy.

The original papers of the author are the chief interest in the book. He has always found that firemen who suffer from heat cramp have a transient but considerable albuminuria. There is a wonderful picture of a shark bite. The victim had nearly the entire abdominal cavity torn away. Many of the pictures are most excellent and instructive, but the coloured plates of joints of beef contributed by Messrs. Armour would be more useful in a work on cookery. The hygienist, when concerned with meat, focuses his attention on bad meat: it is rather pictures of diseased pleura, diseased glands, and parasites that he wants. For the index we have nothing but praise, and the second edition, which will speedily be required, will give the author occasion to make his book a little more stimulating, and so a better foundation for the improvements his pupils will, in their time, bring to the author's very important science.

Diseases of the Ear. By EDWARD BRADFORD DENCH, Ph.D., &c. London: Appleton and Co. 1919. Pp. 740. 30*s.*

THIS is a fifth edition of Professor Dench's well-known text-book. In his preface the author frankly admits that no complete revision has been possible. "One plate has been added, but apart from this the body of the work remains essentially the same." The chapter on labyrinthine syphilis has been modernised and an entirely new chapter on the functional testing of the static labyrinth has been added in deference to modern work. We are disappointed in the final result: the book might so easily have been improved, both by omission and by inclusion. As is usual with American books, the plates are good, but the book is burdened with a multitude of superfluous ones. A book of this size appeals mainly to the expert, and might be freed from the incubus of the time-honoured old cuts of varieties of aural specula and head-mirrors. On the other hand, the anatomical plates are excellent and of real value, and might well have been increased in number by the inclusion of something more directly in touch with actuality than the old Retzius diagrams to illustrate the microscopic structures of the cochlea. One feels a gap, too, in finding 20 pages devoted to furuncle of the external meatus without mention of the *Staphylococcus aureus.* It is disappointing to find the old teaching in which ossiculectomy is described at a length, which must imply the author's advocacy of it, and it is a genuine shock to have "stapedectomy" advocated at this day for the improvement of hearing "in selected cases" of all classes, non-suppurative, post-suppurative, and during active suppuration. The indexing is defective. We were for some time unable to find any but a trivial mention of otosclerosis by this means, but finally ran it to earth under the heading "Chronic catarrhal otitis media," a dubious neighbourhood, where otosclerosis is itself described as "rarefying osteitis of the labyrinthine capsule," a description unsupported by any evidence in the text. Under the heading of "Functional examination of the cochlea" there are illustrated a variety of more or less obsolete whistles, but there is, again by the index, no mention of the monochord. It was surely a mistake to issue a new edition without a more thorough revision of the text.

Chest Radiography at a Casualty Clearing Station. By R. LINDSAY REA, B.Sc., M.B. Belf., late Supervising X Ray Officer, 4th Army. London: H. K. Lewis. 1919. Pp. viii., 24, and atlas. 15*s.*

THOUGH happily the occasion for putting into practice the methods here described no longer obtains, this volume deserves notice inasmuch as it is a record of good work carried out in the face of many difficulties and under what were at times very unfavourable circumstances. The conditions of working called for no little ingenuity and the author is to be congratulated on the excellent results attained in the cases under his care. Though the work is of a strictly military character, it is not without its lessons in civil practice. The book is profusely illustrated, the chest radiograms being of a high standard—all the more remarkable when we remember the trying conditions under which they were produced.

JOURNALS.

Tubercle: a Monthly Journal Devoted to all Aspects of Tuberculosis. Vol. I., No. 1. October, 1919. London: Bale's Medical Books and Journals. 25*s.* per annum.—There have, we believe, been only three journals published in this country exclusively devoted to the discussion of tuberculosis problems. The first was a quarterly, and appeared for a few of the early years of this century as one of the praiseworthy efforts of the National Association for the Prevention of Tuberculosis. The second has had a longer career, being the *British Journal of Tuberculosis,* which is still doing excellent work, appealing alike to the interested public and to the profession. No reader of current general medical journals can have failed to observe the enormously increased space given to tubercle in recent years, and there is no doubt that ample material is forthcoming for a monthly periodical which shall gather up the best that is being said and done in the world of tuberculosis. We therefore welcome the first number of *Tubercle,* and may say at once that it will prove quite indispensable to any medical worker who wishes to keep abreast of the times, while lay workers will also find much of value to them. The place of honour among the original articles is given to one on endopleural operations, by Dr. W. Holmboe. It is well known that the success of artificial pneumothorax is often limited by adhesions tying the lung to the chest wall precisely where collapse is required, and Jacobaeus's operation, described in 1913, consists in cutting these adhesions with an electro-cautery guided by an electric thoracoscope introduced through the chest wall. Dr. Holmboe gives an account of the technical procedure in this difficult manœuvre, and records nine cases of his own. His practice is to examine with the thoracoscope every case of artificial pneumothorax, and, of 27 cases thus examined, 9 were regarded as suitable for operation. Of these selected cases 5 were notably benefited. It is worth observing that the actual inspection of the pleural cavity by means of the thoracoscope does not always confirm the radiographic picture—a fact which should be noted by some who place too much reliance on what are, after all, only shadows.

Other articles are that by Dr. John Guy on the Classification of Pulmonary Tuberculosis, and that by Sir StClair Thomson on a "Case of Innocent Tuberculosis." These are followed by book reviews and a series of useful abstracts, among which special mention may be made of those on the treatment of hæmoptysis and those on recent research in the United States. Professor Bang's article, "Is the Treatment of Hæmoptysis by Immobilisation Rational?" and Dr. Bergmann's, also on hæmoptysis, are so fully abstracted as to give a good account of this difficult subject. A critical article on the incidence of tuberculosis during the war points out that the rise in the death-rate of tuberculosis has been to some extent apparent rather than real, owing to the statistical error caused by withdrawing a large proportion of healthy males from the civil population. That the rise is not wholly apparent is shown by the fact that it affects females and well as males, and the withdrawal of healthy females from the civil population was too small to affect the figures materially. Other editorials deal with the status of tuberculosis officers, and with open-air schools. A Parliamentary report and reports of the doings of local authorities, societies, hospitals and sanatoriums, with news and notices of appointments, bring a very informing first number to a close. We wish our new contemporary every success.

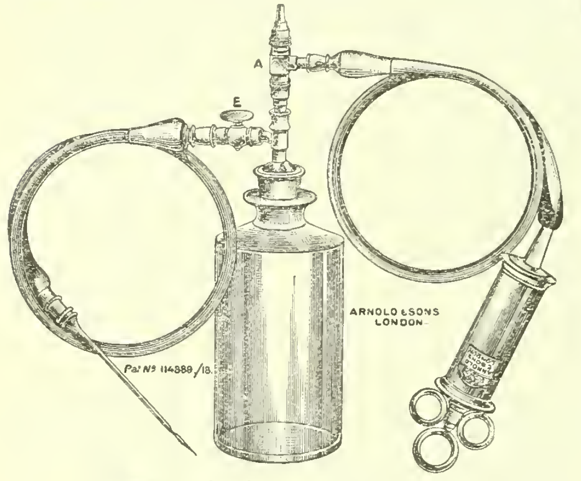
The American Journal of Syphilis.—The current number contains an article on Intraspinal Therapy in Neurosyphilis, by Dr. John A. Fordyce, professor of dermatology and syphilology in Columbia University, New York, the study of which we commend to all our readers, whether engaged in special work or not. The general practitioner will find his outlook as regards neurosyphilitic lesions both illuminated and widened by a perusal of Dr. Fordyce's work, which will tend to augment his sense of responsibility towards his patient and to deepen his scientific conception of disease. Two principles are enunciated by the author. He contends, in the first place, that if a systematic serological examination were made in every case of early syphilis, abnormal conditions would be frequently recognised before any grosser somatic indication of the destructive work of the spirochæte in relation to neural tissues. By prompt intraspinal therapy a serious lesion in later life might then be prevented. In the second place, the author is convinced that even in advanced cases where gross neural lesions are clearly manifested there is reason to believe that judicious intraspinal therapy, combined with the more ordinary method of treatment, may still produce useful results. And he is speaking of such conditions as paresis, tabes dorsalis, and optic atrophy. We hope that the author will supplement his present article in the near future.

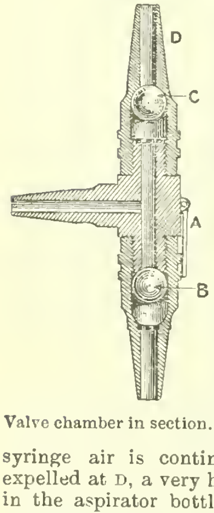
Medical Quarterly. Vol. I., No. 3, July, 1919. Department of Soldiers' Civil Re-establishment, Canada.—This number adequately carries out the purpose for which the journal was established—to publish contributions relating to the medical and surgical aspects of the problem of the discharged soldier. Dr. Le Mesurier contributes a useful article on Orthopædic and Prosthetic Appliances in the Late Treatment of War Disabilities. Figures illustrating modifications of the heel of the boot for painful flat-foot and Whitman's plates are included; also a figure of the metatarsal bar for use when there is pain on pressure on the sole over the heads of one or more metatarsal bones. The issue of the complicated metal arm with controlled elbow-joint, pronation and supination, and controlled finger movement has been discontinued, as most of the men supplied would not wear it. The Dorrance and the Bowler hook have been found to be very satisfactory. Dr. Le Mesurier considers that a patient should be taught from the first to do practically everything with his remaining hand, and should expect to use his artificial arm only as an occasional and very secondary assistant to his sound limb. That tuberculous patients should return to their former occupation and not change to outdoor work with worse pay and longer hours is the main theme of Dr. Stewart's article on Work for the Tuberculous. The University of Toronto are providing a course of training extending over two months for social service workers who follow up discharged soldiers in their homes.

New Inventions.

A NEW ASPIRATOR.

THE aspirator here illustrated constitutes a new departure from the instruments of the same nature at present in use, and will be found to simplify the apparatus greatly, as well as to present new features of advantage in practical working. The instrument consists of a valve chamber A, attached to the ordinary aspirator bottle; the vacuum, or negative pressure in the bottle, being produced with a syringe connected by means of rubber tubing to the valve chamber. No exhaust pump is required, the instrument being so designed that it will work with any ordinary syringe, such as an ear syringe. It has been tested with the cheap glass syringe that can be bought at any chemist's shop, and this has been proved to be quite efficient. It is the working of the valve chamber that gives the special features to the instrument. The instrument works as follows:—The valve chamber having been connected with the syringe the stop-cock E is turned off; the syringe is then used as a pump. On pulling out the piston of the syringe the ball valve B rises, and air is extracted from the bottle, at the same time the ball valve at C is sucked down, preventing any air entering the syringe from this part of the valve chamber. On pushing back the piston of the syringe, the ball valve at C rises and the air in the syringe is expelled at D, no air entering the bottle on account of the ball valve B falling and being held tightly in position by the suction in the bottle. By pumping with the syringe air is continually sucked from the bottle, and expelled at D, a very high degree of vacuum being produced in the aspirator bottle. No tap is required between the valve chamber and the aspirator bottle; the ball valve B acting automatically seals the opening from the bottle, thereby preventing any loss of vacuum. The valve chamber consists of a central body and upper and lower caps, which screw to the central body and are fixed with a small catch. The caps enclose the ball valves, and these ball valves fit accurately into seatings similar to a cup and ball. The valve chamber is attached to the aspirator bottle by a taper push joint. It is constructed in such a way that there is nothing to get out of order. It is detachable, and the different parts take to pieces and can be readily sterilised as required. The valve chamber has other minor mechanical refinements which, though necessary for the efficient working of the instrument, it would take up too much space to describe. The advantages of this instrument are:—1. It is a very simple form of aspirator. 2. There is nothing to get out of order. 3. It can be taken to pieces and readily sterilised. 4. It can be operated with an ordinary syringe, no exhaust pump being required. 5. It does away with the tap on the syringe side of the instrument. 6. The valve chamber can be detached and used where suction is required, as in Bier's treatment; attached to a suitable glass receiver it makes a powerful breast pump. 7. The exhaust at D may be used if required as a continuous force pump for either liquids or gases.





Valve chamber in section.

The instrument is manufactured by Messrs. Arnold and Sons, Giltspur-street, London, E.C. 1.

Southampton. F. W. HOPE ROBSON, M.D.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

MEETING OF COMITIA.

AN ordinary Comitia of the Royal College of Physicians of London was held on Oct. 30th, Sir NORMAN MOORE, Bart., the President, being in the chair.

In the course of the minutes of the Censors' Board it was announced that Mr. Jack William Jeffery had been appointed twenty-seventh Jenks Scholar.

The following candidates, having passed the necessary examinations, were admitted as Members:—Dr. W. J. Adie, Dr. Phœbe M. Bigland, Dr. F. G. Chandler, Mr. Major Greenwood, Dr. Isaac Jones, Dr. W. B. Knobel, Dr. F. D. H. B. Lawton, Dr. J. E. A. Lynham, Dr. B. T. Parsons-Smith, Dr. W. J. Pearson, Dr. E. L. Pope, Dr. R. M. Ranking, Dr. F. A. Roper, Dr. G. C. Willcocks.

Licences to practise physic were granted to 79 candidates who had conformed to the by-laws and regulations and passed the required examinations.

Communications were received from (1) the secretary of the Royal College of Surgeons of England, dated Oct. 10th, reporting proceedings of the Council of that College on Oct. 9th; (2) the secretary of the Ministry of Health, dated Oct. 6th, enclosing a list of the members of the Consultative Council on Medical and Allied Services.

The REGISTRAR proposed, for the first time, the following temporary by-law: "That Dr. Cuthbert Allan Sprawson, being resident abroad, be admitted to the Fellowship *in absentiâ*, any by-law to the contrary notwithstanding." This was passed.

A report was received from the Committee of Management, dated Oct. 14th, as follows:—

The Committee recommend that the Salford Royal Hospital be added to the list of general hospitals recognised by the Examining Board in England.

The Committee report that under Paragraph VI., Part 1, of the scheme for constituting the Examining Board in England the following members retire by rotation from the Committee: Sir James Galloway, K.B.E., C.B.; Sir George H. Makins, G.C.M.G., C.B.

On the nomination of the PRESIDENT, Sir James Galloway was reappointed a member of the Committee of Management.

After some formal College business, the PRESIDENT declared the Comitia dissolved.

AUXILIARY ROYAL ARMY MEDICAL CORPS FUNDS.—The usual quarterly committee meeting was held on Oct. 31st at 11, Chandos-street, Cavendish-square, W. Five grants were made to cases in the Benevolent Branch for Officers amounting to £350, and 62 grants in the Relief Branch for the rank and file amounting to £2007 5*s*. These Funds are for the relief of widows and orphans of commissioned officers and non-commissioned officers and men of the rank and file of the Royal Army Medical Corps, Special Reserve, Territorial Force, and New Armies, and also for the relief of the children of those who have been so severely damaged in the present war that they need help for the education of children. Requests for relief should be addressed to the honorary secretary, at the offices of the Funds, at 11 Chandos-street, Cavendish-street, W. 1.

FRENCH SUPPLEMENT TO THE LANCET

Under the Editorial Direction of

Professor CHARLES ACHARD, AND Dr. CHARLES FLANDIN, D.S.O.,
PROFESSOR OF PATHOLOGY AND THERAPEUTICS IN THE UNIVERSITY OF PARIS. CHEF DE CLINIQUE A LA FACULTÉ DE PARIS.

SECONDARY ECHINOCOCCUS.

BY F. DÉVÉ,
PROFESSOR AT THE SCHOOL OF MEDICINE, ROUEN.

IN distinction to primary echinococcus, which is connected with the local development of a hexacanthous embryo implanted from without, secondary echinococcus is characterised by heterotopous grafting and colonisation of germs set at liberty by the rupture of a fertile hydatid cyst within the same individual. Indeed, each of the parasitic elements—daughter-cysts, brood-capsules, and scolices—contained in a fertile mother-vesicle is able on transplantation to produce directly a new hydatid cyst. This pathogenetic conception is of modern development.

HISTORY.

The manifold hydatid cysts of the abdomen and pelvis, which form the most common and remarkable examples of the process, have certainly long been known to clinical and anatomical pathologists. But their development was explained erroneously. It was held that all these cysts were primary and that they owed their origin to the infestation of the individual by manifold hexacanthous embryos which had migrated through the walls of the alimentary tract into the subperitoneal cellular tissue.

In 1793 J. Hunter first put forth the suggestion that the hydatid cysts of the pelvis might be caused by the reimplantation of hydatids projected into the abdominal cavity by the rupture of a visceral cyst. This pathogenetic hypothesis was abandoned in consequence of the criticisms and doctrinal assertions of Charcot (1852) and Davaine (1857), but was destined to be revived by Bright. Long before Volkmann (1877), to whom German authors have, without any warrant, attributed this important idea, R. Bright pointed out very clearly *the danger of hydatid dissemination in the course of operations and punctures.*[1] In France, Potain (1877) called the attention of doctors to the possibility of grafting hydatids into the abdomen after the rupture of a cyst in the liver. From the year 1880 onwards a certain number of clinical facts were made known in various places which tended to support this view.

Still, a great number of pathologists remained doubtful. A series of objections of a clinical, anatomo-pathological, and especially zoological kind were made to the theory of hydatic graft. Doubt was thrown upon the cystic transformation of the scolices previously described by Naunyn (1862), and it was even flatly denied by leading helminthologists. As late as 1900 it could be called a "zoological heresy."

The *experimental method* was, however, destined to break down this resistance. In 1889 Lebedeff and Andreef showed that hydatids placed in the peritoneum of the rabbit graft themselves and continue to develop there. In 1898 Alexinsky established that hydatid sand, when inoculated into the abdominal cavity of the rabbit, caused living hydatid cysts. My own researches (1900–1901) confirmed these previously ascertained results, and defined them more clearly by showing irrefutably the actuality of the vesicular evolution of the scolex. In an inaugural thesis I gave the first connected study of what it was suggested should be called "secondary echinococcus," pointing out the important and hitherto unsuspected place of this process in hydatid pathology.[2]

PATHOGENESIS.

A priori there is in itself nothing remarkable in a hydatid daughter-cyst which has fallen into the peritoneum, continuing to live in the serous membrane after having encysted itself there. So this particular process was accepted without great difficulty. But that such a highly differentiated element as the *scolex*, the small *tænia-head* with its rostellum, its crown of hooks and its suckers could graft itself into the tissues and transform itself there *directly* into a hydatid, was such a wonderful "regressive metamorphosis" that it might well appear to be "truly antiphysiological" and "impossible."

None the less, *the vesicular evolution of the scolex* is a fact. Moreover, the procedure is exceedingly simple. The scolex increases in volume and becomes to some extent hydropic; the hydatid development which goes on in its inmost recesses stretches its protoplasmic reticulum and compresses it towards the periphery; finally, it spreads it out in form of a thin plasmodial (the future germinal) layer on the internal face of the cuticle. The latter becomes thicker and soon presents a characteristic stratification. As for the crown of hooks, which has quickly fallen into confusion, its elements are found reassembled within the thickness of the germinal layer in the shape of an accumulation of 32 to 36 interlocked hooks, which present the "signature" of the original scolex. From this point onwards we have to deal with a completely living hydatid cyst, destined to become fertile.[3]

We have lingered a little in describing this remarkable vesicular transformation of the scolex, because it seems that in the pathogenesis of secondary echinococcus the *grafting of the scolex* plays a far more important and general part than the "grafting of the hydatids" properly so-called, to which reference is usually made. As a matter of fact, it is noticeable that pockets with multivesicular contents represent an inconstant, and to some extent fortuitous, form of the hydatid cyst.[4] These multivesicular cysts have no tendency to burst spontaneously in the serous membranes (absence of intracystic tension, usual thickness of the adventitious capsule, relative frequency of adhesive pericystitis). Finally, the complex contents of the cysts in question are often septic, hence frequent occurrence under similar conditions of more or less serious peritoneal accidents.

Being elements which are at one and the same time constant, resisting (cuticle), full of vitality (glycogen), microscopic (135 μ) and really innumerable (400,000 per cubic centimetre of hydatid sand), the *scolices* may be found distributed in every direction, carried along by the plentiful aseptic hydatid fluid. *Their impalpable dust confers on the cystic liquid absolute conditions for causing infection.*

Thus, in the rupture of univesicular fertile cysts—the typical form of hydatid cysts—the echinococcus dust alone is responsible. It alone is also to be blamed in cases of hydatid grafts following on capillary punctures. Being practically invisible in the course of surgical interventions it again is at the bottom of most post-operative relapses. Finally the scolex dust is the only parasitic element intervening in metastatic echinococcus, for when the daughter-cysts are carried into the circulation of the blood, they always bring about brutal mechanical accidents, hydatid embolisms, which are rapidly fatal.

PATHOGENIC FORMS.

The echinococcus graft may remain localised, or, on the contrary, it may spread in the neighbouring tissues. Very often it spreads over the whole surface of a serous membrane.

---

[1] R. Bright: Clinical Memoirs on Abdominal Tumours and Intumescence. London, 1861, p. 55.

[2] F. Dévé: De l'échinococcose secondaire, Thèse, Paris, 1901.

[3] Archives de Parasitologie, 1902, vi., p. 54.

[4] La Presse médicale, August 8th, 1918.

Sometimes it makes use of the circulation as a path by the help of which to reproduce its characteristic lesions at a distance. Finally, and exceptionally, its elements may colonise a system of mucous canals. We propose to review briefly these various pathogenetic *modalités*, selecting the most typical example of each case.

1. *Local Secondary Echinococcus.*

Although it occurs very rarely, echinococcus of the heart will provide us with a most instructive example of the process.[5] A fertile hydatid cyst of the myocardium bursts spontaneously in one of the cardiac cavities. Contrary to what might be expected in such a case, survival is the rule when the cyst does not contain hydatids. Beside the specific microscopic elements projected into the circulation, which move off to form distant colonies (we shall come back to this process directly), there remains a certain number of scolices in the cyst invaded by the blood. The clot which is formed in this pocket contains a whole host of scolices, which undergo vesicular evolution on the spot. Months or years afterwards a polycystic mass will be found projecting more or less into the cardiac cavity in place of the old unilocular cyst, which has burst.

The same process governs post-operative relapses which sometimes develop in the actual cavity of cysts (in the brain or the liver) which have been surgically evacuated with insufficient precautions. Cases of relapse in the cicatrix left by the operation, or in the subjacent operative region, are not exceptional and belong also to local echinococcus grafts.

2. *Diffuse or Interstitial Secondary Echinococcus.*

This phenomenon is observed almost exclusively in cysts of the muscles and bones. Its pathogenetic mechanism is as follows: A univesicular muscular hydatid cyst bursts by reason of a contraction having abruptly exaggerated its internal tension. Flooding the neighbouring relaxed conjoining spaces, the cystic liquid distends them into real "halls of œdema." The interstitial hydatid inundation brought about in this way (it is often facilitated by the "massage" caused by the muscular contractions) infiltrates into the intermuscular and perivascular connecting planes. Now this inundation brings with it its own specific "silt," which is deposited in the connective meshwork. Hence, there occurs later a colonisation of hydatid cysts systematised in the intermuscular spaces and the vascular sheaths of an anatomical region.

3. *Secondary Echinococcus of Serous Membranes.*

The common case of a cyst of the liver which has burst into the peritoneum may here serve as an example. Let us first recall that, contrarily to what was so long classic doctrine, serous membranes usually remain indifferent to the presence of hydatid tumours in the subjacent viscera; as a rule, hydatid cysts of the liver, if not complicated, project freely into the peritoneal cavity." In that case the univesicular hydatid tumour—a voluminous incompressible "hall of water"—on bursting or fissuring abruptly under the influence of a sometimes very slight pressure, which has exaggerated its tension, will inundate the whole abdomen and disseminate the hydatid sand floating in its liquid. The echinococcus germs will be deposited in the smallest recesses of the serous membrane of the peritoneum, notably in its lowest portions: Douglas's cul-de-sac, iliac fossæ, hernial sacs.[6] Another favourite seat is the epiploon, the net charged with the duty of gathering up the foreign bodies existing in a free state in the peritoneal cavity.

This is the origin of the multiple cysts of the abdomen, observed in 15 per cent. of the cases of hepatic echinococcus, which become apparent two, three, five, or ten years after the initial more or less latent rupture. By reason of its extent, its diffusion, the often innumerable multiplicity of its elementary lesions, secondary echinococcus of the peritoneum presents almost all the characteristics of a malignant affection. Moreover, it often produces in the mind of the operator a feeling of powerlessness and discouragement. It is important to react vigorously against this feeling. We shall return later to this point. With regard to the pathogenesis of this affection, it is a peculiarity which at first sight seems paradoxical, and long led observers astray, that all the cysts are covered by the peritoneal endothelium; they are *subserous*. It was this circumstance that persuaded the old anatomo-pathologists that the cysts in question are acquainted with some extraperitoneal approach (interstitial migration of the hexacanthus embryos, advance in the subperitoneal lymphatics). This subperitoneal seat of the parasitic tumours is explained by a process of fibrinous envelopment, which is in our days well known and is common to all foreign bodies in the serous membranes.

As a rule, secondary echinococcus of the abdomino-pelvic cavity owes its origin to the rupture of a hydatid cyst of the liver. But the original cyst may sometimes have its seat in the spleen, and exceptionally in the kidney or the mesentery.

To the same physio-pathological causation there are due, on the one hand, secondary echinococcus *of the pleura*, following on the intrathoracic rupture of a cyst of the lung, liver, or spleen, and, on the other, secondary echinococcus *of the pericardium*, connected with the intramembranous rupture of a primitive cyst of the heart[7]

4. *Embolic or Metastatic Secondary Echinococcus.*

The large sanguineous cavities are just as little protected as the serous membranes against the rupture of subjacent hydatid cysts projecting more or less into their bore. The minute scolices projected into the circulation by the rupture of the cyst are arrested by the capillary filter of the corresponding vascular system and carry out their further cystic development there. This is the pathogenesis of "hydatid metastases," the theory of which had already been formulated by Budd.[8]

These metastases affect the venous circulatory system or the great arterial circulatory system. A varying and relatively peripheral starting-point (iliac region, liver, right side of the heart) and a constant, central point of arrival (the lung); these are the characteristics of the process in cases of venous metastatic echinococcus. For arterial metastatic echinococcus the pathogenetic conditions are the inverse: the starting-point, central and constant (left side of the heart), the points of arrival, peripheral and multiple (brain, spleen, kidney, liver, muscle, bone).

In both varieties the embolic secondary echinococcus is characterised by the multiplicity of the visceral cysts, the approximate uniformity and relative smallness of their bodies, their bilateral cortical distribution, and finally by their vascular connexions, which are sometimes still recognisable. The cysts in question coexist with a cyst situated at a higher point on the sanguineous circulation, a cyst which is clearly of older date and presents certain characteristics testifying to its antecedent rupture.[9]

5. *Secondary Echinococcus of Mucous Membranes.*

This last form of secondary echinococcus consists of the colonisation of echinococcus germs in a system of mucous canals. A univesicular cyst of the lung bursts in a bronchus, flooding the bronchial tree and sowing its specific sand. Of course, most of the parasitic elements are expelled by means of expectoration, but a certain number of scolices can pursue their cystic evolution in the extremities of the bronchial ramifications. We have made experimental proof of this process, several examples of which have been observed in human pathology.[10] A colony of the same type may be developed at the inside of the biliary ducts, the pelvis of the kidney, the uterine tubes, or even the ileo-cæcal appendix. But these are, indeed, exceptional cases.

SYMPTOMATOLOGY AND EVOLUTION.

From the point of their general symptomatology and evolution the various varieties of spontaneous secondary echinococcus require the following stages: firstly, an *initial cataclysmic stage*, marking the rupture of the original cyst; secondly, a *latent stage*, more or less prolonged, corresponding to the silent germination of the echinococcus seeds; thirdly, a *phase of progressive appearing*, during the course of which the cysts, having slowly increased in volume, begin to bring about some functional disturbance or become perceptible to various means of clinical exploration (vaginal or rectal palpation, radioscopy); and fourthly and lastly, a *static phase* with complications.

In certain cases a *spontaneous involution* of the cysts is observed, accompanied by infiltration of cholesterin and calcareous elements. There may be a premature arrest in the development of the echinococcus grafts. This gives rise to the formation of small granulations imitating tuberculosis, which constitute *pseudo-tuberculous hydatid*.[11]

---

[5] Soc. de Biologie, Oct. 21st, 1916.

[6] Ibid., Nov. 10th, 1917.

[7] Soc. de Biologie, Dec. 18th, 1915.

[8] Budd: Diseases of the Liver, 1852.

[9] Cf. Mme Boppe: L'échinococcose pulmonaire métastatique, Thèse, Paris, 1916. Mlle Dumont: L'échinococose cérébrale métastatique, Thèse, Toulouse, 1918.

[10] Soc. de Biologie, July 16th, 1904.

THE SHARE TAKEN BY SECONDARY ECHINOCOCCUS IN HYDATID PATHOLOGY.

One of the great anatomical characteristics of secondary echinococcus is the *multiplicity of cysts*. This multiplicity is very naturally to be explained by the simultaneous dissemination of a large number of hydatid germs scattered by the rupture of the fertile cyst. But the primitive echinococcus may itself be multiple, for this multi-infestation, regular in animals, is far from rare in man. According to investigations *primitive* cysts in man are *multiple in more than a quarter of the cases* (28 per cent.). Now, it must be remembered that in such circumstances *two-thirds of the cysts are situated in the liver*. Hence the conclusion that "when in the case of a person affected by multiple hydatid cysts, the number of extra-hepatic cysts considerably exceeds the proportion of one-third, there are a priori grounds for suspecting the intervention of secondary echinococcus."[12]

Let us now rapidly review the principle localisations of hydatid disease, in order to ascertain the share which falls to secondary echinococcus. Even though multiple the cysts of the *liver* are most often primitive. Two exceptions must be borne in mind, though they are not equally important. They relate to (*a*) perihepatic cysts, which are more or less deeply set in the capsule of the liver and belong to the class of secondary echinococcus of the hepatic peritoneum; (*b*) hepato-biliary cysts, subsequent to a cyst of the liver opening into the biliary canalisation. The former are as frequent as the latter are rare.

Similarly, cysts of the *lung* are almost always primitive. Three exceptions, which on account of their rarity are nearly negligible, are connected with secondary cysts of the visceral pleura or with metastatic pulmonary cysts, or, finally, with broncho-pulmonary grafts consequent on a hydatid vomica.

The cysts of the *spleen* are primitive, exception being made in favour of perisplenic peritoneal cysts and the very rare metastatic cysts associated with an old hydatid cyst of the left side of the heart. Hydatid cysts of the *kidney* are also primitive, if we eliminate the juxtarenal peritoneal cysts. Metastatic echinococcus of the kidney, which is by the way exceedingly rare, does not give rise to symptoms.

Cerebral echinococcus is also nearly always primitive, especially in the case of children. Still the discovery of multiple cysts of the encephalon must call immediate attention to the eventuality of embolic secondary echinococcus with a cardiac starting-point.

On the other hand, with reference to *multiple hydatid cysts of the abdomen*, the position which is taken up in this thesis is to-day hardly contested—viz., that "these cysts are nearly always secondary and have for origin the apparent or latent rupture, which may be traumatic or spontaneous, of a visceral cyst which in the vast majority of cases has its seat in the liver."

The same remark applies to the multiple varieties of *hydatid cysts of the pelvis*. Until a recent period these cysts were looked upon as of primitive origin in the various pelvic organs. Most surgeons and gynæcologists now adopt the view which we took in our inaugural thesis: "as a rule cysts of the pelvis are secondary cysts of the pelvic peritoneum." Douglas's hydatid cysts, those of the ovary, the Fallopian tubes, the broad ligaments, the uterus, the bladder, the prostate, &c., all these various classic rubrics—like those of hydatid cysts of the epiploon, the mesentery, the mesocolon, the appendix, &c.—must henceforward disappear from statistics of primitive echinococcus, for, excluding a few exceptional cases, all these cysts only represent secondary localisations of the hydatid malady.

Prognosis.

The diffusion of the lesions, the insidious compressions which they occasion (rectum, bladder, ureters), the adhesions which accompany them and make their extirpation so difficult, and, on the other hand, the fragile nature of the cysts, their frequent bursting in the course of operations, thus exposing the patients at once to the dangers of hydatid poisoning and of a specific re-sowing of germs; all these peculiarities explain the seriousness of secondary echinococcus of the abdomino-pelvic cavity and increase the importance of its prophylaxis.

PROPHYLAXIS OF SECONDARY ECHINOCOCCUS.

Hydatid dissemination may be caused by the spontaneous rupture of a fertile cyst; it may also be produced artificially by a medical puncture; finally, it may be brought about just as artificially by the surgeon in the course of some intervention. Hence the following prophylactic maxims may be laid down:—

1. Endeavour to recognise hydatid cysts betimes; seek them in adolescents and in children.
2. Never make either exploratory or therapeutic punctures into a hydatid cyst.
3. Operate as soon as the cysts are recognised.
4. Operate correctly, striving to avoid insemination of living echinococcus germs, which is a possible cause of hydatid relapse after operation.

The relative frequency and seriousness of these cases of *relapse due to operation* have been mistakenly contested by certain surgeons. As for their frequency, we know at present of about a hundred authentic cases of this type, most of them having been observed within the last 20 years. According to some modern statistics, the relative frequency of the complications in question can be estimated as three or four per 100 operations. As for the gravity of the relapse, it is well to remember that, by the side of benignant forms in which the graft has developed superficially in the cicatrix of the operation, deeply seated relapses have been found, calling for one or more serious operations. In a certain number of cases patients who have been operated upon have succumbed as the result of the cysts having been spread over the whole of the abdominal cavity.

Hydatid relapse is therefore not, as has been said, a "practically negligible complication." And if it is shown that a simple and harmless practice—"*formolage*"—is mostly sufficient to safeguard the patient the surgeon would be foolish to neglect this precaution. In this connexion we recall the view expressed some years ago by Dr. Barnett, an experienced surgeon in New Zealand: "Some surgeons pay little attention to the risk of post-operative recurrence due to the grafting or dissemination of hydatid material. ...... My own personal knowledge of eight such cases has led me to adopt the formolisation method of Dr. Dévé."[13]

Preliminary formolisation is performed after laparotomy has been carried out, the cyst being under the finger of the operator and the peritoneum being protected. The operation comprehends three stages: (*a*) Evacuating puncture of the cyst; (*b*) injection into the now evacuated cystic cavity of an almost equal quantity of 1 or 2 per cent. solution of formalin, which is left in contact with the pocket for four to five minutes; (*c*) evacuation of the parasiticide solution. The parasite is now sterilised. The operation may be continued according to the method chosen.[14]

Although easily practicable and perfectly efficacious in the case of univesicular hydatid cysts, this preliminary parasiticide injection unfortunately becomes insufficient and often impossible to accomplish in the case of multivesicular cysts. We have, then, to be content with cleansing the evacuated pocket with some parasiticide (formalin, ether).

SURGICAL TREATMENT OF SECONDARY ECHINOCOCCUS OF THE ABDOMEN.

When faced with multiple cysts of the abdomen the operator must avoid two faults, still often committed. The first consists in being discouraged by the multiplicity of the cysts and the prospect of their recurrence, and giving it up or closing the stomach. *These patients must not be given up, they must be operated upon.* The second error consists in wishing to accomplish the complete eradication of the lesions in a single operation. Multiple echinococcus of the abdomen calls for prudent treatment "in small doses," in *successive interventions*. Partial clearances must therefore be made, first of all by means of sub-pubic laparotomy, taking in hand the pelvic cystic masses (dangerous on account of latent compression of the ureters). Pediculate cysts, those of the omentum, are extirpated without preliminary formolisation. As for sessile cysts, which are difficult and dangerous to enucleate, we may restrict ourselves to treatment by *formolisation in situ*, with the aid of a "trocar formolateur."[15] It is not necessary to be unreasonably worried by the small cysts which may escape operation. Very many of them will spontaneously proceed to involution.

---

[11] Cf. J. Le Nouëne: La Pseudo-tuberculose hydatique du péritoine, Thèse, Paris, 1912.

[12] Soc. de Biologie, Nov. 24th, 1917

[13] L. E. Barnett, Intercol. Med. Congress of Australia, Auckland, February, 1914.

[14] Cf. L. Quemin: L'injection parasiticide préalable dans le traitement opératoire des kystes hydatiques, Thèse, Paris, 1909. G. Bezière: Contribution à l'étude du formolage préalable des kystes hydatiques (Temps opératoire de F. Dévé), Thèse, Paris, 1914.

Surgery may succeed in restoring these patients entirely. But, failing an absolute cure, it will often procure for them a long survival compatible with an active existence.

A CASE OF
PERITONEAL ECHINOCOCCUS.[1]

BY CHARLES FLANDIN,
CHEF DE CLINIQUE MÉDICALE AT THE FACULTY OF MEDICINE IN PARIS.

On April 1st, 1919, Mme. B., a servant, 49 years old, came into Professor Chauffard's Clinic at St. Antoine's Hospital. She complained of pain in the right thigh and of tumours in the abdomen. She looks rather older than her actual age, but has a fresh, ruddy face. There are no feverish symptoms, her appetite is excellent, and the digestive organs work normally.

Attention is at once directed to the abdomen. It is large, but without excess of fat, and seems tumid in the two iliac fossæ, especially on the right side. A long median cicatrix runs nearly from the ensiform cartilage to the os pubis. It is a clean cicatrix, but in the neighbourhood of the navel there is a hernial protrusion for several centimetres, and below the cicatrix there are three regularly rounded tumours, smooth and mobile. One of them is as big as a walnut, the two others as big as cherries.

Palpation of the abdomen reveals a hard diffuse distension, giving a sensation analogous to that of a cæcum filled with solid matter. It is more fully developed on the right side, but it certainly seems to be an unbroken mass, going down into the pelvis and filling it completely. Vaginal palpation confirms this impression. A normal cervix is found, hard, regular, a little depressed and pushed back. It is impossible to identify the uterine body in the midst of a hard compact mass, giving the impression that the pelvis has been filled with cement. No sensation is transmitted from vaginal finger to abdominal hand, nor reciprocally. In fine, physical examination suggests a cancerous infiltration of the whole pelvis, starting near the abdomen. But there are not at present any uterine symptoms, and the excellent general state of health does not favour this hypothesis. Moreover, the other organs are healthy. The liver is rather large, 14 cm. along the mammillary line, somewhat hard, but not deformed. Radiological examination proves its regularity, besides verifying the appearance and normal functioning of the intestine.

The diagnosis would have been singularly difficult had not the small tumours discovered on the surface of the cicatrix suggested the idea of a hydatid cyst, which was turned into certainty by the history of the patient. The woman had, indeed, been already operated upon three times. We have only very scanty information about the first operation, which took place at 25 years of age and affected the pelvic organs. It is an important circumstance that she had a violent attack of generalised urticaria. It is well known how frequently this occurs after the opening of a hydatid cyst. After this operation menstruation ceased and the usual disturbances, such as premature menopause, attacks of heat, embonpoint, &c., made their appearance.

At 39 years of age there came an attack of icterus caused by retention, with severe pains in the region of the liver. About every six months since then there occur painful attacks of such violence that syncope and bilious vomiting often supervened. During the course of one of these abdominal attacks in 1913 M. Le Noir, a physician of St. Antoine, found a regularly rounded tumour, which caused no pain, on the median line in the subumbilical region. On his advice Professor Lejars carried out an operation, which was so successful that the patient was able to leave the hospital in a week. But the painful attacks, combined with syncope, soon reappeared and a fresh tumour formed in the neighbourhood of the navel.

Professor Lejars operated again on Feb. 24th, 1915. The report runs: "Hydatid cyst of the umbilicus—incision and ablation—reunion." After this third operation the relief given was very marked; the painful attacks diminished both in intensity and frequence. But from 1917 onwards the small tumours, which we noticed in the cicatrix, began to grow and the stomach gradually increased in size. Finally, for some months painful irradiations in the right thigh in the domain of the sciatic and crural nerves became more frequent and led the patient to come again for advice.

The history of the patient therefore confirms our diagnosis, which may be formulated as follows: *Multiple recurring hydatid cysts of the abdomen and pelvis.*

If we had no operative proof of the correctness of our diagnosis, the laboratory could give us useful information. Firstly, the complement-fixation reaction. But this only indicates probability, for it is often negative in the case of closed cysts; and, on the other hand, it has been found positive in the absence of hydatid cysts, notably in the case of sarcoma. Secondly, the examination of the blood, which in our case gave the following results:—

Neutrophil multinuclears	... ...	40 per cent.
Eosinophil ,,	... ...	*30* ,,
Mononuclears	... ...	17 ,,
Lymphocytes	... ...	13 ,,

The huge number of eosinophils is a strong argument in favour of the theory of a hydatid cyst. It is, however, often observed to disappear in the hours subsequent to the operation.

What is the origin of these hydatid cysts of the abdomen, the first manifestation of which dates back for 24 years? In view of our knowledge of abdominal echinococcus in man it is hardly probable that the cysts of the pelvis operated upon 24 years previously were the original tumours. Dévé's patient researches have shown that hydatid cysts of the peritoneum are practically always consecutive on the rupture of a hydatid cyst of the liver. This original tumour was not found in our patient. But was it looked for? Is a hydatid cyst of the liver at present still in existence? Clinical knowledge cannot yet give a sure answer. In the meantime, we must stick to the long story which the patient has to relate of most painful abdominal attacks in the region of the liver. Are they connected with inflammatory attacks, with pericystic reactions? It is very possible. However that may be, clinical and radiological examinations are at present negative. Although we may suggest to the surgeon to take advantage of laparotomy, one cannot say that a hydatid cyst of the liver still exists.

From the therapeutic point of view we turn for the fourth time to surgery for help; indeed, if a hydatid cyst is diagnosed, operation is imperative. In the case of our patient everything points to the progressive growth of pelvic cysts. The indications of compression are already manifesting themselves—pains in the domain of the sciatic and crural nerves. The evolution of the tumour may cause an increase of these pains and, what would be more serious, the compression of the veins, arteries, ureters, and intestines, bringing with it grave functional disorders. One of the complications to be apprehended is the rupture of cysts and their fresh dissemination. For all these reasons an operation is necessary. But it is a long and difficult one, in which the surgeon must not leave a single cyst alive. It is as simple to remove a large hydatid cyst after formolisation as it is difficult to clear a peritoneum and, above all, a pelvis filled with secondary cysts like a bag of walnuts. Especially when they are sessile, all the small tumours cannot be removed. They must be punctured and sterilised one by one by the use of formalin, otherwise there is the risk of recurrent development, as in the case of our patient. Finally, as we have already said, the liver must be explored and we must seek for the primitive cyst, which is perhaps still active, in any case very old, dating back, in some patients, to early infancy, as Dévé has found. The prognosis is therefore serious, whether the patient is left to herself, with the risk of the compression and rupture of which we have spoken, or whether an operation is performed. We adopt the latter alternative without any hesitation, but the immediate danger must be faced, that the operation will be long and serious if the surgeon attempts a radical cure, which may possibly leave some living vesicles destined to evolve in the direction of increasing size or of rupture and secondary insemination. In other words, it is not at all certain that the operation to be attempted will be the last.

From this observation it will be seen how difficult is the diagnosis and treatment of secondary echinococcus of the peritoneum.

---

[15] Arch. génér. de Chirurgie, June 25th, 1913.

[1] From Professor Chauffard's Clinic.

THE LANCET.

LONDON: SATURDAY, NOVEMBER 8, 1919.

General Medical Council Election.

The following is the official list of those duly nominated as candidates for the election of Direct Representatives for England:—R. A. Bolam, O.B.E., M.D., Newcastle-on-Tyne; J. Brown, M.D., Blackpool; W. F. H. Coke, M.R.C.S., Ashford; J. A. Macdonald, M.D., Taunton; G. A. Main, M.B., Stockport; A. Blackhall-Morison, M.D., F.R.C.P., London; E. H. M. Stancomb, M.B., Southampton; E. B. Turner, F.R.C.S., London; Sir T. Jenner Verrall, M.R.C.S., Bath; A. Welply, M.D., London. The voting papers are being issued to-day. The counting of the votes will be finished on Wednesday evening, Nov. 19th. The last election was held in 1911.

Of the candidates, Dr. Bolam, Dr. Macdonald, Mr. Turner, and Sir T. Jenner Verrall were chosen by the British Medical Association, at the last annual meeting of Representatives, to be supported by the Association at the coming election. Dr. Macdonald and Sir T. Jenner Verrall are seeking re-election, while Dr. Bolam and Mr. Turner are contesting the constituency for the vacant seats of Dr. Langley Browne and Dr. H. A. Latimer. The joint election address of these four candidates will be found in our issue of Oct. 18th. The chief points in their programme are that the developments under the Ministry of Health will call for serious consideration by the General Medical Council, and that the dangers of unqualified practice and the regulation of medical education require earnest attention by the same body. In a covering letter issued to the constituency by the four candidates it is pointed out that discussions of medical politics are frequent at the British Medical Association, so that members of the General Medical Council, in touch with the Association, would be familiar with medical opinion on the great problems of public health. Dr. Coke, Dr. Main, Dr. Stancomb, and Dr. Welply are nominees of the Medico-Political Union. Their joint address is published in our columns this week, in which they suggest that the changes in the panel and other medical services raise new ethical questions which must be looked at essentially from the general practitioner's point of view; while they make the special and valuable point that in the reform of medical education the general practitioner should have a considerable voice in the necessary reconstruction. In the opinion of the nominees of the Medico-Political Union, itself a democratic body, the General Medical Council should be composed entirely of representatives directly elected by the whole profession. The candidates put forward by the British Medical Association and by the Medico-Political Union alike appeal to the constituency on the unassailable ground that the more information as to general practice which is placed at the disposal of the General Medical Council the more effective will that body be; but while the nominees of the Association hold that the experience afforded by official work in that large and powerful body affords the necessary equipment, the nominees of the Medico-Political Union would have all the General Medical Council chosen by popular vote, leaving it to the constituency as a mass to select the men in whose work for the profession the greatest public confidence is felt. Dr. Blackhall-Morison is standing by the nomination of the National Medical Union, a body whose policy is for the most part opposed to developments of panel practice, believing that they may eventuate in that medical trade-unionism which is the ideal of many members of the Medico-Political Union. His address is also published in our columns this week, and his candidature is supported by the Scottish Medical Guild. Dr. John Brown is standing as an independent candidate, going to the poll in protest against the nomination by the British Medical Association of four candidates for the four vacancies. He makes an interesting point in his election address when he suggests that, if the English constituency were divided into four for electoral purposes, the cost to intending candidates would be by so much lighter. The ten candidates have placed their views succinctly before our readers, and an interesting contest should ensue, turning upon the support which different groups of political thought will receive from the voters, all the candidates having the same object—namely, the advance in status and efficiency of that great bulk of the medical profession which has the care of the health of the people in its direct charge.

Three candidates are in the field for the seat of Direct Representative for Scotland—namely, Dr. Norman Walker, the sitting representative, Dr. Michael Dewar, of Edinburgh, and Dr. Ebenezer Duncan, of Glasgow. The views of all three have been published in our columns, and notes of their public statements have appeared in our Scottish correspondence. Dr. Ebenezer Duncan in his address makes some detailed recommendations for the reform of the medical curriculum, and as a general practitioner has had first-hand experience in the problems of medical life. The same point is made by Dr. Michael Dewar, who comes forward as "a general practitioner in active practice ...... strenuously engaged for the last 17 years or more in furthering the interests of the profession." Dr. Norman Walker has been the Direct Representative for Scotland on the General Medical Council for the last 13 years, and in that position is able to address the voters upon the reorganisation of the medical curriculum in a way which has a valuable bearing on the previous work of the Council, and on the duties which certainly will devolve upon that body through the setting up of a Ministry of Health. Throughout his public pronouncements he shows his familiarity with all sides of professional life, and as there is nothing stale or reactionary in his proposals, but, on the contrary, as they are mainly young and progressive ones, the chief argument for replacing an old and tried servant is removed. No doubt the opposing candidates would, in his absence, be strong ones, but with Dr. Walker in the field we do not expect to see any change in the representation in Scotland. In Ireland Dr. Leonard Kidd, the sitting member, proposes to offer himself for re-election as Direct Representative, when he will be opposed by Dr. J. C. McWalter, coming forward as "a candidate representing the interests of the Irish doctors who have served in the R.A.M.C.," which may be a persuasive card to play in the election, but will probably not divert the necessary support from Dr. Kidd.

The Needs of the Average Student.

We publish this week an address upon medical education delivered before the Manchester Medical Society by Sir George Makins, President of the Royal College of Surgeons of England, in which he institutes an inquiry into what changes can be made for the better in the preliminary and intermediate sections of the medical curriculum, asking, also, whether the teaching of the final subjects, as at present carried on, is adapted to the production both of practising doctors and of those whose duty it is to further the advance of medical science and to serve as pioneers and teachers of others. Often as the subject of medical education has been discussed of late by persons in a position to know what they are talking about, and by some not so fortunately placed, we doubt whether the underlying problems involved in the education of the doctor have ever been more simply exposed than they are in Sir George Makins's address; for he shows how they are all associated with the fact that the art of medicine as displayed in clinical practice, and the science of medicine as advanced by research, while closely interlocked and while equally founded on exact observation, do not lend themselves after certain preliminary stages to a common course of education. The same discovery has been made by those who have attempted to combine in one school the teaching of students and of graduates. To meet the position Sir George Makins suggests a re-grouping of the subjects which the sorely tried medical student has to master before admission to the Register, the re-grouping taking something the shape of the simpler course laid out for the student 30 years ago, but strengthened and cemented by our vastly increased range of physiological knowledge and its application.

In connexion with Sir George Makins's plan for making the teaching of physiology progress in the student's course together with the study of anatomy and in sympathy with the teaching of the chemical and pathological laboratories, we are reminded that a work on mammalian physiology,[1] recently reviewed in our columns, approached the same main topics in a different way. For the great bulk of the medical profession a path must be found by which advances in science can be utilised in daily practice, without making the useless attempt to endow all medical students with the knowledge, to say nothing of the temperament, needed to carry on scientific research. We are of opinion that Professor Sherrington's practical courses on mammalian physiology and clinical physiology represent a movement at Oxford which may ultimately affect teaching in all our medical schools. In a recent course of lectures Professor Arthur Keith[2] introduced the principles of orthopædic surgery to his audiences by bringing before them the circumstances amidst which the discoveries underlying our modern methods of orthopædic treatment were made. Professor Sherrington's aim is more ambitious: he has carried his method from the physiological department to the wards of the hospital. There his students are practised in the application of means for the exact estimation of vital phenomena as seen in the disordered working of the human body; they are taught how to apply the instruments of research to clinical discovery. The new courses represent a further application of Huxley's dictum—one rendered possible by the "discovery" of the decerebrate rabbit and cat—that the student of every subject should perform the fundamental experiments in the laboratory for himself. Huxley was the inventor of the "type system" of education—one which dominates all biological and physiological teaching more and more. There cannot be any doubt that its adoption has given Britain the most progressive school of physiologists in the world—a school she has reason to be proud of. The effect of the Huxleyan methods of education on the student who merely wishes to become, or by force of circumstances actually does become, a general practitioner, is another matter—one which has not received sufficient consideration. What if the pathologist, the bacteriologist, the physiological chemist, the pharmacologist, the zoologist, botanist, chemist, and embryologist also set up courses of the same scope as Professor Sherrington's? In his later years Professor Huxley was clearly conscious of the difficulties which attend too great a specialisation in the teaching of the multitude of subjects now set before a medical student. In 1892 he wrote in a letter to Sir E. Ray Lankester:—

> "The problem of the medical university is to make an average man into a good practical doctor before he is twenty-two and with not more expense than can be afforded by the class from which doctors are recruited. ...... It is not right to sacrifice such men, and the public on whom they practise, for the prospect of making one per cent. of medical students into men of science" ("Life and Letters," ii., p. 310).

Huxley's final verdict is one which must not be lost sight of, for it is not infrequent to find those who are now legislating for medical students expressing themselves as if every student was a potential discoverer. And it is exactly here that Sir George Makins supports Huxley's view. Men who have had long experience in teaching know that the art of discovery is in medicine, as in painting, music, poetry, or fiction—a gift from the gods. For the realisation of that gift there must be tuition, practice, and opportunity. Huxley, we believe, underestimated the proportion of gifted students; experience leads us to believe that in every hundred there are at least five who will really know how the frontiers of knowledge can be extended. For the 5 per cent. such courses as those of Professor Sherrington are ideal; but even when we admit that physiology is the most fundamental subject taught in medicine we have still to consider the case of the 95. We do not say that there should not be schools which cater only for gifted students; indeed, there is much to urge in favour of medical schools, such as the Oxford School, doing so. We have to consider the effect of such courses on all schools. It is true that in elaborate practical courses students learn the art of applying apparatus; they have opportunities of becoming manipulative experts in the performance of surgical operations; they are brought face to face with structures in a living condition. The teacher of anatomy claims that somewhat similar advantages accrue to the student in the dissecting room, but he has learned by experience that a man may dissect, in the deftest and neatest manner, the human body twice over and yet have no practical or permanent knowledge of what he has seen or done. There was no more enthusiastic follower of Huxley than Sir Michael Foster, but he took care to write a text-book which gave his students a just perspective of the physiology of his day. His text-book proved a sheet anchor for the 95 per cent. of Cambridge students who were to practise general medicine. It was from the systematic lectures of the master that the average student drew both inspiration and practical knowledge.

---

[1] Mammalian Physiology: A Course of Practical Exercises, 1919, by Professor C. S. Sherrington, F.R.S.

[2] Published under the title "Menders of the Maimed," 1919.

Annotations.

"Ne quid nimis."

THE CALL OF THE ALPS.

THE short and gloomy days, coupled with the recent premature attack of London fog, have revived in many breasts the call of the Alps which has lain dormant for a long while past. The clear and keen air, even in the absence of the Alpine sun, makes living a pleasure to all whose tissues respond without murmur to a greatly increased demand upon them. The winter sun itself puts in something over one-half of its possible attendances and its comforting rays must be felt to be believed in. There is no dispute as to the vivifying influence which they exert, and already numbers of fortunate folk have secured passports for a period of release at or about Christmastide. They will avoid what is, perhaps, the hardest thing to bear with equanimity in our own climate, that as soon as the organism is set for one type of temperature and energy demand, a different demand, larger or smaller, occurs. There is, we repeat, no dispute as to the stimulating quality of the air and the intensity of the insolation at a level of 5000 ft. or more on the Central European plateau. Within these limits different Swiss resorts naturally make the most of the special wares which they can offer to a clientele in search of health or relaxation, while they sometimes yield to an undignified attempt to push one resort at the expense of another. Sir Henry Lunn, in a circular, dated Oct. 23rd, addressed to a fellow medical man, after pointing out quite fairly the advantages of Montana in the Rhone Valley as a climatic station for chest cases, goes on to give a comparative schedule of sunshine at this and four other well-known Swiss resorts, based upon an observation made by the secretary of the Public Alpine Sports Club in 1908. The hours of sunshine are stated for the various skating rinks on a particular winter day, presumably that of the secretary's visit, atmospheric conditions such as clouds and mist being eliminated. Montana Palace Rink heads the list (Dec. 1st) with 7 hrs. 45 mins., Davos (Nov. 25th), Chateau d'Oex (Dec. 29th), Arosa (Dec. 29th) following in diminishing splendour, and St. Moritz (Jan. 1st) brings up the rear with 4 hrs. 7 mins. Sir Henry Lunn suggests in his circular that it will be obvious from these figures that in the matter of sunshine Montana has great advantages over certain well-known resorts "on the German side of Switzerland." The figures show nothing of the sort. The sun is higher on Dec. 1st than on Dec. 29th and Jan. 1st. The skating-rink at Davos is down in the flat bottom of the valley, and is not frequented by the visitors who are basking on the sunny slope of the valley until the sun in time reaches it. At Arosa the skating-rink of 1908 has since been moved to a spot which gets hours more of sunshine. St. Moritz never had a public rink, and one at least of the private ones is exposed to sunshine to the point of ennui. It would be easy in any Alpine resort to choose spots not many hundred yards apart at which the insolation varies by hours. An obtrusive distant mountain peak or the spur of a nearer hill may make all the difference. Within a single resort the differences are as great as between far distant places. Montana needs no such invidious comparison to recommend it as a goal of the winter pilgrim's progress. At the same time, a circular letter has reached us, signed by the British Vice-Consul and Dr. A. F. Bill, resident British physician at Davos Platz, designed to correct erroneous impressions prevalent in the United Kingdom regarding present conditions of food and fuel supply at Davos. After allaying anxiety on this score, they go on to combat "the suspicion that Davos is overrun with Germans," stating that a veritable exodus of Central European visitors has occurred with the mark fallen to 17 centimes and the krone to approaching zero. Here, also, facts are against them. In the last official returns of visitors 920 Germans and 192 Austrians and Hungarians are numbered, as against 47 British, 54 French, and 27 Belgians. In all cases except the second the figures show an increase on the preceding week. But let it be added at once that the point is irrelevant. All are guests of the Swiss nation, which, whether speaking French, German, Italian, Ladin or Romansh, is Swiss to the backbone. Montana is doubtless less accessible to visitors coming from the Central Empires, but the longer journey did not prevent the Engadin being a British resort for a generation, and the line delimiting French and German speaking Switzerland passes very near Montana, if not through it. But the call of the Alps drowns such idle wrangling.

A LIVING FOREIGN BODY IN THE LARYNX.

UNDER this title Dr. J. Barthès has described in the *Revue de Laryngologie, d'Otologie, et de Rhinologie* a very rare and interesting case. A man, aged 51 years, came under observation. For three weeks he had suffered from complete aphonia accompanied by paroxysmal cough and abundant hæmoptysis. Nothing relieved the cough and expectoration. His general condition changed, although his appetite remained excellent, for sleep was constantly interrupted by a very painful sensation of pricking localised in the cricoid region. While the patient was giving his history a curious phenomenon was observed. He began in a weak, almost whispering voice, but suddenly his voice regained its normal tone, and Dr. Barthès was astonished to hear that this change occurred at short intervals. The pharynx showed nothing in particular. In the larynx the ventricles and cords were slightly congested. Below the anterior commissure a litle black cylinder was seen against the upper rings of the trachea. While wondering what this body was it moved and ascended so as to lodge between the vocal cords. Dr. Barthès stopped the examination and the patient's voice was again lost. The mechanism of the intermittent aphonia was evident; it could only be due to a leech which according as it was in the larynx or trachea interfered with or allowed free movement of the vocal cords. On being questioned, the patient said that three weeks ago while walking in the country he drank from a brook and at that moment felt an obstruction in his throat. Dr. Barthès advised extraction under chloroform by means of Brünings's tube. He feared that if local anæsthesia were used the cocaine would cause the leech to loosen its hold and drop into one of the bronchi, but the patient objected strongly to general anæsthesia. Fortunately the pharynx and larynx were large and tolerant. After anæsthetising the base of the tongue and the pharynx a tampon of cotton wool from which excess of cocaine solution had been squeezed, so that none should run down into the trachea, was introduced into the larynx. The leech was in the tracheal position. The ventricles and cords were painted several times until sufficient anæsthesia was induced. A laryngeal forceps with teeth opening laterally was introduced. At this moment the leech made a movement of ascension. It was seized and loosened its hold, and was removed alive. The leech measured 6 cm. It is remarkable that it should have remained three weeks in one place without loosening its hold. In spite of his success Dr. Barthès does not think that living foreign bodies should be removed from the larynx by the indirect method. It is more prudent to use direct laryngoscopy by means of Brünings's tube, but this requires general anæsthesia.

THE NURSE'S BEST WEAPON.

A CROWDED meeting was held at the Mortimer Hall, London, on Oct. 25th for the purpose of considering the formation of a professional association for the mutual help and protection of trained nurses and the registration thereof as a trade-union. No information was made public as to who promoted the meeting, but the *British Journal of Nursing*, which prints the most circumstantial account of it, states that the proposal to form a trade-union came from the rank and file of the nurses themselves. The chair was taken by Miss MacCallum, who, we learn from the same source, is a private nurse and a member of the Nurses Coöperation. The meeting was opened by a statement from a solicitor of the objects to be secured by the proposed Professional Union of Trained Nurses. These include, among others, the promotion and protection of the profession of trained nurses, the State registration of all trained nurses, the establishment of an employment agency, the securing of a minimum rate of remuneration and maximum working hours, the regulation of the relationship between trained nurses and employers, the promotion of industrial peace and progress, the provision of clubs, hostels, beds in hospitals, medical and dental advice, sick fund and annuities for nurses, and, finally, the taking of any lawful action to protect and safeguard the members of the Union. The chairman mentioned that the mere fact of having the power to strike would be a wonderful weapon in the hands of nurses. The question of partially trained labour occupied a large part of the attention of the meeting. Sir Arthur Stanley's recent statement that there was a great field for voluntary aid in connexion with the Ministries of Health and of Pensions, and Dr. Addison's welcome to the assistance of the V.A.D., raised the fear that the untrained or partially trained woman was to do nurses' work and take nurses' fees. Some lively passages occurred in the meeting between the chairman and some who espoused the cause of the College of Nursing, with 16,000 names on its register; but at the close a resolution put from the chair, "That immediate steps be taken to form a professional union (registered under the Trade-Union Act) for the mutual help and protection of trained women nurses," was held to be passed by a large majority of those present.

We regard it as certain that the medical profession will sympathise to the full with the aim of nurses to unite in an association which will be able to ensure fair individual treatment to its members by collective bargaining, to institute a system of mutual insurance, and to bring electoral pressure to bear on the legislature. All these advantages of union are possessed by the medical profession, which up to the present has not as a whole felt it necessary or desirable to form a trade-union for the purpose. It is not easy to see what weapon other than the general strike would be gained by registration, and the odium incurred by nurses in a general strike would not be less than that attaching to a similar action on the part of doctors. Miss Jentie Paterson, a member of the National Union of Trained Nurses, suggested at the meeting that the nurse who nowadays claims nursing as a vocation would have nothing to look forward to but the workhouse and a peg whereon to hang her halo. But we doubt the wisdom of the epigram. Appreciation of nursing as a gentle art is still regarded as an asset by nurses except those of the extreme left group. The proper function of an extreme left is, we take it, in all popular assemblies to stimulate the centre and make the rank and file stand up for the legitimate rights of the guild. The tendency of trade-unionism in these latter times has, unfortunately, been towards autocratic rule and the abolition of private rights. The results already effected by voluntary professional organisation of nurses are sufficiently encouraging to assure a new future if persisted in. Undoubtedly the readiness of the public to exploit a fine spirit has been a leading factor in goading a section of the nursing profession to extreme measures. The record of the voluntary hospitals in this respect has been such as would have shamed any private employer. But the treatment meted out to the trained nurse by unscrupulous employers, in so far as it is due to the lack of unified organisation, may be rectified by a strong association calculated to make itself felt on the nurses' behalf. By avoiding the militant spirit such an association may maintain for nurses the high professional honour and esteem which have been deservedly won.

VACCINE TREATMENT OF ACUTE OSTEOMYELITIS.

Professor Raymond Grégoire[1] records six cases of acute staphylococcal osteomyelitis in children successfully treated by vaccines which had been prepared by Dr. Salimbeni at the Institut Pasteur. The vaccine employed on admission to hospital was always a stock vaccine, and the subsequent injections were often made with an auto-vaccine. The first dose consisted of 1/10 c.cm., which contained 200 million organisms. Subsequent injections were given of 2/10 c.cm. or 4/10 c.cm. A minimum of two injections and a maximum of four were needed to effect a cure. The reaction, both local and general, following the injection of the vaccine was always very slight, the principal symptoms being acceleration of the pulse and transient albuminuria. The first signs of improvement appeared 24, or more frequently 48, hours after the first injection, the general condition being affected before the local state. The general symptoms often disappeared with extraordinary rapidity, and the child was able to make use of his limbs without any pain in from two to four weeks' time. Hyperostosis was one of the most frequent results of the treatment and was not, however, constant, and, contrary to what generally occurs after acute suppurative processes in bone, a complete recovery took place in some cases. Vaccine treatment is contraindicated in septicæmic forms of acute osteomyelitis. Grégoire relates two examples of this kind which ended fatally in spite of operation and vaccine treatment.

---

[1] Paris Médical, 1919, ii., 285–294.

DUODENAL FEEDING.

In an account of his experiences of duodenal feeding at U.S. Army General Hospital, No. 41, Buckstein[1] emphasises the importance of the drop method of feeding, as the syringe proposed by Einhorn may produce distension, pain, and nausea. The rate best suited can be determined only by the study of the individual case. Though no definite feeding formula can be laid down, the average mixture employed by Buckstein contained 150 c.cm. of peptonised milk, 70 g. of glucose, two eggs, and 40 g. of butter. In a patient weighing 60 kg., who is at rest, such a mixture given three times a day is sufficient to sustain his bodily requirements. The length of time the tube is allowed to remain must vary with the age and recuperative power of the individual, as well as with the chronicity and severity of the lesion. To determine the effect of treatment the patient is fed by mouth while the tube is still in situ. When the food by mouth can be increased one of the tube feeds is omitted, and finally duodenal alimentation is dispensed with entirely and the tube is removed. On the other hand, if pain recurs on feeding by mouth duodenal alimentation is continued.

THE OPENING OF THE SESSION AT KING'S COLLEGE HOSPITAL.

The address delivered by the Right Hon. T. J. Macnamara at the postponed opening of the winter session of King's College Hospital Medical School on Oct. 31st was for the most part a eulogy of the work done by qualified medical men and women throughout the war. It is curious that on these occasions mention is rarely made of those unqualified students who sacrificed six months or a year of their studies as probationary surgeons on torpedo-boat destroyers or other small craft. They endured not only personal danger but boredom, unrelieved as a rule by any compensation in the way of professional experience; the strain of their life at sea has made it difficult for them to settle down to work for examinations, and in most cases they qualify later than those students of the same year who did not volunteer but worked with no disturbance of their curriculum and good chances for valuable house appointments. We have no doubt that the Admiralty are fully conscious of the debt we all owe to these men, and that it was an oversight only that prevented Dr. Macnamara from making a special reference to it. He dealt with the great advances made in pathology and surgical skill in the last 50 years, and prophesied that the next great step would be in the direction of preventive medicine. As Member for North Camberwell he expressed his satisfaction that so famous an institution as King's College Hospital should have moved to the borough, and urged his fellow-residents to furnish, regularly and systematically, the necessary means for its continued efficient maintenance.

VACCINATION FEES.

There was a time, a quinquennium or so ago, when a silver half-crown purchased half-a-crown's worth of goods. It has long ceased to do so, and the public vaccinator, remunerated in the clumsy way of a fixed fee, has been receiving less and less real recompense for the same work. The logical way to deal with the matter would have been by bonus, strictly proportional to the increased cost of living (or the decreased value of money), as in the case of civil servants generally. But this has not been done. In an Order, which is to come into force on Dec. 1st, the Minister of Health has fixed the fee for successful vaccination at "not less than 5*s*." and has issued instructions to this effect to the boards of guardians. It is understood (by the Minister at all events) that the sum of 5*s*. is only a minimum, so that it is open to guardians, with Ministerial approval, to pay a higher fee. The Order does not affect public vaccinators who are already receiving the new minimum or more than it. The whole question of payment by a fixed fee in equivalent for work done needs reconsidering, and unless subject to frequent revision some other basis than that of the fluctuating pound and shilling may have to be found.

REFORM OF THE COLONIAL MEDICAL SERVICE.

Lord Milner, Secretary of State for the Colonies, has appointed a committee to consider the position of the medical services of the various colonies and dependencies, with a view to maintaining and increasing the supply of candidates and to securing contentment within the service; and to consider whether the principle of assimilating the medical services of neighbouring colonies may usefully be extended and, if so, how far and by what means. The members of the committee are: Chairman, Sir Walter Egerton, K.C.M.G., late Governor of British Guiana, and recently chairman of the Pool (Petroleum Supplies) Board; Lieutenant-Colonel Sir Harry Verney, Bart., D.S.O.; Sir Humphry D. Rolleston, Sir W. B. Leishman, Sir J. Kingston Fowler, Mr. T. Hood, Director of the Medical and Sanitary Service, Nigeria; Mr. A. Fiddian, principal clerk, Colonial Office; with Mr. J. E. W. Flood, of the Colonial Office, as secretary.

THE CLASSIFICATION OF MENTAL ABILITY.

It will be remembered that in Erewhon, Samuel Butler's brilliant satire on crime and criminals, ill-health is a crime punishable by imprisonment, while moral lapses, such as forgery and larceny, are treated by the family "straightener" with the attention due to an invalid. There is a growing movement towards more rational and differential treatment of accused persons, and it is even conceivable that future generations may read in Erewhon prophecies rather than whimsicalities. At any rate, the employment of psychologists in connexion with courts of justice, one of the steps advocated by that earnest body entitled, "The Penal Reform League," has been in practice in the United States. Dr. J. M. McCallie has published certain results obtained by this method in the American Army, and it is interesting to note that a majority of cases of absence without leave, desertion, confinement to barracks, and reduction in rank occur among men found to be below the average of intelligence, as shown by the tests employed, and the use of psychologists to investigate the mentality of criminals might well have fruitful results. The tests recorded were used on American soldiers by psychologists specially appointed for the purpose of segregating and eliminating the incompetent, classifying the men according to mental capacity, and assisting in the selection of men for responsible positions. Surgeon-General Gorgas, commenting on the experiment, said :—

---

[1] Journal of the American Medical Association, 1919, lxxiii., 670–672.

> "The classification of men according to mental ability as determined by these tests has corresponded in a very striking way with the estimate previously made by officers familiar with them, and men selected for responsible positions solely on their psychological record have fully justified such selections."

What is more, he ordered the method to be used in classifying all newly enlisted men, so that more than a million recruits have been submitted thereto. We regret to hear that, according to tests applied to 2000 officers in Camp Lee, the order of intelligence was as follows: Engineers, artillery, infantry, quarter-masters, and lastly, medical officers!

Sir John Tweedy has chosen "The Surgical Tradition" as the title of his Thomas Vicary lecture.

THE tablets at University College in memory of Lord Lister are to be unveiled at 5 P.M. on Tuesday next by Sir George Makins, President of the Royal College of Surgeons of England, and Sir Joseph Thomson, President of the Royal Society. The Duke of Bedford will preside. Academic dress is to be worn.

AT the next meeting of the Section of Obstetrics and Gynæcology of the Royal Society of Medicine, on Dec. 4th, the report upon the teaching of obstetrics and gynæcology (THE LANCET, Sept. 13th, p. 494) will come up for discussion, followed by the criticism upon it by Lady Barrett, Dr. Herbert Spencer, and Dr. H. Williamson.

WE have received from the Ministry of Health the draft terms of service for practitioners in 1920 under the National Health Insurance. These have been circulated to Insurance and Panel Committees and are subject to alteration before the formal draft is prepared and published. These terms of service will form the principal object of discussion at the Conference of Representatives of Local Medical and Panel Committees on Nov. 27th.

ARRANGEMENTS are being made by the Royal Army Medical Corps to train men not over 21 years of age as pharmacists, dispensers, dental mechanics, X ray, mental, and laboratory attendants, as well as for work as masseurs, opticians, nursing orderlies, and hospital cooks. The engagement will be for the customary period of seven years. The uncertainty of the future may deter some from entering, but the civil medical profession will greatly gain from a supply of trained technical assistants.

THE
PREVENTION OF VENEREAL DISEASES
IN THEORY AND IN EXPERIENCE.

BY DOUGLAS WHITE, M.D.

THE recent comments of THE LANCET (Oct. 18th, pp. 701–2) on the prophylaxis controversy are full of interest, and many will sympathise with the desire for "a thorough investigation of the ethical and scientific fundamentals involved." Most thoughtful people will agree that science and ethics cannot, in the last resort, be at variance. "Ethics" denotes principles of right conduct in relation to social and other environment. Science is the elucidation of principles which govern physical, physiological, and social processes. Ethics and science interdigitate. I cannot myself see how public health and public morals can be mutually antagonistic. They run along parallel lines, meeting at infinity, but they never run in opposite directions nor cross each other's path. He (or she) who works at the one is (often quite unconsciously) advancing the other. The man on the railway trolley who pushes round one wheel is making the other wheels all to revolve as well. Human society is all one; public health and public morals are names given to its state of progress in two aspects. To some this will appear platitude, to others nonsense; to me it appears as a criterion of sound judgment and public policy. In the light of this principle we can clear away certain misconceptions regarding this category of disease; for there can be no case where public health and public morals have more obviously common concern than in the matter of venereal diseases.

The Relation of Morals to Health.

Some writers of the prophylactic school accuse their opponents of refusing to adopt their "obvious" remedy for fear of lowering the moral standard; they say that medicine has nothing to do with morals; they propose to divide the thing into two water-tight compartments. An influential letter to the *Times* (Jan. 2nd, 1919) says: "Extraneous considerations can have no place in sanitary problems," which being interpreted, means that social ethics and sexual disease are independent problems. Truly an amazing doctrine! Why, the sanitary problem would not exist apart from the social habit of sex-promiscuity; this is the ultimate *fons et origo* of disease. To tinker with results and neglect causes is not consonant with a wide scientific outlook. The sooner we extend our conceptions of "science" and "nature" to include social and psychological phenomena the better. To narrow their meaning to the revelations of the microscope and test-tube is a serious evil.

But others go even further in throwing dirt at members of the medical profession who hold social ethics in high regard. These are represented as wishing to keep disease in existence as a jumping-off ground for ethics. Cruel and stupid misrepresentation could go no further. Sexual ethic does not depend on the existence of disease, either for its life or for its growth; disease is but a complication and impediment; morality is a necessity of civilised life quite apart from disease. Disease is to be strangled by every legitimate means. The reason why unethical means is to be avoided is because, inter alia, it will fail of its remedial object.

No thoughtful person nowadays thinks of disease as a Divine retribution for wrong action. The innocent suffer with, and often more than, the guilty; injustice cannot figure in the purpose of the Almighty. Disease, moreover, is deleterious to the morals of both men and women; it ties women to a life of vice, and drives men to reckless despair; cure of disease, on the contrary, has a wholly moralising influence; it has both a direct and indirect effect in prevention.

The Reform of Social Tradition.

But—at least in our present imperfect state of knowledge—elimination of disease cannot be looked for apart or separate from social reform, and specially the reform of our *social tradition.* We are all aware of the imperious strength of the primitive sexual instinct; many are unaware of the artificial stimulus which is given to it by the current social tradition, specially among men, with regard to sex; the tradition of the dual standard for men and women, and of the necessity of indulgence for men.

Morals, we are told, have been tried for 2000 years and have been found wanting. But have they *ever* been tried intelligently? Never up till the other day (as it were) has there been a serious attempt to give deliberate and rational instruction to the youth of the country in sexual ethic or sexual hygiene; the traditions are very old, and have been passed on, quietly but effectively, without contradiction, from one generation of young men to another. This tradition is powerful and cannot be fought with the blunt weapon of general morality; the teaching must be sharp, incisive, particular. The social basis of sexual ethic must be made clear to men's minds. The biological and social sanctions for stable monogamy must form the background of the ideal sex-relation, while at the other extreme commercialised vice, devoid of sentiment, degrades the individuals concerned and disintegrates the roots of civilisation.

The breaking up of this bad tradition and the removal of this and other adventitious stimuli to sex-indulgence—such as overcrowding and starvation wages of women—would accomplish a great deal in the prevention of venereal disease.

The Place of Fear.

How far is fear of disease to be regarded as a force in its prevention? "Fear of disease," the writer in THE LANCET says, "connotes no ethical or religious quality." A merely selfish fear does not touch the domain of morals at all. The man who *simply* from fear of contracting disease avoids taking the risk is not on that account more moral than the man who is not deterred by the same fear; he is more prudent, but not more moral. Yet I think the influence of selfish fear has been under-rated; self-interest is a powerful motive, and its lessons are readily assimilated. Fear does play a part in preventing many people from seeking exposure, and does drive men to treatment. Nor is fear a contemptible thing; the instructed man who does not fear syphilis is a fool. Fear is not a synonym for cowardice, nor recklessness for courage.

Moreover, fear is not always, or even generally, purely selfish. It usually has in this connexion some social colouring: fear for one's own family, fear of what others will think—Such fears cross the border-line of ethics. And—the practical point—whether fear be purely selfish or partly altruistic, every young man and woman has a right to know the facts. "Why was I not told?" has been a frequent and well-founded complaint. It is also certain that they should be taught to seek treatment on the first suspicion of disease. Prompt treatment is clearly in the interest of prevention.

The Prophylactic Controversy.

It is agreed that the prompt and thorough use of certain disinfectants immediately after exposure diminishes the risk of disease. Some advocate self-application to ensure promptness; others disinfection-centres to secure thoroughness. Against disinfection-centres it is urged that a sufficiency of such places is not practicable for the civil population, and that they involve delay; both, in my judgment, true bills. Against self-disinfection it is urged that self-disinfection is popularly indistinguishable from self-treatment, and actually leads to self-treatment, which is medically anathema; also that the chemicals are often used in a perfunctory and ineffective manner; true bills also. I might add, that while I regard the use of prophylactic packets as generally demoralising, on the other hand, I cannot regard the popular use of multiple disinfection stations in every town (if it could be done) as an addition to the amenities of urban life.

Now, there is nothing immoral in the knowledge of the use of disinfectants, nor, indeed, in the actual use of them. The application of antiseptics does not make an act of fornication more or less ethical; in itself it is neutral. But it does make a vast difference in what spirit their use is made known. If the teaching can be interpreted as an encouragement to vice then it is contrary to public policy. In practice, the use of packets is apt to be pressed on the audience as the main point of the address, and only slight or no stress laid on their liability to fail. Where it is not the main point of the address it is dragged in at the end as a proper safeguard in case of lapse, and this is taken by the audience to be the real point; the last word sticks.

The *in*security of these methods of self-disinfection must be stressed if such knowledge is to be spread. I should not like to face a man or woman who had contracted disease (genital or extragenital) under an impression gained from me that certain drugs afforded security. Hence, if I instructed at all in their use, I should do so in a negative way, by preaching their insecurity rather than their relative safety.

The Moral Standard of the British.

We are told that, since 70 per cent. of Englishmen (I don't know the basis for the figures) contract some form of venereal at some time in their lives, the moral standard could not be much lowered anyhow. This is sheer nonsense. Suppose the figures are correct, as is quite possible. All of us know of men whose moral and social standards are quite high, but who have lapsed once or twice. They very frequently are laid low their first night out. If, on the average, *every* man in England had been once the victim of one or other disease, our national standard would still be decidedly higher than that, say, of Germany. Professor Blaschko, for instance, considers that in Berlin each male inhabitant, by the time he has reached the age of 30, has (on the average) had gonorrhœa three times and every fourth or fifth man has contracted syphilis.

I am told that (at least, before the war) prophylactics were in vulgar use in Germany. Vice, disease, and prophylactics all thriving together in symbiotic amity. You may say the packets are not properly used; that is my point; they never will be. If, again, you blame the lower tone of Germany, that is an admission that "morals" are some good after all.

Social Policy.

But really it is our business to probe deeper than the superficial quarrel as to the best methods of early disinfection. We are dealing with the strongest primitive instincts of humanity. It is not really a medical question of the relative bactericidal values of chemicals, but a social question of the ultimate effects of a line of social policy. The antiseptic values being settled the medical man, as such, is no better qualified than other persons of intelligence to determine how or whether such knowledge can be effectively introduced into social life.

It must already be clear that we can argue for ever about two methods of disinfection, and the relative values of the adoption of one course or the other, or both, or neither. To decide the question we need experience. An ounce of experience is worth a ton of argument.

The Facts of Experience.

The experience of the war is already ours, though it has not yet been fully described. Some of the facts have been published in the White Paper recently issued. But better still, for general purposes, is the outline recently given by Brevet Colonel L. W. Harrison (Adviser on Venereal Disease to the Army Medical Department)—than whom no man has a fuller right to be heard—in a speech at the Congress of the Royal Sanitary Institute this summer.[1] I wish THE LANCET would produce it in full. His remarks will bring surprise to many. In the army, at any rate, we should have expected that with abundant facilities, and with constant and careful instruction of the men (whether in the use of packets or disinfection centres), a sensible reduction of disease would have been achieved. Yet in the British Army of the United Kingdom, as a whole, in spite of every effort, the rate of admission has remained steady at 38 per 1000 per annum—the same at the end of the war as before the introduction of early disinfection or prophylactics. This rate was greatly lower than those of the Dominion armies in England, though their disinfection propaganda was more intense. The rate of the Australian force (in England) started at 130 per 1000, and in spite of the most vigorous measures of the same kind, finished at a still higher figure.

What is to blame? The antiseptics used? No; they do give a sensible effect if promptly and thoroughly applied. The inability to use them properly? Perhaps; and yet the men had all been instructed in their use till they were sick of it. Is it that prophylactic packets tend to increase vice? Possibly; yet no better results were obtained from early disinfection centres, which were thoroughly exploited. It is a problem for the psychologist.

---

[1] Journ. Roy. San. Inst., September, 1919, pp. 100–101.

As a result of his experience, "Colonel Harrison is opposed to the method of prophylaxis by means of disinfectants for use by the individual, so far as they apply to the civil community." He states that in certain units a definite reduction was attained owing to the energy, wisdom, and tact of the medical officers; but this was exceptional. So it appears that in an experience with millions of men, over a long period, a thorough and varied propaganda of disinfection after exposure has resulted in no change, in some cases even deterioration. We may rub our eyes. Disinfection is so obvious and sure a remedy. So it is. Obvious—and wrong. In political, social, industrial life the obvious is often wrong. It seems to be wrong here.

A More Hopeful Direction.

Theory must sit at the feet of experience. This experience is certainly not encouraging. Has Colonel Harrison any note of hope along other lines? Yes; he points to the pre-war reduction of admissions in the Home Army, in 30 years, from 275 per 1000 to 51 per 1000, and states that the great factor has been improvement of social conditions and encouragement of games; no direct means of prophylaxis was employed. In another paper he has shown that the Aldershot record is even better (322 per 1000 to 30 per 1000), where social conditions were at their best. This is nothing short of a revolution in the incidence of disease, and shows the *rapid* ameliorative effect of improved conditions of life. This method is not obvious, but it appears to be right. Needless to say, Colonel Harrison insists on the earliest and most thorough treatment of disease, the wide education of the public, and the fullest training of the greatest number of medical men for the work; but at the moment we are thinking of prevention, not treatment.

A Novel "Far Niente."

The manifesto of the new Venereal Prevention Committee says: "There are evidently only three possible courses: (1) no action apart from moral teaching; (2) delayed disinfection; (3) immediate disinfection." They consider (1) a failure, (2) a rather stupid second-best, (3) the real thing. But what if both (2) and (3) are failures in actual practice? Is there *nothing* left but the despised trifle of moral teaching? Did the army authorities do *nothing* these 30 years at Aldershot? Then, for God's sake, let us do nothing with equal diligence, all the time, with both hands.

We are all so busy seeking royal roads to glory. In the life of a nation they do not exist. It used to be the compulsory treatment of women prostitutes (the medical profession was nearly solid for it); now it is the voluntary disinfection of men; to-morrow it will be I know not what. I am quite sure there is no royal road to freedom from venereal disease. There is a long, straight hill to climb. Adequate facilities for treatment—as yet only partially secured; adequate instruction of the public—only partly done; progressive social improvement and reform; raising of social habits and ideals. All this may seem nothing in the eyes of some people; but so far as experience points it is the true line of advance.

Conclusion.

Let us not build our temple of health in a fool's paradise. Let us study the facts of the war; it affords the largest experience ever gained. I, for one, should welcome all possible information as to these facts. There must be much of real significance which might well be published without doing any kind of harm. If the Army Medical Department were prepared to give the profession and the public a full analysis of their experiences they would throw invaluable light on the road along which we have to travel, and would save us from many pitfalls, even allowing for the differences between military and civilian conditions. In the light of established fact most of us, I think, for the nation's good will be ready to lay aside our pet prejudices, and, escaping from the quicksand of unsupported hypothesis, to set our feet upon the rock of fact.

Dr. S. A. Kinnier Wilson has been appointed junior neurologist to King's College Hospital.

Tuberculosis Society.—A general meeting of this society will be held to-day (Friday) at 15, Allsopp-place, Marylebone (behind Baker-street Station), at 8 P.M., to receive the report of the executive committee.

GENERAL MEDICAL COUNCIL ELECTION.

The Nominees of the Medico-Political Union.

To Registered Practitioners of England and Wales.

Ladies and Gentlemen,—The Medico-Political Union has asked us to contest the four seats for Direct Representatives to the General Medical Council for England and Wales. The Medico-Political Union is a democratic body, and as officials and members of that body we hold progressive views.

The General Medical Council prescribes the standard of medical education and controls the conduct of the medical man. This body, holding in its hands the economic life of the doctor, should, in our opinion, be composed entirely of representatives directly elected by the whole profession. Six directly elected out of a total of 38 is not indicative of representative government; only three members of the late General Medical Council could be called general practitioners. Three-fourths of the medical services of this country are undertaken by the general practitioner, consequently he is in the best position to recognise the medical needs of the community.

Changes in panel and other medical services raise new ethical questions which must be looked at essentially from the general practitioner's point of view.

An intimate knowledge of the whole trend of medical politics, of the effect of new Government orders, rules and regulations, remuneration and practice expenses as they affect the general practitioner, is absolutely necessary for any body wielding the immense powers of the General Medical Council.

Medical education needs overhauling, and the general practitioner should have a considerable voice in the educational reconstruction essential to produce and maintain an efficient medical service by a constant supply of the best type of student. Medical legislation will always affect the general practitioner more than other branches of the profession. It is, therefore, necessary that the general practitioner should be represented largely on the General Medical Council in order powerfully to influence the actions of that body.

We, general practitioners of considerable experience, ask for your support and vote; in the event of your electing us we shall always endeavour to maintain the honour and dignity of the profession to which we belong, and to safeguard the interests of our constituents.

Yours faithfully,

William Francis Harriott Cokf,
President, Medico-Political Union; Secretary, Kent Local Medical and Panel Committee; Hon. Secretary, Kent Hospitals Committee; Member, Kent Insurance Committee.

George Agnew Main,
Organising Secretary, Medico-Political Union; late Secretary, Salford Local Medical and Panel Committee.

Ernest H. M. Stancomb,
Vice-President, Medico-Political Union; Chairman, Southampton Panel Committee; Vice-President, British Federation of Medical and Allied Societies; Member, Southampton Borough Council.

Alfred Welply,
General Secretary, Medico-Political Union; late Secretary, London Panel Committee.

The Nominee of the National Medical Union.

Address of Dr. Alexander Blackhall-Morison.

Dear Sir (or Madam),—Nominated as a candidate for the Direct Representation of the profession on the General Medical Council in England and Wales by the National Medical Union, with the approval of the Scottish Medical Guild and others in sympathy with their activities, I have the honour to ask your support for my candidature.

The interests of the profession, educational and economic, have not been protected in the recent past to the satisfaction of many by the great corporations and the association numerically the most powerful—namely, the British Medical Association. The latter has nominated four candidates for all the available vacancies in the hope of acquiring the whole influence conferred by Direct Representation in the

Council. Their address issued to the profession is characteristically non-committal. It is probably also, in their view, as much the embodiment of wisdom as it certainly is of prudence. Whether the profession, remembering the not very edifying capitulation of the Association on the eve of the National Insurance legislation, the Medical Benefit Section of which cannot now be regarded with much satisfaction even by its creators, will feel such confidence in the nominees of the Association as to commit to their care its interests, at the present juncture so fateful for its future, remains to be seen. That a very considerable body will not support them is certain.

For myself, it will be my endeavour, if elected, to oppose any curtailment of the work or responsibilities of the general practitioner, believing that this can only lead to his inefficiency, his impoverishment, and the depreciation of his professional status. On him the whole superstructure of the profession rests, and must rest, and on his efficiency and prosperity the public good.

If the Government measures in contemplation under the Ministry of Health conserve these they will have my support; if they threaten them, my opposition. There is, unfortunately, every indication that, by the institution of various public specialisms, the ridiculously imputed recondite nature of which is emphasised, and by a multitude of caudling civic health activities among others than the necessitous poor, the legitimate work and responsibilities of the general practitioner will be seriously affected, whatever his ability to discharge his duties as a physician.

Having had ample opportunity of learning from personal experience the conditions and needs of medical practice, educationally and otherwise, originally as a general practitioner and later as a consultant, I claim to be in a position to serve the interests of the profession both as regards its educational needs and its material welfare.

In conclusion, I have also too high a regard for the mission and status of our calling, and too reverent a memory of the men of culture and research of the past, from whose individual labours the whole profession has derived its beneficent power and the social esteem in which it is held, to advocate the adoption of the trades-union methods of the proletariat to advance our economic interests. These, as is known, are recommended by some, influenced by counsels of economic despair and captivated by the lucrative results of industrial strikes. That such methods will receive any considerable support from the profession is scarcely probable.

My opportunities and principles of service having been and being such, I respectfully solicit the support of all sections of the profession for my candidature.

ALEXANDER BLACKHALL-MORISON,
M.D., F.R.C.P. Lond. & Edin.,
A President (with Professor Russell, of Edinburgh) of the National Medical Union; Senior Physician to the Great Northern Central Hospital, London, &c.

ADDRESS OF DR. JOHN BROWN.

To the Registered Medical Practitioners of England and Wales.

DEAR SIR (OR MADAM),—To my regret I find that on a point of honour I have to enter the arena of the election for a Direct Representative for England and Wales on the General Medical Council." In the *British Medical Journal*, June 10th, 1916, I published a letter, part of which is as follows: "I do protest against the policy adopted in 1906 and in 1911 by which no one, unless a member of the British Medical Association, has 'the ghost of a chance' of being elected as Direct Representative of the profession on the General Medical Council." Before 1906 the contests were free and open to all. The elections were keenly contested. My brother, the late Mr. George Brown, and Mr. George Jackson addressed great public meetings in various parts of England and were successful in the two elections previous to 1906. Then the B.M.A. succeeded in its policy of securing all the Direct Representatives, and also in 1911. Over three years ago I stated, if their policy were again adopted, as a protest, I might be a candidate. My candidature is now before you, and I shall be glad of the support of all those who love a fair field and no favour. I am convinced that the Medical Act of 1886 intended elections to be open to all and not to be the monopoly of any association or caucus. The Medical Act of 1886 needs amending. In 1916 I advocated the formation of four areas for England and Wales, of about 7000 each; the advantages are obvious. The cost would be about one-fourth; candidates would be able to visit the large towns and get into personal touch with the electors. Parliament only can do this. There are many reasons for its early adoption. In my opinion the General Medical Council, the British Medical Association, and other allied societies ought to take up the matter and press it forward.

I have no committee, nor funds, to effectively canvass and circularise an electorate of over 26,000, extending from Land's End to Berwick-on-Tweed, and from the North Sea to the Irish Sea. Yours truly,

JOHN BROWN, M.D.,
Hornby-road, Blackpool, Oct. 30th, 1919. Late M.O.H., Bacup.

To the Editor of THE LANCET.

SIR,—I have been asked to go forward as a candidate representing the interests of the Irish doctors who have served in the R.A.M.C. I am in general sympathy with the reforms advocated by the British Medical Association.

I am, Sir, yours faithfully,
Dublin, Oct. 31st, 1919. J. C. MCWALTER, M.D., LL.D.

THE MOTOR EXHIBITION AT OLYMPIA, LONDON.

(BY A SPECIAL MEDICAL CORRESPONDENT.)

THE Thirteenth International Exhibition opens to-day (Friday, Nov. 7th), with all its old interest, after an interval of six years. Many doctors are in need of a car. What is the best course to pursue? Many ask that question. It is difficult to answer. It is easy to say what not to do—that is, not to indulge in a second-hand car. Most second-hand cars, as a result of the present abnormal conditions of the motor market, are on a par with the list prices of new models; but this condition will not last for more than 12 months. At the end of that time the value depreciation will be in excess of the present appreciation. A good many during the war disregarded the recommendations of safety razor makers, and when the blades were blunt they did not throw them away but had them re-sharpened and re-used them with advantage. A similar economy applies to automobiles. Cars which can be overhauled should be made to last another year, when I believe that mass production will cause comparatively cheap but certainly reliable cars to be procurable without delay in delivery. If a car must be bought, there can be no question that a new one is the most advisable investment.

Some Useful Models.

Many types of vehicle fitted for professional use are on view at the show. The selection is entirely a matter of personal taste and available cash. With the object of assisting my colleagues I have seen several likely models, and out of the 111 stands on which cars are shown I advise for inspection the following, which I am giving in numerical order:—Stand 3, the Lagonda; Stand 17, the 11·9 Bean Car; Stand 36, the Standard; Stand 40, the Overland; Stand 46, the Phœnix; Stand 47, the Vauxhall; Stand 48, the Arrol-Johnson New Victory, at £700 complete; Stand 49, the Sunbeam; Stand 53, the Briton; Stand 54, the Austin New 20 h.p.; Stand 61, the De Dion Bouton; Stand 63, the Rover 12 h.p. and the new 8 h.p.; Stand 66, the Calthorpe; Stand 67, the Angus Sanderson; Stand 73, the Napier; Stand 72, the Armstrong-Siddeley; Stand 77, the Enfield-Allday; Stand 84, the Wolseley; Stand 88, the Humber; Stand 90, the Talbot-Darracq; and Stand 112, the Hupmobile, Scripps Booth, and Dort.

Among these I must confess to fancying, of the light cars, the New Wolseley 10 h.p., which is replacing the old and popular Stellite, the new 12 h.p. Swift, the Standard, and the Little Singer. Among the higher horse-power cars the Angus Sanderson at £450, the Austin 20 h.p. at £495, and the Armstrong-Siddeley six-cylinder chassis at £720 are all worthy of special attention. It is not profitable to attempt to detail the leading features of the individual large number of cars which are exhibited, but it may be of interest briefly to consider the general constructional novelties and tendencies.

War Experiences Embodied in New Designs.

Much has been said about the embodiment of war experiences in the design of new cars. That the last few years have been one long reliability test for cars and engines, which would result in vast changes and improvements, was predicted. Does this Exhibition bear this out? Certainly there is reduction in engine and chassis weight, due to aeroplane experience, teaching the value of the employment of aluminium alloys. The diminished weight is an improvement in efficiency. War experience, too, has produced the radial air-cooled engine, as seen in the Enfield-Allday car. It has also brought about greater accessibility of all vulnerable parts. The Rolls Royce Co., which built one of the most famous war aeroplane engines, show a car that differs but little—except in price—from their pre-war one. Other firms, it is true, as in the case of the radial air-cooled engine already referred to, have revolutionised their designs; and all have certainly revolutionised their cost.

There are more multicylinder cars, and fours are mostly of the monobloc type. The unit system of engine and gear box, doing away with the universal joint between the two, and providing a stiff assembly, attachable at three points to the chassis, has made headway. Detachable heads are more popular, as in the American cars, thus facilitating decarbonisation, and preventing it by the machining of the combustion heads. In the old type they were rough and favoured the deposit of carbon. Overhead valves, in spite of much opposition, have been, with advantage I believe, greatly adopted. The exhaust is now wholly or in part included in the mass of the casting. Electrical starting and lighting have become a definite essential of the usual equipment. The cone type of clutch is still, I am glad to say, popular. The leather or ferodo lining seldom wore, and, when it did, could be easily replaced. With springs under the lining the engagement is always soft and gradual, so I regret that the dry plate of one, two, or three members is gaining ground. The pump-delivered drip-lubrication system persists, but more cars are fitted with force feed to all bearings. On certain cars, such as the Arrol-Johnson Victory model, grease cups are done away with and an automatic oil lubrication of all working parts substituted, which has the advantage of standing a lot of forgetting. The transmission shows little change, the final drive being, as of old, in about the same proportion by crown wheel or worm. Suspension is certainly improved, chiefly as a result of the increased use of cantilever springs. These members, too, are receiving what they always deserved but did not get, some lubrication, by the more universal use of spring gaiters, such as the "Duco." The Zenith carburetter, which gave great satisfaction with aeroplanes, will be found fitted on many of the exhibits. The Zenith Co. is specialising in supplying carburetters definitely to suit most makes of cars, including the Ford, which any owner can himself fit in half an hour. Vacuum petrol feed, as used on the tanks, is to be noted on many cars, which is an advantage, especially when climbing hills, with but little petrol in the tank. Detachable wheels, or demountable rims, such as the Warland, are practically universal, and the latter are strongly to be recommended to the medical man who from necessity or choice looks after his own car.

The body building firms are well represented, and certainly maintain the traditional reputation long ago secured by British coach-builders. If the silk hat once more is the rule for the profession, the closed-in bodies shown will certainly permit of arriving at one's destination without emerging with a headgear resembling a feather boa.

The general impression I received was that the Exhibition, in the matter of cars, will contain a good many plums, but as to whether the public will be able to enjoy them for some months is, I think, questionable.

Motor Accessories.

The number of accessories shown is legion. Messrs. Adams and Co. have ideal portable jacks; the Apollo Manufacturing Co. an excellent one-piece sparking plug; Messrs. Auster and Messrs. Beaton and Son show the triplex safety glass screen, which, being absolutely unsplinterable, gives the advantage of safety to those seated behind it; Messrs. Brown Bros., Ltd., have a full range of their "Duco" specialties, such as coils, tools, tyre levers, grease guns, horns, mats, mirrors, lamps, number plates, spring gaiters, valve stem lubricators, and endless novelties to delight the heart of the motorist. The Cooper Stewart Co. have various models of their speedometers, the Frood Herbert Co. show samples of their excellent clutch and brake liners, whilst the Klaxon firm exhibit all sorts of mechanical warning signals. Messrs. S. Smith and Sons have an excellent assortment of speedometers, clocks, foot pumps, &c., and their four-jet and the new one-jet carburetter, together with their lighting and engine-starting dynamo, merit attention. Of tyres there is a large assortment, including those of all the leading makers.

NOTES FROM SOUTH AFRICA.

(FROM OUR OWN CORRESPONDENT.)

A Medical School in Johannesburg.

THE scheme for establishing a medical school in Johannesburg has now definitely materialised. Between 20 and 30 students are temporarily accommodated in the School of Mines building. Next year they will be in their own new building adjacent to the hospital, the chairman of which recently stated that there would be 563 free beds at the hospital almost immediately available for the teaching of students; this number of beds would compare favourably with most teaching hospitals in the Empire. In the course of an appeal for students, Dr. F. B. Stibbe, professor of anatomy, University College, Johannesburg, explained that if a student were "out to make money" he had far better put medicine out of the question at once. His remarks have created some interest in view of the recent advance in fees payable to medical men on the Rand.

Free Medical Aid to Dependents of Soldiers.

The Witwatersrand Branch of the British Medical Association has resolved to continue to give free medical attention to dependents of men still on active service, and those discharged from active service but still being supported by the Governor-General's Fund. Appreciative reference to this decision was made by the chairman of the Governor-General's (War Relief) Fund.

Influenza in South Africa.

The bulletin issued by the Union Department of Public Health at Pretoria on Oct. 1st states that 904 cases of epidemic influenza in the Union had been reported during the week ended Sept. 27th. The area most affected was Glen Grey in the Cape Province. The deaths numbered 101.

Oct. 3rd.

AUSTRALIA.

(FROM OUR OWN CORRESPONDENT.)

Influenza Epidemic.

IN Victoria the influenza epidemic was declared "officially at an end" on Sept. 15th. This somewhat remarkable pronouncement indicated that the Government would no longer bear any special expenses, and that the majority of the emergency hospitals would be closed. The total number of deaths in Victoria is given as 3224 to that date, but that figure is merely approximate. It is probable many more perished, as the reporting was very faulty. The total cost of special measures is set down as £150,000. Notwithstanding the dogmatic declaration of termination, there are still some 200 patients in hospital. It is possible that had the Government accepted the advice of their original advisory committee to build a special hospital which would serve afterwards as a fever hospital, the cost would have been no greater and the building would have been in existence. One special institution alone cost £800 per week for maintenance. The declaration of finality was the occasion of some departmental congratulations, as there is no question that the organisation was terribly expensive. In New South Wales the disease has remained quiescent. In Tasmania there has been a fairly widespread outbreak of a mild type. Help in the form of doctors and nurses was sent from Sydney and Melbourne. Considerable numbers of cases are still occurring in West Australia. The Federal Quarantine Department has issued a special report, in which it is claimed that both maritime quarantine and inoculation were effective measures, but this claim has scant support outside official opinion. There is no doubt a very creditable effort was made, but it is ncontestable that it failed. After six or eight months of vrangling and confusion, the quarantine arrangements have ecome once again uniform in operation.

Medical Congress.

The series of triennial congresses was interrupted in 1914 y the outbreak of war. The next meeting of the Australasian Iedical Congress will be held in Brisbane early in August, 920. The leading feature will be a consideration of the 'white Australia" policy from the medical standpoint, and n the light of information gathered by the Institute of ropical Diseases, which is established in Townsville. nother leading discussion will be the future relation of he Federal and State health administration.

Custody of a Child.

A case of somewhat unusual nature has attracted attention n the Victorian Supreme Court. Dr. J. Simpson Macpherson narried a Victorian lady and subsequently resided in Borneo, vhere his wife died, leaving an infant daughter. This child vas some time afterwards adopted by her grandmother and rought to Melbourne. An understanding was arrived at that he should remain under the care of her mother's relatives ntil she was 18, as she was entitled to a considerable annuity n coming of age. This arrangement continued in force to the resent time, the child being now about 14. At the conclusion f the war her father came to Melbourne and sought to have he custody of his daughter and to take her to Canada, vhere he now resides with his second wife and two children f the second marriage. The application was opposed by an unt who assumed care of the child on the death of the randmother. Mr. Justice Hood refused the petition of the ather on the ground that the child was happy and there vas no advantage in disturbing the original agreement. On ppeal to the Full Court this decision was unanimously eversed and custody given to the father. It is probable a urther appeal to the High Court will result. Dr. Macpherson erved with the Canadian Forces in the war, and there is no llegation against his personal fitness.

Venereal Disease.

The Federal Quarantine Department has issued a service ublication dealing with venereal disease in Australia. Dr. Cumpston, in discussing notification, is of opinion that the ajority of practitioners are fulfilling their obligation. This onclusion is scarcely supported by the figures, which show, oth in West Australia, Victoria, and Tasmania, that very ew females are included in reports. For example, in Victoria he figures for 12 months are: males 4227, females 560, for onorrhœa, and 1151 and 698 for syphilis. Dr. Cumpston stimates the incidence of syphilis in Victoria as 164 per 100,000 and of gonorrhœa as 381 per 100,000. He admits hese are provisional figures. The compulsory requirement o continue treatment is apparently not satisfactory, for in Victoria 1500 persons are reported as failing to continue, and 387 were traced and dealt with. A large proportion of disease is only partially treated. The authorities have power to detain persons for examination. In Queensland 5, in Victoria 1, and in Tasmania 2 persons were so detained. It is stated the reason more were not examined is the want of places of detention. In one instance a woman went to gaol at her own request. Some interesting figures are given under the head of alcohol and venereal disease. At the Langwarrin military camps, of 521 individuals interrogated 122 were total abstainers, 279 classed themselves as light drinkers, 122 admitted heavy drinking, and 32 were intoxicated when infected. So far as available figures go, very few men use prophylactic measures even when they are supplied. As to the source of infection, of 1052 men at Langwarrin 310 had paid for their infection and 742 had not. At the Victorian Department Clinic, of 995 men 446 had paid and 549 not. Dr. Cumpston considers these figures support the expert opinion that at least half of all male infections are from the amateur and not the professional prostitute. He somewhat naively adds that the reasons why so much clandestine sexual intercourse occurs should be sought and rectified, and concludes by claiming that existing legislation has been successful. At the same time he demands more coercive powers in almost every direction, and there is a good deal of the familiar official optimism expressed in terms "provision of adequate steps" and "adequate equipment on modern lines" and "improved machinery for ensuring the continuance of treatment." Such phrases mean very little.

Sept. 22nd.

Public Health.

ANNUAL REPORTS OF MEDICAL OFFICERS OF HEALTH.

County Borough of Brighton.

IN his annual report for 1918, Dr. Duncan Forbes gives a most instructive account of the epidemic of influenza which occurred in Brighton during the period under review. Contrasting the number of deaths resulting from the disease, at the different age-periods, in 1918, with those in the outbreaks in the "nineties," he shows that in 1918 most deaths occurred in the age-period 25–35, while in the "nineties" the number of deaths steadily increased from the 5–15 age-period to the 65–75 age-period.

During 1918 the increase in the deaths from influenza was accompanied by an increase in the deaths from pneumonia, and, in the autumn outbreak, by an increase in the number of deaths from pulmonary tuberculosis. But Dr. Forbes regards the recorded increase of deaths from pneumonia as of doubtful significance in view of the fact that comparison of the death certificates signed by different medical men practising in the same district show that the proportion of deaths from influenza in relation to those from pneumonia varied very greatly. One medical man during the outbreak certified 28 deaths from pneumonia and only 4 from influenza. The advice is generally given, during periods of influenza prevalence, that the patient should go to bed as soon as the disease manifests itself. In Brighton a large proportion of the patients who died did take to their beds in the early stages of the illness. Out of a total of 271 deaths, 159 were in bed from the date of onset, 48 from the second day, 24 from the third day, 10 from the fourth day, 15 from the fifth day, 4 from the sixth day, 2 from the seventh day, 3 from the ninth day, 2 from the eleventh day, 1 from the twentieth day, 1 from the twenty-second day, while in two instances death occurred in bedridden patients. This does not, of course, impugn the soundness of the above-mentioned advice, it merely shows that a majority of the fatal cases were severe from the onset. The greatest number of deaths occurred ftom the sixth to the thirteenth day of illness, the maximum being reached on the ninth day.

The first information that influenza was affecting large numbers of the population came from the schools. The spread among scholars was very rapid. At one school, for example, the attendance on Thursday, Oct. 10th, was 155; on Monday the 14th it was only 73. The boys' and girls' departments at this school were not equally affected. The rapidity of spread, combined with the unequal incidence on the boys' and girls' departments, appears to indicate that the disease was, in many instances, contracted in school. The secondary schools in Brighton were not closed during the period of the epidemic and they afforded an interesting field for study of the malady. In reference to that most difficult problem as to whether or not one attack of influenza confers immunity against subsequent attacks, Dr. Forbes managed to obtain valuable data. It may be convenient, in the first instance, to consider the boys' school and the girls' school separately. In the former, of 690 boys on the roll, 39, or 6 per cent., fell ill in the summer term 1918, and of these 39, 5, or 13 per cent., were attacked in the autumn. Of the 651 who had no known attack in summer, 159, or 24 per cent., were attacked in the autumn. Of the 492 remaining with no history of attack during 1918, 48, or 7 per cent., were attacked in the spring of 1919. Of the 164 who were attacked either during the summer or autumn of 1918, 15, or 8 per cent., were attacked in the spring of 1919. The summer attacks seem to have given some degree of immunity from attacks in the autumn; on the other hand, summer and autumn attacks appear to have afforded no defence against a spring attack. There were 447 girls on the roll of the girls' school. Of these, 72, or 16·5 per cent., fell ill in the summer term, of whom 6, or 8 per cent., were attacked in the autumn. Of the 375 who had no known attack in summer 98, or 26 per cent., were attacked in the autumn. Of the 277 remaining with no history of an attack during 1918, 44, or 16 per cent., were attacked in the spring of 1919. Of the 170 who were attacked during the summer or autumn of 1918, 8, or 5 per cent., were attacked in the spring of 1919. From the girls' school figures it would appear that an attack in summer protected in considerable degree against an autumn attack, and similarly attacks in summer or autumn protected against a spring attack. The results from the two schools are therefore partially contradictory. The combined figures from the two schools indicate that one attack protects to a certain extent against later attacks. Five scholars had second attacks or relapses shortly after their first attacks. Two are reported to have been attacked in summer, autumn, and spring. It is probable, therefore, that second attacks in any one year are of frequent occurrence.

The results obtained from the use of vaccine as a prophylactic agent in Brighton are very interesting. The vaccine used was that issued by the Local Government Board, each c.cm. of which contained *B. influenzæ* 60 millions, pneumococci 200 millions, streptococci 80 millions. On Feb. 15th, 1919, all general practitioners in the borough were informed that they would be supplied with "preventive" vaccine free of charge. Sixteen took advantage of the offer and vaccinated 56 persons, 2 of whom developed attacks of influenza three days and four days respectively after the first inoculation. The histories of these 56 persons as to previous attacks of influenza is not known. Thirty-five school teachers, 19 Queen's nurses, who are the district nurses for Brighton, and 16 of the town-hall staff, making a total of 70 persons, were also vaccinated. Thirty-three, or nearly one-half, had suffered from influenza during 1918, and 3 of these, who had suffered from influenza (1 in June and 2 in October, 1918), had second attacks, 1 three days after the first inoculation, 1 four days and 1 five days after their second inoculations. Concerning the remaining 37, who had no history of an attack of influenza during 1918: Of 8 who were Queen's nurses in regular attendance on influenza cases, 1 developed a severe attack, complicated by pneumonia, three days after the first inoculation. Of 15 who were teachers, 1 developed a mild attack four days after the first inoculation. Of 14 who belonged to the town-hall staff, 2 developed influenza four days after their second inoculation. Thus, of the 126 persons inoculated 9 developed influenza within five days of inoculation and none thereafter. The results point to an increased susceptibility to infection following immediately after inoculation and less certainly to a lessened susceptibility thereafter.

Borough of Ealing.

Consideration is given to the epidemic of influenza in Dr. Thomas Orr's annual report for 1918. In Ealing the disease became epidemic at the beginning of July, an idea of the extent of its prevalence being given by the weekly returns of children absent from school. During July, 959 children were reported to be absent on account of the malady, though most of the cases occurred during the first half of the month. The disease was of a mild character, and the children recovered with remarkable rapidity. Adults also were affected, but inquiries led to the belief that the outbreak owed its spread to the schools, children being affected more than adults. In the month of June no deaths from influenza were registered in the borough, but in July four were recorded in the week ending the 15th, and two in the week ending July 31st. Thus, although the disease was very prevalent during this month among school children, no deaths occurred amongst them, the 6 deaths above referred to being amongst adults. Towards the end of July the first wave subsided. In August only one death, a female 22 years of age, was recorded, and in September none. From July 1st to Sept. 20th only 7 deaths occurred altogether.

A recrudescence of the epidemic was experienced in the second week of October in the Northfields area, Northfields school being chiefly affected. From here it quickly spread during the following week to Lammas school and to Little Ealing and Junction-road schools, taking in the whole of the south-western area of the borough. In the next week the schools, as a whole, became affected to such an extent that the closure of all was recommended for 10 days. At the time of closure the children absent from school numbered 2777 out of 7642 on the rolls, or 36 per cent. of the elementary school population. It must not be assumed, however, that all absentees were cases of influenza, but careful inquiry showed that about 80 per cent. of those absent from school were actually victims of the disease.

The general population was affected at the same time as the school children, but as the disease was not notifiable it was, of course, difficult to gauge the extent of the prevalence amongst adults. A great number of families, however, were severely affected, whole households being completely incapacitated at the same time. During the week ended Oct. 7th 1 death occurred from influenza; the week ended Oct. 14th, none; the week ended Oct. 21st, 2; the week ended Oct. 28th, 9; the week ended Nov. 4th, 30, making a total of 42. During the first week of November the disease reached its maximum, 37 deaths being recorded. After that there was a distinct decrease, as indicated by the following figures: For the week ended Nov. 18th, 15 deaths; for that ended Nov. 25th, 20 deaths: for that ended Dec. 2nd, 15 deaths; for that ended Dec. 9th, 11 deaths; for that ended Dec. 16th, 8 deaths; for that ended Dec. 23rd, 1 death; and for that ended Dec. 31st, 2 deaths. Thus from June 1st to Dec. 31st there were a total of 158 deaths from the disease.

URBAN VITAL STATISTICS.

(Week ended Nov. 1st, 1919.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at 16,500,000 persons, the annual rate of mortality, which had steadily increased from 10·4 to 13·7 in the seven preceding weeks, fell to 12·9 per 1000. In London, with a population slightly exceeding 4,000,000 persons, the annual death-rate was 14·3, or 2·0 per 1000 below that recorded in the previous week, while among the remaining towns the rates ranged from 6·1 in Exeter and in Warrington, 7·0 in Dudley, and 7·6 in Edmonton and in Ilford, to 18·4 in Sunderland, 18·9 in Southend-on-Sea, and 21·7 in Blackpool. The principal epidemic diseases caused 226 deaths, which corresponded to an annual rate of 0·7 per 1000, and comprised 72 from infantile diarrhœa, 71 from diphtheria, 50 from measles, 13 from scarlet fever, and 10 each from enteric fever and whooping-cough. Measles caused a death-rate of 1·5 in Sunderland, 2·4 in South Shields, and 3·1 in Gateshead; and diphtheria of 1·5 in Preston. The 71 deaths from influenza were equal to the number in the previous week, and included 20 in London, and 4 each in West Ham, Birmingham, and Leeds. There were 2350 cases of scarlet fever and 1429 of diphtheria under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, against 2246 and 1355 respectively at the end of the previous week. The causes of 32 deaths in the 96 towns were uncertified, of which 6 were registered in Birmingham, 5 in Sunderland, 4 in London, and 3 in Gateshead.

Scotch Towns.—In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2,500,000 persons, the annual rate of mortality, which had been 10·2, 12·3, and 11·1 in the three preceding weeks, rose to 12·4 per 1000. The 251 deaths in Glasgow corresponded to an annual rate of 11·7 per 1000, and included 5 from infantile diarrhœa, 3 from diphtheria, and 2 from measles. The 91 deaths in Edinburgh were equal to a rate of 14·1 per 1000, and included 1 each from measles, scarlet fever, diphtheria, and infantile diarrhœa.

Irish Towns.—The 138 deaths in Dublin corresponded to an annual rate of 17 8, or 2 6 per 1000 above that recorded in the previous week, and included 4 from infantile diarrhœa, 2 from diphtheria, and 1 each from measles and scarlet fever. The 115 deaths in Belfast were equal to a rate of 15·0 per 1000, and included 11 from scarlet fever and 1 each from enteric fever, measles, whooping-cough, diphtheria, and infantile diarrhœa.

The Services.

THE HONOURS LIST.

THE following additional appointment and awards to medical officers for services rendered in connexion with the defence of Kut-el-Amarah are announced:—

C.M.G.—Lt.-Col. J. Hennessy, C.B., R.A.M.C.

Distinguished Service Order.—Lt.-Col. E. F. E. Baines, I.M.S.; Maj. C. H. Barber, I.M.S.; Capt. (acting Maj.) A. S. Cane, O.B.E., R.A.M.C.; Capt. E. G. S. Cane, R.A.M.C.

Military Cross.—Capt. J. Startin, R.A.M.C.

MENTIONED IN DESPATCHES.

The names of the following medical officers should be added to the list of Mentions published in THE LANCET of Oct. 28th, 1916, p. 770:—

Maj. E. A. Walker, I.M.S.; Capt. P. B. Bharucha, I.M.S.; Capt. (acting Maj.) A. T. J. McCreery, M.C., R.A.M.C.; Capt. L. Murphy, D.S.O., R.A.M.C.

FOREIGN DECORATIONS.

French.

Légion d'Honneur.—Officier: Maj.-Gen. E. G. Browne, C.B., C.M.G., late R.A.M.C. *Chevalier:* Capt. and Bt. Maj. T. J. C. Evans, M.C., I.M.S.

Hellenic.

Order of the Redeemer.—Officer: Maj. A. E. Kidd, O.B.E., R.A.M.C. (T.F.). *Chevalier:* Capt. A. Oliver, R.A.M.C. (T.F.); Capt. W. A. Valentine, R.A.M.C. (T.F.).

Order of King George I.—Commander: Lt.-Col. C. Garner, O.B.E., ret. pay.

Italian.

Bronze Medal for Military Valour.—Temp. Capt. G. T. Mowat, R.A.M.C.

Portuguese.

Military Order of Avis.—Commander: Temp. Maj. and Bt. Lt.-Col. F. S. Brereton, C.B.E., R.A.M.C.; Col. M. MacLaren, C.M.G., Canadian A.M.C.; Temp. Col. C. F. Martin, Canadian A.M.C.

Roumania.

Order of St. Sava.—5th Class: Capt. J. K. Mossman, M.C., Canadian A.M.C.

ROYAL NAVAL MEDICAL SERVICE.

Surgeon Rear-Admiral V. G. Thorpe is placed on the Retired List at own request.

Surgeon Rear-Admiral Sir W. W Pryn is placed on the Retired List.

Surgeon Capt. Sir D. J. P. McNabb to be Surgeon Rear-Admiral.

Surgeon Commander (acting Surgeon Capt.) W. H. S. Stalkartt to be Surgeon Captain.

Surgeon Commander F. W. Parker to be Surgeon Captain.

To be Surgeon Lieutenants: J. D. Murphy, C. N. Ratcliffe.

ROYAL ARMY MEDICAL CORPS.

Majors to be acting Lieutenant-Colonels whilst specially employed: J. L. Wood, A. S. Littlejohns.

Major T. E. Harty, to be acting Lieutenant-Colonel whilst commanding a Medical Unit.

M. H. Allen, late Lieutenant-Colonel, Can. A.M.C., to be temporary Major.

Major E. B. Lathbury relinquishes the acting rank of Lieutenant-Colonel.

C. L. Williams, late Major, Indian Medical Service, to be temporary Major.

The undermentioned relinquish the acting rank of Major: Capts. T. B. Nicholls, T. O. Thompson, A. L. Aylmer. Temp. Capts. V. H. Mason, O. de B. Marsh, J. S. Lloyd, W. A. Clayton.

Temp. Capt. M. Fitzmaurice-Kelly to be acting Major whilst specially employed.

Capt. (acting Major) W. McM. Chesney, from Special Reserve, to be Captain.

Temporary Captains to be Captains: S. Fenwick (acting Major, and to retain his acting rank), W. Russell, G. Jackson, K. N. Purkis.

To be temporary Captains: J. L. Rubidge (late temporary Captain), C. R. Worthington (late Captain, Can. A.M.C.), Capt. F. G. Flood (from Special Reserve, to be Captain), J. J. McConnell. Temp. Lieuts. H. P. Fairlie A. E. Ainscow, T. M. Walker.

Temp. Capt. H. G. P. Armitage to be Lieutenant and to be temporary Captain.

To be temporary Lieutenants: T. B. Bokenham, E. P. O'Dowd.

Officers relinquishing their commissions: Temp. Lieut.-Col. H. French (retains the rank of Lieutenant-Colonel). Temporary Majors: H. M. Chasseaud (is granted the rank of Lieutenant-Colonel), W. B. B. Taylor (retains the rank of Major). Temp. Capt. (acting Lieut.-Col.) W. Kennedy Taylor (granted the rank of Lieutenant-Colonel). Temporary Captains granted the rank of Major: C. Kingston, J. L. Wilson. Temporary Captains retaining the rank of Captain: S. E. Martin, L. Lane, J. Macintyre, D. M. Aitken, J. N. Lyons, A. E. Thompson, E. H. R. Harries, T. H. Houston, A. J. Caird, C. G. Skinner, C. C. Court, T. L. Price, G. B. Salmond, A. Fraser, W. McKee, S. H. Browning, E. G. Rawlinson, H. H. Molloy, W. E. Glover, A. O. P. Reynolds, W. Reynolds, D W. Reid, E. Atkinson. Temp. Lieut. W. F. Murphy (retains the rank of Lieutenant).

SPECIAL RESERVE OF OFFICERS.

Major H. G. Smeeth relinquishes the acting rank of Lieutenant-Colonel.

Capts. T. Lindsay and W. B. Wood relinquish the acting rank of Major.

Lieutenants to be Captains: J. Lipsoy, L. J. Schwartz, M. Melvin, T. McS. Wilson, W. M. Savery.

TERRITORIAL FORCE.

Capts. (acting Majors) relinquishing the acting rank of Major on ceasing to be specially employed: C. M. Nicol, S. Scott, J. C. Newman, W. Bowater, C. W. J. Brasher.

Capt. (acting Major) M. S. Doubble relinquishes the acting rank of Major on vacating the appointment as Deputy Assistant Director of Medical Services.

Capt. D Shannon to be Major.

Capts. E. C. T. Emerson, H. R. Parsloe, and A. E. Crabbe relinquish their commissions and retain the rank of Captain.

1st London Sanitary Company: Capt. E. R. Marle to be acting Major whilst employed as Chief Instructor, Agricultural Wing, Army Science College. Lieut. T. W. Wheeler to be Captain.

1st Scottish General Hospital: Capt. (acting Maj.) J. R. Levack relinquishes the acting rank of Major on ceasing to be specially employed.

TERRITORIAL FORCE RESERVE.

Lieut.-Col. H. H. Tooth, from 1st London General Hospital, to be Colonel.

ROYAL AIR FORCE.

Capt. (acting Major) H. R. B. Hull (Surg.-Lieut., R.N.) relinquishes his commission on reversion to R.N.

The undermentioned are transferred to the unemployed list: Capts. W Lessey, W. T Williamson, F. N. V. Dyer, R. B. Adams, J. M. Kirkness (acting Major), S. G. Smith, A. D. Kennedy.

INDIAN MEDICAL SERVICE.

Temporary Lieutenants to be Temporary Captains: Shambhu Nath Aggarwal, Anthony Peter Dias, Gurudhanall Lokran Dudani, Iqbal Singh Nalwa, Jamshed Edulji Frenchman, Shanker Ganpatrao Wagle, Jayashanker Girishanker Trividi, Narayan Hari Kulkani, George Durairaj Ganamuttu.

Temp. and Hon. Lieut. Barjor Phirozshah Karani to be temporary and honorary Captain.

JOURNAL OF THE ROYAL ARMY MEDICAL CORPS.

In the October issue Major Dennis Embleton and Capt. George H. Steven, whose report to the Medical Research Committee on the Persistence of Cerebro-Spinal Fever Cases as Carriers of the Meningococcus During Convalescence was published in THE LANCET, May 10th, p. 783, again discuss the subject of meningococcus carriers. The authors divide carriers into two groups: (*a*) Acute or temporary carriers who carry under eight weeks; (*b*) chronic carriers who carry over eight weeks. While acute carriers remain infectious on an average for 24 days the chronic carriers remain infectious on an average for 5½ months, the longest period observed being 1 year and 8 months. Eighty per cent. of the carriers were acute and 20 chronic. Treatment of the carrier appeared to prolong the carrying period. The best method of freeing a meningococcus carrier from infection, the authors conclude, is open air and exercise.—In a paper on the Pathogenesis of Diphtheritic Paralysis Major M. R. Walshe states that "there is, therefore, a weight of evidence which may be considered sufficient to justify us in concluding that diphtheritic paralysis, at any rate in the initial and most characteristic of its stages, that of cranial nerve involvement, is an ascending infection of the central nervous system, the toxin elaborated in the membrane passing up to the medulla in the perineural lymph channels of the cranial nerves innervating the tonsils and fauces"—A Report for the Pathological Committee of the War Office of an Inquiry into Gingivitis and Vincent's Disease Occurring in the Army, by Lieutenant-Colonel Sir David Semple, Captain Cecil Price-Jones, and Miss L. Digby, is continued; and Lieutenant-Colonel Newham, consultant in tropical diseases, East African Expeditionary Force, discusses Trypanosomiasis in the East African Campaign.

Obituary.

JAMES CRAWFORD RENTON, M.D. EDIN., F R.F.P.S. GLASG.,

LATE SURGEON AND LECTURER IN CLINICAL SURGERY, WESTERN INFIRMARY, GLASGOW; EXAMINER IN SURGERY IN THE UNIVERSITIES OF EDINBURGH AND ABERDEEN; SURGEON TO THE GLASGOW EYE INFIRMARY; LIEUTENANT-COLONEL, R.A.M.C.

James Crawford Renton, who died in Edinburgh on Oct. 20th, was a son of the manse and was born in 1851. He studied in Edinburgh and became M B. in 1872, proceeding to the degree of M.D. in 1882. In 1874 he settled in Glasgow and there entered upon general practice, and having a special interest in surgery he was shortly afterwards appointed to the staff of the Eye Infirmary. In 1876 his opportunities in the field of his inclination were added to by an appointment to the out-patient department of the Western Infirmary, and upon its staff he became assistant surgeon—afterwards full surgeon and lecturer on clinical surgery, a position he held for 17 years. When war was declared in 1914, and military hospitals were instituted, he was posted, with the rank of Lieutenant-Colonel, to the 4th Scottish General Hospital at Stobhill, near Glasgow. In all these important and responsible positions he did excellent work, the results of which and the experience gained he communicated freely to the profession, for he contributed to medical periodicals and he has left behind him a quantity of valuable and interesting records. For many years, and up to the time of his becoming surgeon to the Western Infirmary, he conducted a large general practice in the West-End of Glasgow, and gained by so doing what is, maybe, the best foundation in experience for the operating surgeon; he thus gained early and direct knowledge of the emergency cases which for success in their treatment demand the most prompt interference; and we find his most valuable teaching in connexion with such acute abdominal conditions as intestinal obstruction, intussusception, appendicitis, ruptures of the hollow viscera, and twisted ovarian pedicles. He possessed in a high degree the clear perception and the power of deduction which constitute the basis of correct diagnosis, and he had the clinical instinct which is the outcome of intimate and careful observation. He was a good operator, careful, deliberate, and courageous; no accident upset him and no difficult proceeding daunted him, for he had the knowledge and experience which casts out fear. The surgeon who could write as he did that excision of the Gasserian ganglion was "exceedingly safe and easy of performance" was gifted with manipulative skill and spirit of a high order. He was an excellent and popular teacher and a kindly and conscientious examiner, and as a man he was—and this most justly—very greatly beloved.

One of his hospital colleagues who knew him well thus writes: "Renton was certainly one of the kindest men I ever met; his consideration for the poor, the distressed, and those who had fallen by the way, was constant, and no one has any idea how much gratuitous work he did." This from his colleague, while the writer, as one of his oldest friends, finds in the words of Carlyle, written of John Sterling, a summation worthy of Renton's character: "True above all things we call him; a man of perfect veracity in thought, word, and deed—there was no guile or baseness anywhere found in him—transparent as crystal, he could not hide anything sinister if such there had been to hide. A more perfectly transparent soul I have never known." J. A. McD.

Correspondence.

"Audi alteram partem."

THE GENERAL MEDICAL COUNCIL: THE ELECTION OF DIRECT REPRESENTATIVES.

To the Editor of THE LANCET.

SIR,—By Nov. 7th voting papers in connexion with the election of Direct Representatives of the profession to be members of this Council will have been posted to all practitioners registered with addresses in England and Wales, Scotland, or Ireland.

In consequence of the war it is probable that many practitioners have left the addresses at which they were resident in 1914 and have not notified their present whereabouts.

Any practitioner whose registered address is within the United Kingdom, and who has not received a voting paper, should immediately communicate with the Registrar of the Branch Council at which he was originally registered, *whether he wishes to take part in the election or not*, in order that there may be no risk of the removal of his name from the Medical Register under Section 14 of the Medical Act, 1858.

The addresses of the Branch Registrars are: The Registrar, Scottish Branch Council, 20, Queen-street, Edinburgh; The Registrar, Irish Branch Council, 35, Dawson-street, Dublin.—I am, Sir, yours faithfully,

NORMAN C. KING,
Registrar of the General and English Branch Councils.
44, Hallam-street, Portland-place, London, W. 1, Nov. 4th, 1919.

THE GENESIS OF CARCINOMA CERVICIS.

To the Editor of THE LANCET.

SIR,—Dr. F. J. McCann's communication to the Royal Society of Medicine and the valuable commentary on the same in your leading article of Oct. 25th have, no doubt, aroused a great deal of interest in a most important subject, which is as important to the busy general practitioner as it is to the consultant of scientific trend. Dr. McCann states that parity is the most important predisposing cause of carcinoma cervicis. You, Sir, have mentioned, no doubt with good authority, that "there is no certain evidence that the number of children born has much influence, and it is a curious fact that American Indian women are more fertile than white women, and yet carcinoma of the uterus among them is comparatively rare." The same may be said of the Jewish race. Orthodox Jewish women, who seldom remain single and are quite prolific, are anything but free from the so-called precancerous lesions, and yet are very rarely affected by cancer of the cervix. German, Hungarian, and American gynæcologists all point out this rarity in the Jewish race. Dr. Abram Brothers, of the Mount Sinai Hospital, New York, met with only five cases of carcinoma cervicis in Jewish women out of a total of nearly 35 000 women examined by him, and these women were mostly Jewesses. At the same time, he found several dozen cases of cancer among the non-Jewish women. Comparing the statistics of the Mount Sinai Hospital with that of the non-Jewish St. Luke's Hospital, there was found to be 6·98 per cent. cancer of the womb cases in the former among the cases of cancer, as compared with 15·98 per cent. in the latter. Very few cases of cancer of the cervix have been found amongst Jewesses in the local hospitals. The late Dr. James Braithwaite, of Leeds,[1] observed that among the great number of Jewesses attending his out-patient department at the Leeds General Infirmary it was exceedingly rare to meet with a case of cancer of the womb. He only found one case in 10 years. Consulting the statistics of the London Hospital, where there is a special Jewish department, he observed the same peculiarity. In a period of five years only one case was found in a Jewess, as against 178 among Gentile women. This infrequency of cancer in the neck of the womb finds its analogy in the rarity of cancer of the rectum in Jews, which is so notwithstanding the fact that Jews are marked sufferers from other rectal conditions, such as hæmorrhoids, fistula, fissure, &c.

These racial immunities may help to throw some light on the ætiology of cancer. Dr. Braithwaite explains this rarity of carcinoma cervicis among Jewish women as being due to somatic or racial difference, or difference in diet. In our humble opinion, we attribute the infrequency to the fact that in orthodox Jewish women chronic endocervitis, especially of the gonorrhœal variety, which, when persistent, Dr. McCann states is an important predisposing cause of carcinoma cervicis, is seldom encountered. We, too, because of the frequency, on the one hand, of the so-called precancerous lesions of the cervix and the infrequency, on the other hand, of the resulting malignant condition in Jewish women, await fuller statistics showing in how many of the precancerous conditions of the cervix malignancy ultimately occurs before advising our patients to undergo even a simple cervical amputation. With the various small operations necessary for the repair of lacerations, &c., no one can deny their usefulness, but when panhysterectomies, with their none too small death-rates, are being recommended without the support of adequate statistics we prefer to recommend a simple diagnostic curettage before submitting the patient to the major operation, in spite of Dr. McCann's warning cases, in one where the patient, from whom a curettage for "fungus endometritis" which was declared innocent by a high pathological authority, died five years later from uterine cancer; and the other case where a single woman died seven years after her cervical polypus was declared innocent, from uterine cancer with secondary growths in the liver.

I am, Sir, yours faithfully,

SAMUEL SAMUEL, M.B., M.R.C.S.,
Late Captain, R.A.M.C.
Leeds, Nov. 1st, 1919.

CONJUGAL TUBERCULOSIS.

To the Editor of THE LANCET.

SIR,—Dr. E. Ward's interesting article in THE LANCET of Oct. 4th on the above subject raises the great question of the diagnosis of pulmonary tuberculosis. He has set his standard of unmistakable and advanced disease in those cases excluded from "suspects" and negatives. Had he made the "meshes" of his net smaller and included as positives all those exhibiting abnormal signs in the middle lobe, those with evidences of shrinking of lung tissue and those with hyperæsthesia of the chest wall, his number of positive cases would probably have been much larger. Perhaps he will inform us if all his negative cases were free from external thoracic deformities, such as are seen in so many grown up persons who have a suspicious or certain tuberculous history. If they were, then the universal prevalence of active or healed tuberculosis receives a denial. On the other hand, if they showed signs of having had an early infection their immunity is well established. The theory of immunity by gradual doses of tubercle bacilli is not easy to accept.

I am at a loss to understand what he means by the term "suspect." If a person who is exposed to tuberculous infection shows any signs of damage to his lungs, his condition is either one of active disease or one of scar tissue as a result of a previous infection which has healed and resulted in immunity. I fail to see any class for "suspects" in persons exposed to infection. I can understand "suspects" in cases where we have no history, or where the history given is unreliable. To wait until hæmoptysis supervenes, or until the infection invades the surfaces of the lungs, is a waste of valuable time for treatment.

Conjugal infection is appreciated by all family practitioners, not so much in the previously uninfected mate showing signs of consolidation or crepitations, but in the impaired health, such as increased liability to take "colds," or as dyspepsia, loss of mental and physical vigour. These infirmities have to be ascribed as due to obvious causes until the signs in the lungs are such as could hardly be misinterpreted. Further, the family practitioner is aware that if this couple produces a family he will have to contend with nutritional disorders and pulmonary diseases in the children. The question of conjugal infection (where couples ordinarily live together) and the infection of the children is quite settled in his mind as a result of his experience. A family practitioner who accepts Dr. Ward's standard of diagnosis finds himself compelled to invent all kinds of specious and unscientific reasons for illnesses, where a wider outlook and a recognition of the infectivity and slow progression of pulmonary tuberculosis would enable him to remove his patient from the source of infection and allow him to recover.

---

[1] THE LANCET, 1901, ii., 1578.

The article is most interesting and informative, and helps to establish the position of conjugal infection which has been unwisely discarded. I think he would further have added to our sum of knowledge had he tested each of his suspects and negatives with tuberculin. He would probably have found many of them giving reactions to small doses even of the milder preparations, such as P.T.O. Had he followed up those which showed no reaction to small doses with increasing doses, he would have ascertained their degree of tolerance. I make these remarks because he shows in the last few lines of his article some appreciation of the value of tuberculin.

I agree with Dr. C. Muthu's remark about the childhood commencement of tuberculosis, but I fail to see where the "food problems, the social, economic, and psychologic problems" have any effect on the infection of tuberculosis any more than they have upon the small-pox or syphilis infections. If pulmonary tuberculosis most usually commences in childhood it ought to be dealt with at its commencement either by removal from the source of infection or by curative means.—I am, Sir, yours faithfully,

Manchester, Oct. 20th, 1919. R. CRAWSHAW HOLT.

THE POSITION OF RADIOLOGY IN MEDICINE.

To the Editor of THE LANCET.

SIR,—I have read with much pleasure the annotation in your issue of Oct. 25th on Dr. A. E. Barclay's excellent address on Radiology, and congratulate you on your long-overdue advocacy of proper status being accorded to specialists in this most important branch of medical science and research. It has long been a wonder to me how men of world-wide renown in this subject could submit to hold positions on the honorary staffs of important hospitals with a status little better than a dispenser, while frequently men on the medical and surgical sides, with half their attainments and hardly known outside their own hospital, hold status infinitely above them. The radiologists are themselves, however, to blame, for as long as they submit they will be given nothing better. It is the re-embodiment of the same old snobbish idea which in former times made the physician look down upon the surgeon that now makes both look askance at the radiologist, and, as before, that idea is based on ignorance, like most similar ideas. In the North we are more advanced and more just in our appreciations. In my own hospital, Bradford Royal Infirmary, after serving three years on the assistant staff, I was made one of the honorary physicians, and have now entered on my second term of ten years as such. I enjoy the same rank as those on the full medical and surgical staff, with all their privileges. I have had assurance again and again that my findings and my reports are valued by my colleagues.

Unlike Dr. Barclay, I rarely visit the operating theatre. I lay little stress on radiograms as such, well knowing that they can be properly interpreted only by the expert and by the particular expert who knows the conditions under which they have been taken. Many of the most important circumstances, on which an opinion is frequently based, cannot be shown on a one plane surface such as a radiogram. Sometimes because they are mobile conditions observable in the fluoroscope and cannot always be caught on a plate, sometimes because the shadows can only be disentangled and made understandable by stereoscopic plates viewed in a Wheatstone stereoscope, &c. My findings are embodied in *reports* aided by diagrams, and I check my own work by return reports sent me from wards, operating theatres, and post-mortem room. In both public and private practice I never give a skiagram or print to a patient, and I now find that medical men rarely wish them, much preferring my reports, which they say they do understand, to radiograms and prints, which they frankly tell me they do not understand. I regard the radiogram, as *my* diagnostic instrument, on a par with the stethoscope, ophthalmoscope, &c., which, of course, I use like any other medical man if they help me to clear up a doubtful radiological point. In short, I am a medical man not a photographer. This point the Rip Van Winkles of the War Office have not yet grasped. If they had thousands of needless operations would have been avoided, and many many lives would have been saved during the war.

On the therapeutic side of my department, where 8000 treatments are given yearly, no treatment is given but that which is prescribed by me. I am always delighted to coöperate with any of my colleagues, of course, but while under treatment in my department the patients are my patients, just as a case sent from a medical ward to a surgical for operation becomes the patient of the surgeon for the time being. Under such conditions as these a man can give of his best, and, what is more important still, the best men can be found to take up this most important work, which is only yet in its infancy.—I am, Sir, yours faithfully,

Bradford, Oct. 31st, 1919. WILLIAM MITCHELL.

ŒDEMA OBSERVED IN A MONKEY.

To the Editor of THE LANCET.

SIR,—With reference to the paper by Dr. A. Harden and Dr. S. S. Zilva in THE LANCET of Nov. 1st on this subject, in 1905 and 1906, when investigating beri-beri, Dr. de Korté and I met with several monkeys suffering from considerable œdema of the face and genitals, with anæmia and cachexia. All the animals became very ill and died or were destroyed. The facies bore a remarkable resemblance to that of advanced Bright's disease, but albumin was always absent from the urine, and the condition simulated beri-beri in several particulars. Two or three of the animals developed the condition while under observation in the laboratory; and two, at an advanced stage, were obtained from a well-known dealer. Post mortem little was to be found, but microscopically the kidneys showed certain lesions. The observations were published in the *British Medical Journal*, 1907, Vol. II., p. 201. The condition in our monkeys seems very similar to, if not identical with, that occurring in Drs. Harden and Zilva's experimental animal. In the light of recent work I think it probable that the condition of these monkeys was due to some dietetic factor, but I doubt if it were due to deficiency of fat or of fat-soluble A, for those of our animals which developed the disease while under observation were fed in the ordinary way—fruit, potato, and boiled rice, with plenty of milk, &c.

I am, Sir, yours faithfully,

King's College, W.C., Nov. 1st, 1919. R. TANNER HEWLETT.

THE CONTROL OF VENEREAL DISEASE.

To the Editor of THE LANCET.

SIR,—Mr. E. B. Turner, chairman of the Medical Committee of the National Council for Combating Venereal Disease, in his letter to you appearing in your issue of Oct. 25th, makes two statements which cannot be permitted to pass unchallenged. The first infers that Colonel L. W. Harrison is opposed to immediate self-disinfection, which has proved to be inefficient, and the second infers that there are very small differences in the policy of the Society for the Prevention of Venereal Disease and that of the National Council for Combating Venereal Disease.

Immediately before the formation of the Venereal Prevention Committee, which has now expanded into the Society for the Prevention of Venereal Disease, I visited Edinburgh and had the privilege of lunching with the President of the College of Surgeons, the Dean of the Faculty, and the professor of forensic medicine. These gentlemen stated that some time previously Colonel Harrison had visited Edinburgh and given a lecture on the subject of venereal disease, and had brought forward most convincing statistics to support his strong advocacy of immediate disinfection. I received the definite impression that Colonel Harrison's lecture made them realise with extreme clearness the grave danger of delay in the application of prophylactic disinfection.

The National Council for Combating Venereal Disease issued a leaflet giving Colonel Harrison as authority, suggesting a method of early preventive treatment, and stating that it should be carried out within an hour of exposure. Colonel Harrison was, therefore, convinced that immediate, rather than delayed disinfection was necessary to prevent infection, and if his opinion has changed, his conversion to delayed disinfection must be recent, and perhaps due to a gradual assimilation of moral ideas since he joined the Council of the N.C.C.V.D. Until, therefore, Colonel Harrison definitely states that he has changed his views, the public only has the right to conclude that it was the education of the soldier in, and the administrative measures for the supply of disinfectants for personal use that was at fault, and that the scientific fact that immediate disinfection is a protection against disease remains unshaken.

As regards the second point, I think that perhaps Mr. Turner may have based his opinion on the articles in *The Times* and other journals, pointing out that the only point of difference was whether palmatate, stearate, or oleate of potassium on the one hand, or permanganate of potassium on the other, was the most effective antiseptic. Perhaps he failed to see the irony that may have underlaid these statements, for though superficially the differences may be slight, fundamentally they are irreconcilable, and are based on entirely different modes of thought. While the National Council for Combating Venereal Disease consider moral teaching, backed by simple cleanliness and delayed disinfection, to be the best policy, the Society for the Prevention of Venereal Disease insist that these methods have been proved to be unavailing to stop, though they may possibly have lessened, the increase of venereal disease, and hold the opinion that immediate self-disinfection, which can only be obtained if the individual carries his disinfectant with him, is the most efficient method for stopping venereal disease, providing the public are sufficiently educated in the matter. The National Council for Combating Venereal Disease consider it unwise to advise the public to provide themselves with packets of disinfectants, while the Society for the Prevention of Venereal Disease instruct the public so to do. I am, Sir, yours faithfully,

HUGH WANSEY BAYLY,
Hon. Sec., S.P.V.D.

Harley-street, W., Oct. 28th, 1919.

Parliamentary Intelligence.

HOUSE OF COMMONS.

TUESDAY, OCT. 28TH.

Maintenance of British Hospitals.

Sir A. WARREN asked the Prime Minister whether, having regard to the importance of maintaining our hospitals (at present supported by voluntary aid) in full operation, and seeing that it was impossible to raise sufficient funds by begging for their proper upkeep, maintenance, and administration, he would say what steps he proposed taking to arrange for their being taken over by the State and properly provided for.—Dr. ADDISON (Minister of Health) replied in a written answer: I am aware of the increasing difficulties of many of the voluntary hospitals, and recognise that they affect the proper provision of various forms of medical services in hospitals or in centres or clinics, or otherwise, but I am not yet in a position to make a statement thereon.

Whisky for Medicinal Purposes.

Mr. DOYLE asked the President of the Board of Trade what was the quantity of whisky in bond at present in the United Kingdom; in what proportion to the total quantity it was being released for consumption; if foreign vessels were allowed to take out of this country excessive quantities of whisky duty free as ships stores; the amount of revenue lost to the country during the past 12 months owing to this practice; and whether he was aware of the difficulty in obtaining whisky for medicinal and other purposes in the United Kingdom.—Mr. ROBERTS (Food Controller) replied in a written answer: The information asked for in the first part of the question is not available, as whisky is not separately distinguished from other spirit in the official records. Clearances of spirit from bond on payment of duty are permitted at a rate not exceeding 75 per cent. of the clearances in 1916. Foreign vessels bound for overseas destinations are entitled to ship spirits free of duty as stores, but the quantities allowed are calculated on a scale based upon the duration of the voyage and the number of crew and passengers, and are strictly limited. As regards the last part of the question, since the quantity of clearances has been increased to 75 per cent. of that cleared in 1916 the difficulty of obtaining whisky for medicinal purposes has been practically eliminated.

Office International d'Hygiene Publique.

Mr. CAUTLEY asked the Minister of Health whether the international agreement respecting the creation of an international office of public health, which was signed by this and other countries in 1909 for a period of seven years had been renewed, and, if so, when, and for what period; and was there now in existence an international office of public health; was it an active body, and where was it domiciled.—Dr. ADDISON replied in a written answer: Article 8 of the International Convention of Rome, Dec. 9th, 1907, which concluded an arrangement under which the Office International d'Hygiene Publique was to be maintained for seven years, also provided that at the expiration of the seven years the agreement was to continue in force for further seven-year periods between all those States which have not given previous notice of their intention to withdraw from the agreement. The number of countries adhering to the Convention has largely increased since 1907, and the British Government has given no notice of its withdrawal. The Office International d'Hygiene Publique during the war continued its monthly bulletins and other intelligence work on matters relating to international public health, and has now resumed its formal sessions, which are attended by official delegates of the British Government, Canada, Australia, India, and Egypt. The second session of 1919 will be held next week at the headquarters of the office, 195, Boulevard St. Germain, Paris.

WEDNESDAY, OCT. 29TH.

Medical Boards in Cashmere.

Sir J. D. REES asked the Secretary for India whether the provision of medical boards in Cashmere for sick officers had been finally abandoned; and whether no medical aid would in future be provided for officers on leave or for their wives and families either through the Durbar or directly by the Government of India.—Mr. MONTAGU replied: I will make inquiries.

R.A.M.C. Officer's Release.

Mr. BRIGGS asked the Secretary for War if he would state on what grounds Dr. F. J. M'Glade, R.A.M.C., of Blackley, Manchester, was retained in the Army, seeing that he joined up in October, 1915.—Mr. CHURCHILL replied in a written answer: This officer was released from military service on Oct. 22nd.

Medical Service in Mesopotamia.

Mr. HIRST asked the Secretary for War whether since May over 50,000 troops had been involved in the campaign against the Kurds; whether both British and Indian troops were on field rations for a period of weeks; whether the medical arrangements were inadequate; whether he was aware that no appliances were provided, and that the men sick with fever were strapped into panniers and rode on each side of a mule during the July heat; whether the hospital at Suleimania was a collection of tents where men lay on the ground with one ground sheet and one blanket; whether cases of whisky and of beer were sent by convoy 100 miles from the rail-head long before even tents were provided for the troops; and whether he would cause urgent inquiries to be made.—Mr. FORSTER (Financial Secretary to the War Office) replied in a written answer: The answer to the first part of the question is in the negative. It is quite possible that both British and Indian troops were on field rations for short periods, as this is quite usual in similar circumstances. There is no reason to think that the medical arrangements were inadequate. As regards the sick being carried on mules, I am afraid this was probably the only alternative to walking in this difficult hill country. There is no hospital in Suleimania. What my honourable friend probably refers to is the tent subdivision of the field ambulance which forms the best accommodation possible during the initial stages of an advance. While I have no information on the subject, I think it is very improbable that cases of spirits were forwarded to the front in advance of the Expeditionary Force canteens. I am not in a position to give further details without reference to Mesopotamia. If, however, my honourable friend has evidence of matters which on further consideration he thinks call for inquiry I shall be glad if he will forward it to the War Office, where it will receive careful attention.

Pensions Appeals.

Mr. FREDERICK ROBERTS asked the Pensions Minister whether disabled men whose appeals for pensions on ground of attributability had been heard and rejected by the military appeal board were entitled to appeal to the new independent appeal tribunal; and, if not, could he promise to give all men the right of appeal to the latter tribunal.—Sir J. CRAIG (Parliamentary Secretary to the Pensions Ministry) replied in a written answer: The answer to the first part of the question is in the negative. The War Pensions (Administrative Provisions) Act, 1919, which sets up the new tribunals, provides that no appeal shall lie in the case of any claim already heard and rejected by the existing appeal tribunals.

National Insurance Return.

Mr. GODFREY LOCKER-LAMPSON asked the Minister of Health if, in connexion with National Health Insurance, he would issue a return, in the form of a revenue account, of the receipts and expenditure for the last recorded year, including in the receipts the Treasury payments under separate headings and including in the expenditure the payments for each benefit (stated separately); and, in the event of there being other payments for fees, salaries, postages, printing, travelling, rent, rates and taxes, &c., whether he would add them in a footnote, so that the entire expenditure on national health insurance might be shown.—Dr. **ADDISON** replied in a written answer: I have had a return prepared, as requested by the honourable Member, for the year 1918 as respects England and Wales as follows:—

Return showing Estimated Receipts and Expenditure (in Round Figures) under the National Health Insurance Acts in the Year 1918 for England and Wales.

RECEIPTS.	£	£
Cash at Bank of England, Jan. 1st, 1918		530,000
Cash in hand of Approved Societies and Insurance Committees, Jan. 1st 1918		890,000
Contributions of employers and employed persons		16,250,000
Interest and sundry receipts		2,360,000
Exchequer—		
Medical and sanatorium benefit	2,767.000	
Sickness, disablement, and maternity benefits...	1,556,000	
Sickness benefit (Women's Equalisation Fund for 1917 and 1918)	445.000	
Sickness benefit (recoupment, invalided soldiers)	322.000	
Administration expenses of Approved Societies and Insurance Committees	687,000	
Central administration expenses	393,000	
		6,170,000
		£26,200,000

EXPENDITURE.	£	£
Medical benefit		4,840,000
Sanatorium benefit		731.000
Sickness and disablement benefits		5,6 0,000
Maternity benefit		886,000
Administration expenses—		
Approved Societies	1,944,000	
Insurance Committees	278.000	
Central administration	412,000	
		2,634,000
Sums invested—	£	
By National Debt Commissioners	3 737,000	
By Approved Societies	6,110,000	
		9,847,000
Cash at Bank of England, Dec. 31st, 1918		802,000
Cash in hands of Approved Societies and Insurance Committees, Dec. 31st, 1918		860 000
		£26,200,000

Expenditure in connexion with National Health Insurance is also incurred by other Government Departments, the estimated amount of which in 1918 was as follows:—

	£		£
Office accommodation (buildings, furniture, fuel, light, &c.)	30,400	Revenue Departments, Customs and Excise ...	2,400
Rates	3,900	Revenue Departments, Post Office	100,700
Stationery and printing ...	53,700		
Audit	73,900		£265,000

Prevention of Influenza.

Major **DAVID DAVIES** asked the Minister of Health if he would state what steps were being taken to prevent and alleviate an outbreak of the influenza epidemic during this winter.—Dr. **ADDISON** replied in a written answer: A Standing Committee of medical officers, including the Secretary of the Medical Research Committee, to deal with all questions that concern influenza, has been in existence for some time. The Committee inform me that although there has naturally been an autumnal rise in the incidence of respiratory diseases the notifications and mortality returns do not at present indicate any recurrence of epidemic influenza. I may add that I propose at an early date to issue a circular advising sanitary authorities and the public as to the preventive and other measures which should be taken this winter in regard to influenza as far as our present knowledge enables us to advise.

Special Grant to Panel Practitioners.

Mr. **HAYDAY** asked the Minister of Health whether he was aware that approved medical associations had not participated in the special grant to panel practitioners, although such institutions were approved by the National Health Insurance Commission for the provision of medical benefits to insured persons; and whether he would state the reason for this discrimination.—Dr. **ADDISON** replied in a written answer: No such discrimination has been made as is suggested in the question. Every effort has been made by my department, both by interview and by correspondence, to obtain from the Friendly Societies Medical Alliance (representing these institutions) certain facts and figures which are necessary for establishing and measuring the amounts that may properly be payable to the institutions, and without which no such payments can be calculated or made; but the Alliance has so far declined to give that information.

THURSDAY, OCT. 30TH.

Medical Supplies for Petrograd.

Colonel **WEDGWOOD** asked the Prime Minister whether he was prepared to sanction the passing into Petrograd of a small yacht loaded only with medicines and disinfectants that were asked for by the Petrograd Corporation Society, and for which the society was prepared to pay.—Mr. **HARMSWORTH** (Under Secretary for Foreign Affairs) replied: I see no objection in principle to this proposal. But it will be necessary to submit it to the Supreme Council of the Allied and Associated Governments; and before action can be taken full particulars as to the proposed transaction would be required—such as the port from which the yacht would sail, and the means of ensuring that the cargo is confined to medical stores.

Gratuity for Military Masseuses.

Sir **WILLIAM DAVISON** asked the Secretary for War if he would state why no gratuity had been granted to military masseuses who were employed throughout the war in military hospitals on their demobilisation, while substantial gratuities were paid to Voluntary Aid Detachment nurses, whose work was in many ways less exacting; and whether a like recognition could be made to this valuable branch of the military nursing service.—Mr. **ALFRED DAVIES** asked the Financial Secretary to the War Office whether war gratuities had been granted to all hospital workers and by the Red Cross to their masseuses; whether military masseuses had been refused a war gratuity; and, if so, whether, owing to the work done by these masseuses, he would take steps to reverse this decision.—Mr. **FORSTER** replied in a written answer: I am looking into this question, but I must not be understood to make any promise to alter the decision already announced.

Quinine Supplies and Prices.

Mr. **SPOOR** asked the President of the Board of Trade whether he was aware that the whole of the quinine (chinchona) production of the world, apart from the small quantity produced by the Government of India for local use, had lately been made the subject of a monopoly of the Dutch and British producers; whether he was aware that this monopoly was fortified, so far as this country was concerned, by an equally firm monopoly of the wholesale chemists of the United Kingdom; whether he realised that the consumer was now being charged 3*s*. 6*d*. per ounce as compared with 1*s*. or even less pre war; and what steps he proposed to take to enable this commodity to be obtained without profiteering.—Mr. **BRIDGEMAN** (Parliamentary Secretary to the Board of Trade) replied in a written answer: The answer to the first part of the question is in the affirmative. The whole question of the prices and supplies of quinine sulphate to this country is being investigated under Section 3 of the Profiteering Act, and I hope that the findings of the investigators will be ready for publication before the end of this week, or at latest next week.

FRIDAY, OCT. 31ST.

Destruction of Rats.

The House considered the Rats and Mice (Destruction) Bill on Report. Mr. **CAUTLEY** moved an amendment to Clause 1 to make the offence under the clause "failure to take such steps as may be prescribed in a notice served by a local authority having power to enforce the Act," instead of "such steps as may from time to time be necessary and reasonably practicable," the wording of the clause as it stood. The clause, he said, was absolutely uncertain in its language and effect, and was a relic of the worst form of "Dora."—Sir A. **GRIFFITH-BOSCAWEN** (Parliamentary Secretary to the Board of Agriculture) in resisting the amendment, said that unless it was made the absolute duty of every occupier of premises to destroy his own rats, and a criminal offence if he declined, the destruction could not be carried out.—Lieutenant-Colonel **RAW** said that the danger of infection through the agency of rats increased greatly during the war. Besides the destruction of food for which rats were responsible they involved a serious menace of bubonic disease. He was confident that the House would not hesitate to pass this Bill, which would diminish or remove the great danger of plague. The amendment was negatived.

On the motion of Sir A. **GRIFFITH-BOSCAWEN**, two amendments were inserted in the Bill, which, he said, were intended to modify the harshness of certain of its provisions. The fine of £20 for infringements of the Act was reduced to £5 in cases where no notice was served. By the other amendment the local authority was empowered to serve notice on the occupier, requiring him to deal effectively with the rats within a time specified in the notice, as an alternative to taking immediate action themselves, which was provided for in the Bill as originally drafted. The Bill was read a third time.

MONDAY, NOV. 3RD.

Milk-supplies and Public Health.

Major **EDWARD WOOD** asked the Parliamentary Secretary to the Board of Agriculture whether matters arising under the Milk and Dairies Consolidation Act were matters relating to agriculture within the meaning of that expression in Clause 7 of the Agricultural and Fisheries (Councils)

Bill.—Mr. PARKER (Lord of the Treasury) replied: The view of my noble friend the President of the Board of Agriculture and Fisheries is that the matters referred to in the question are to some extent matters relating to agriculture, but as they relate also to public health the mode of dealing with these matters by a county council is under consideration by the Board and the Ministry of Health. At a later stage provision will be made in the Bill referred to by my honourable and gallant friend to deal with this point.

Cheaper Milk for Poor Children.

Major EDWARD WOOD asked the Minister of Health how many local authorities had taken, or were taking, steps in exercise of their statutory powers to provide milk at reduced price for children of the poorer classes within their areas.—Sir J. TUDOR WALTERS (Paymaster-General) replied in a written answer: The number of local authorities in England and Wales who informed the Ministry and the Local Government Board of steps taken to provide milk for expectant and nursing mothers and children under 5 years of age, in pursuance of the earlier circular of Feb. 9th, 1918, is 200—that is, approximately 60 per cent. of the number of authorities undertaking maternity and child welfare schemes, including 24 Metropolitan borough councils, 33 county councils, 79 county borough councils, and 144 town and district councils. Practically all these authorities will presumably continue or extend their schemes. About 40 local authorities said that no such action was necessary in their district, while a number of authorities failed to furnish any information on the point. Comprehensive schemes for the supply of milk have been adopted in 50 cases, but, as a general rule, the provision is limited to a supply of milk (including dried milk and condensed milk) to mothers and children attending infant welfare centres. Where fresh milk is supplied this is usually done in the form of orders to local tradesmen. In a number of cases health visitors are instructed to report the need of additional supplies of milk among children whom they visit, and midwives are asked to supply information regarding expectant mothers who do not get sufficient food. Only three authorities have as yet replied to the Ministry's circular of Oct. 14th, and they are among 1280 who already had schemes in operation. Local authorities were asked in the circular to report any new schemes, any extension of schemes, or any existing schemes of which they had not furnished particulars in pursuance of the earlier circular.

TUESDAY, NOV. 4TH.

Milk for Invalids in France and Belgium.

Lieutenant-Commander KENWORTHY asked the Under Secretary of State for Foreign Affairs whether there was an acute shortage of milk for children and invalids in the devastated areas of France and Belgium; and, if so, whether this country was taking steps to relieve the shortage in these districts.—Mr. HARMSWORTH (Under Secretary for Foreign Affairs) replied: The answer to the first part of the question is in the affirmative. As regards the second part of the question, I understand that, while no measures have been taken by His Majesty's Government to relieve the milk shortage in France and Belgium out of relief credits, since the matter is one which solely concerns the French and Belgian Governments, nevertheless the Agricultural Relief of the Allies Committee have supplied from this country a certain quantity of live stock to the areas of the Somme, the Marne, and the Meuse in France, and to the Yser valley in Belgium. The action taken by His Majesty's Government, in conjunction with their Allies, is contained in Annex 4 to Part VIII. of the Treaty of Peace with Germany. I may mention that strong representations have been made to us by the French Government as to the serious nature of their losses of cows and other live stock.

Sir J. D. REES asked what obligation rested upon the people of this country to provide the sick and ailing of other countries with commodities which were only procurable at prohibitive cost for our own people?

Colonel GREIG: Will the honourable gentleman try to make the German Government return the milch cows which they took away during the war?—Mr. HARMSWORTH said that the Supreme Council in Paris had in hand the matter of getting Germany to return the milch cows she had taken away.

THE LADIES' GUILD OF ST. THOMAS.—A meeting of the Guild, the first since 1913, was held on Oct. 30th, in the Governors' Hall of St. Thomas's Hospital, Adeline, Duchess of Bedford, presiding. The report and accounts were read and adopted, and a striking picture was given by Mrs. Battle, retiring honorary secretary, of the successful struggle to carry on the objects of the Guild during the war. Mrs. Edred Corner now becomes honorary secretary, Mrs. Battle chairman of the committee, and Lady Ballance president of the Guild. The Guild supplies garments of all kinds to the hospital patients. Offers of help should be made to the honorary secretary at 37, Harley-street, W. 1.

THE NEXT EPIDEMIC OF INFLUENZA.

BY JOHN BROWNLEE, M.D., D.SC.,
DIRECTOR OF STATISTICS, MEDICAL RESEARCH COMMITTEE.

THERE is at present a certain amount of speculation as to when the next epidemic of influenza may be expected. It is impossible with existing knowledge to prophesy, but a few remarks may be made on the mode in which such problems can be attacked. I have been investigating for some time the periodicity of influenza epidemics, and though the work is not complete the following notes contain a brief resume of what has been ascertained.

Periodicity and Characteristics of Recorded Epidemics.

In the first place the series of epidemics of influenza between the years 1889 and 1917, beginning with the last great invasion of the disease, in those places for which statistics are accessible, present a singular phenomenon. Epidemics seem to be of extreme rarity between the end of June and the beginning of December, so rare in fact as to be almost non-existent. This is the season of the year in which bronchitis and pneumonia are least frequent. Influenza, then, does not, if epidemic, assume a form which causes death to any extent until either a bronchitic or pneumonic "constitution" has been established. The great epidemic which occurred last October falls completely out of line with what happened between 1889 and 1917. Some small epidemics, it is true, occurred at this season, but none comparable in size to the last.

The statistics of the epidemics which have been specially investigated are those of London between 1889 and 1896. For this city the weekly number of deaths since 1889 has been published. Also what is of the greatest advantage, the weekly numbers of deaths from bronchitis and pneumonia are available since the year 1870. Considering specially the years 1889 to 1896 as the most typical years, it is seen that the epidemics of influenza have had their maxima from the beginning of January to the end of May. Applying the ordinary method of the periodogram, it is found that the interval between the epidemics is 33 weeks, there being a missed epidemic when an epidemic is due in the autumn. The periodicity is rigid within these years, though later years show some considerable aberration. The method of the periodogram, however, allows us to extend the knowledge acquired with regard to influenza to the associated diseases, bronchitis and pneumonia. There is no question at all that the period between the influenza epidemics between 1889 and 1896 is 33 weeks. Whether this periodicity is accidental or dependent on the special organism of the disease does not affect the next step in the investigation. If it is found that there is no periodicity of 33 weeks with regard to bronchitis or pneumonia in the absence of influenza, and if this periodicity appears with regard to these diseases after the return of influenza, it must be taken as associated definitely with that disease. It is found on examination that between 1876 and 1890 there is no such periodicity with regard to bronchitis and pneumonia, but that from 1889 to 1896 it is very marked. The graphs for 33 weeks may then be compared for the three diseases. It is found on inspection that the deaths from pneumonia precede the deaths from influenza by a little over a week, while the deaths ascribed to bronchitis have their epidemic rise a full fortnight before the rise of influenza. The number of these deaths for bronchitis and pneumonia ascertained by this method of grouping is fully twice the number of deaths ascribed to influenza. It thus seems certain that in these years influenza appeared, on its epidemic onset, first with bronchitic symptoms, slightly later with pneumonic symptoms, and, lastly, with those symptoms more definitely associated with influenza proper. When the several sets of deaths are added together in 33-week periods a very typical epidemic makes its appearance. I have not, so far, been able to obtain weekly statistics of any other great city, but I have examined the monthly statistics of Glasgow, Aberdeen, Massachusetts, &c., and have found nothing which differs essentially from the phenomena found in London.

Deductions Drawn from the Data.

Before passing from this subject it may be said that what has been ascertained with regard to the sequence of these diseases, bronchitis, pneumonia, and influenza for a consideration of a 33 weeks period, also holds when the annual variations are compared. Between the years 1876 and 1889 the annual curve which gives the variations of bronchitis possesses two maxima, one at the end of January and the second in the middle of March. From this point the decline in the number of deaths from bronchitis is very rapid. The reappearance of the disease dates from the beginning of October. When the eight years 1889 to 1896, however, are examined, it is found that the maximum numbers of deaths from bronchitis occur in the second week of January and in the last week of February. Both these maxima are a fortnight before the maxima of the epidemics of influenza as before found. This suggests that the advent of influenza has brought a change in the seasonal prevalence of bronchitis, and also supports the view that the earlier portion of the influenza epidemic is associated with bronchitic symptoms. The same phenomenon holds for pneumonia as a like alteration has occurred in the seasonal curve of the death-rates of this disease before and after 1889. The maximum numbers of deaths from pneumonia are thrown earlier into the year and precede the maximum number of deaths from influenza by about a week.

What of the future? From July 13th, 1918, to March 1st, 1919, the maximum points of two of the last epidemics is 33 weeks; from March 1st to Oct. 1st is also 33 weeks. An epidemic is therefore due, but it falls at the unsuitable season of the year and should therefore be small. With regard to the aberrant October epidemic, this might be expected to have been followed by an epidemic in June, a season of the year at which an epidemic is still possible but very unlikely. If the October epidemic, therefore, has a 33 weeks sequence, the next epidemic would occur in January or February of the New Year. Of course, it is to be remembered that the intervals between epidemics are never exact; only their average approaches exactitude. A month either way is of no moment.

Medical News.

Society of Apothecaries of London.—At examinations held recently the following candidates passed in the subjects indicated:—

Surgery.—R. A. D. Bernhardt (Sect. II.), Middlesex Hosp.; O. H. Brown (Sect. I.), Charing Cross Hosp.; C. E. G. Busbridge (Sects. I. and II.), Univ. Coll. Hosp.; N. D. Dunscombe (Sect. I.), Cambridge and St. Thomas's Hosp.; A. Furniss (Sect. I.) and J. Kershaw (Sects. I. and II.), Manchester; and J. L. Walker (Sects. I. and II.), Glasgow and Univ. Coll. Hosp.

Medicine.—C. E. G. Busbridge (Sects. I. and II.), Univ. Coll. Hosp.; De M. C. Cottens (Sects. I. and II.). Zurich and Charing Cross Hosp.; J. A. Hart (Sects. I. and II.), London Hosp.; G. K. Reeves (Sects. I. and II.), Guy's Hosp.; and E. W. Terry (Sect. II.), Manchester

Forensic Medicine.—C. E. G. Busbridge, Univ. Coll. Hosp.; and De M. C. Cottens, Zurich and Charing Cross Hospital.

Midwifery.—M. L. Barst, London Hosp.; J. E. Barrie, Guy's Hosp., C. E G. Busbridge, Univ. Coll. Hosp.; De M. C. Cottens, Zurich and Charing Cross Hosp.; G. W. Robinson, King's Coll. Hosp.; F. Smith, Manchester; and A. Weinger, King's Coll. Hosp.

The Diploma of the Society was granted to the following candidates entitling them to practise medicine, surgery, and midwifery: C. E. G. Busbridge, J. Kershaw, and J. L. Walker.

The Medical and Dental Defence Union of Scotland, Ltd.—The seventeenth annual report of this union, dealing with the year ending August, 1919, will be submitted to the annual meeting at the offices, 155, St. Vincent-street, Glasgow, on Nov. 10th. The report shows a very satisfactory financial position, the income for the year being £839, including £152 of revenue from invested funds. The assets of the union now amount to £3266, and the balance of revenue over expenditure is £76. During the year two new committees have been established—namely, a committee on dental legislation to deal with problems arising out of the Departmental Committee on Dentistry and the projected legislation thereon, and an Insurance Acts Committee to deal with questions arising under the National Health Insurance Act. A larger number of claims have been made and actions raised against members of the union in this than in any previous year, but the knowledge that the Council had investigated the facts and was prepared to defend the member was sufficient in many cases to avoid litigation.

The Bethlem Royal Hospital.—An out-patients' department has now been established in connexion with the Bethlem Royal Hospital. The institution, which is really a new hospital for nervous diseases, is at 52, Lambeth-road, S.E., quite apart from the main block of the hospital. This progressive movement is in deference to the scientific view, which has at last attracted public attention, that the treatment of early cases of mental disease is of first value to the community. The new hospital is for the reception as out-patients of persons suffering from diseases of the nervous system, who are unable to pay the cost of obtaining treatment; and the regulations governing the admission and treatment of patients make a special mention of encouraging professional consultation between members of the hospital staff and the medical practitioners in attendance upon the patients. If the new department of the Bethlem Royal Hospital is faithfully run, as the constitution of the staff makes perfectly certain that it will be, it should prove a great help by providing early advice before the condition of the patient has become so acutely urgent as to require the medico-legal label of insanity.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY, Burlington House, London, W.

Thursday, Nov. 13th.—Papers:—Prof. W. B. Bottomley: The Effect of Nitrogen-fixing Organisms and Nucleic Acid Derivatives on Plant Growth (communicated by Prof. F. W. Oliver).—Mr. W. Robinson: The Microscopical Features of Mechanical Strains in Timber and the Bearing of these on the Structure of the Cell-wall in Plants (communicated by Prof. W. H. Lang).—Agnes Arber: The Vegetative Morphology of Pistia and the Lemnaceæ (communicated by Prof F. W. Oliver).—Lieut.-Col. R. McCarrison: The Genesis of Œdema in Beri-beri (communicated by Prof. J. G. Adami).—Mr. W. J. Young, Mr. A. Breinl, Mr. J. J. Harris, and Mr. W. A. Osborne: Effect of Exercise and Humid Heat upon Pulse Rate, Blood Pressure, Body Temperature and Blood Concentration (communicated by Prof. J. N. Langley).

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Monday, Nov. 10th.

WAR (Hon. Secretaries—H. B. Hill, Oliver Robinson, J. McIntyre): at 5.30 P.M.

Presidential Address:

Surg. Rear Admiral Sir Robert Hill, K.C.M.G., C.B., R.N.: A Retrospective View of Naval Medical Conditions.

Tuesday, Nov. 11th.

PSYCHIATRY (Hon. Secretaries—Bernard Hart, G. F. Barham): at 5.30 P.M.

Paper:

Sir Frederick W. Mott, K.B.E., M.D., F.R.S.: Study in the Pathology of Dementia Præcox.

Wednesday, Nov. 12th.

SURGERY: SUB-SECTION OF PROCTOLOGY (Hon. Secretaries—W. Sampson Handley, Gordon Watson): at 5.30 P.M.

Short Papers:

Mr. Swinford Edwards: The Treatment of Procidentia by Injections.

Mr. Hamilton Drummond: On War Wounds of the Rectum, with Especial Reference to Treatment.

Cases and Specimens:

Mr. Lockhart-Mummery: (1) Case of Intestinal Coccidiosis; (2) Case of Multiple Adenomata of the Colon with Secondary Carcinoma; (3) Case of Sarcoma of the Rectum.

Mr. Graeme Anderson: Case of Piles of Unusual Size and Duration.

Mr. Percival P. Cole: Case of Carcinoma of the Colon after Resection.

Thursday, Nov. 13th.

NEUROLOGY (Hon. Secretaries—P. W. Saunders, George Riddoch): at 8.30 P.M.

Paper:

Mr. Percy Sargent, C.M.G.: Lessons of the War applied to Spinal Surgery.

N.B.—Members of the Section of Surgery are specially invited to attend this Meeting.

CLINICAL (Hon. Secretaries—T. P. Legg, S. A. K. Wilson): at 5 P.M.

Paper:

Mr. Henry Curtis: Three Cases of Malignant Disease of the Face Illustrating Modern Methods of Radical Operation.

Members desiring to show cases will please send particulars to Dr. Kinnier Wilson, 14, Harley-street, W. 1, not later than Nov. 10th.

MEDICAL SOCIETY OF LONDON, 11, Chandos-st., Cavendish-sq., W.

Monday, Nov. 10th.—8 P.M., Clinical Evening. Cases will be exhibited by Dr. Poynton, Dr. A Feiling, Dr. Langmead, Dr. H. Gosse, Dr. R. Miller, Mr. V. L. Cope, Mr. C. W. S. Bryan, Colonel D. Armour, and others. Discussion of the cases will commence at 9 P.M.

TUBERCULOSIS SOCIETY, at the Royal Society of Medicine, 1, Wimpole-street, W.

Monday, Nov. 10th.—8 P.M., Address:—Dr. H. A. Ellis: Abdominal Tuberculosis in connexion with Phthisis. Followed by business meeting.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East.

Tuesday, Nov. 11th.—5 P.M., FitzPatrick Lecture:—Dr. E. G. Browne: The Origins and Development of Arabian Medicine—I. The Translations (VII.-IX. Cent.).

Thursday.—5 P.M., FitzPatrick Lecture:—Dr. E. G. Browne: The Origins and Development of Arabian Medicine—II. Four Great Medical Writers of Persia (IX.-XI. Cent.).

ROYAL INSTITUTE OF PUBLIC HEALTH, In the Lecture Hall of the Institute, 37, Russell-square, W.C.

Course of Lectures on Housing Problems and Town Planning in Relation to Public Health.

Wednesday, Nov. 12th.—4 p.m., Lecture III.:—Prof. P. Abercrombie: Town Planning and Public Health.

Course of Instruction for Candidates as Tuberculosis Officers, General Practitioners and others. Bacteriological Demonstrations will be given in the Laboratories of the Institute, and visits arranged to Sanatoriums, Tuberculosis Dispensaries, &c.

Thursday, Nov. 13th.—5 p.m., Lecture VI:—Dr. C. Riviere: The Pneumothorax Treatment of Pulmonary Tuberculosis.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.

Wednesday, Nov. 12th.—4.30 p.m., Lecture:—Dr. C. Wall: Post Sanatorium Treatment.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, W.C. 1.

MEDICAL SCHOOL.

Monday, Nov. 10th.—2–3.30 p.m., Out-patient Clinic: Dr. Collier. 3.30 p.m., Lecture:—Dr. James Taylor: Syringomyelia.

Tuesday, Nov. 11th.—2-3.30 p.m., Out-patient Clinic: Dr. Grainger Stewart. 3.30 p.m., Ward Cases: Dr. Risien Russell.

Wednesday, Nov 12th.—2 p.m., Lecture:—Mr. Armour: Surgery of the Spinal Cord. 3.30 p.m., Lecture:—Dr. James Taylor: Epilepsy.

Thursday, Nov 13th.—2-3.30 p.m., Out-patient Clinic: Dr. Farquhar Buzzard. 3.30 p.m., Lecture:—Dr. Aldren Turner: Neuroses.

Friday, Nov. 14th.—2-3.30 p.m., Out-patient Clinic: Dr. Gordon Holmes. 3.30 p.m., Ward Cases: Dr. Aldren Turner.

Fee for Post-Graduate Course £5 5*s*. C. M. Hinds Howell, Dean.

NATIONAL HOSPITAL FOR DISEASES OF THE HEART POST-GRADUATE COURSE, Westmoreland-street, W.

Monday, Nov. 10th.—11 a.m., Out Patients: Dr. Goodall. 2 p.m., In-patients: Dr. Moon.

Tuesday.—2 p.m., Out-Patients: Dr. R. Wells. 2.30 p.m., In-patients: Dr. Gibbes.

Wednesday.—2 p.m., Out-patients: Dr. Moon. 5.30 p.m., Lecture:—Dr. Price: Auricular Fibrillation.

Thursday. 10 a.m., In-patients: Dr. Hamill. 2 p.m., Out-patients: Dr. Price.

Friday.—2 p.m., Out patients: Dr. Gibbes. 2 30 p.m., In patients: Dr Wells.

Saturday.—10 a.m., Out-patients: Dr. Hamill.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, 49, Leicester-square, W.C.

Thursday, Nov. 13th.—5 p.m., Chesterfield Lecture:—Dr. M. Dockrell: The Early Lesions of Syphilis and their Treatment.

CONJOINT BOARD OF SCIENTIFIC SOCIETIES, Royal Society, Burlington House, W.

Wednesday, Nov. 12th.—5 p.m., Discussion of Draft Report on the Metric System.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE CLINIC.

Tuesday, Nov. 11th.—4.30 p.m., Lecture:—Dr. E. M. Brockbank: Aortic Valve Disease

Appointments

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to The Lancet *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

Collett, H. R. P., L.D.S. R.C.S. Eng., has been appointed Honorary Dental Surgeon to the Salford Royal Hospital.

Firth, Douglas, M.D. Cantab., M.R.C.P., Junior Physician to King's College Hospital, and Honorary Physician to the Royal National Orthopædic Hospital.

Hawker, G. P., M.D., B.C. Cantab., Surgeon to the West of England Eye Infirmary, Exeter.

Ramsbottom A., M.D., Ch.B. Vict. U., Manch., one of the Medical Referees under the Workmen's Compensation Act, 1906, for County Court Circuits Nos. 7 and 8.

Smith, G. Foster, L.M.S.S.A., Assistant Medical Officer to the Crumpsall Union Infirmary, Manchester.

Taylor, H. Neville, M.D. Dub., barrister-at-law, reappointed Medical Referee, Ministry of Pensions.

Vacancies.

For further information refer to the advertisement columns.

Aberdeen University.— Secretary. £600 to £800.
Birmingham and Midland Ear and Throat Hospital.—H.S. £400.
Birmingham and Midland Eye Hospital, Church-street, Birmingham.—Asst. S. £100.
Blackburn and East Lancashire Royal Infirmary.—Junior H.S. £250.
Blackburn Union.—Res. M.O. £400.
Bradford Royal Infirmary.—H.P. £200.
Brighton County Borough.—Asst. M.O. £450.
Brighton Royal Sussex County Hospital.—S. and Asst. S.
Canterbury, Kent and Canterbury Hospital.—Two Res. M.O.'s. £200 and £150 respectively.
Cardiff, Glamorgan County Council.—County M.O. £1000.
Cardiff, University College of South Wales and Monmouthshire.—Lect. in Physiol. Chem. and Asst. Lect. and Demon. in Physiol. £250
Central London Ophthalmic Hospital, Judd-street, W.C.—Asst. S.
Chester, Cheshire County Council.—Dist. Tuberc. O. £450.
Colchester, Essex County Hospital.—H.S. £200.
Croydon Mental Hospital, Upper Warlingham, Surrey.—Sec. Asst. M.O. £500.
Derby, Derbyshire Royal Infirmary.—Hon. Asst. S.
Dumfries, Crichton Royal.—Asst. P. £350.
Eastbourne County Borough.—Female Asst. M.O. £450.
East London Hospital for Children and Dispensary for Women, Shadwell, E.—Two Asst. P.'s, Two Asst. S.'s, Oph. S., and Throat and Ear S.
Ebbw Vale Urban District Council.—M.O.H. and Sch. M.O. £750.
Exeter, Royal Devon and Exeter Hospital.—Asst. Pathologist, Asst. S., and Surgical Registrar.
Gloucestershire Royal Infirmary and Eye Institution.—Asst. S.
Halifax Royal Infirmary.—H.S.
Hospital for Consumption and Diseases of the Chest, Brompton, S.W.—Anæsthetist.
Huddersfield Royal Infirmary.—Sen. H.S. and Asst. S. £200 and £150 respectively.
Johannesburg, South African School of Mines and Technology.—Prof. of Veterinary Anat. £800.
King's College Hospital, Denmark-hill, S.E.—Path. Regis., Clin. Path., and Bact. Sambrooke Med. Regtr. Sambrooke Surg. Regtr.
Leeds.—Sec. Asst. M.O. for Indoor Institutions, Beckett-street. £300.
Lightburn Joint Hospital, Shettleston, near Glasgow.—Res. Phys. Supt. £350.
Liverpool, Brownlow Hill Poor-law Hospital.—Res. Asst. M.O. £300.
London Hospital, E. Director of Surg. Unit and Director of Med. Unit. £2000 each. Asst. Ophthal. S. Two Res. Anæsts. £50. Surg and Med. Clin. Assts
Manchester Royal Eye Hospital.—Jun. H.S. £120.
Manchester Royal Infirmary.—H.S.'s. £25 and £50.
Manchester, St. Mary's Hospitals.—Hon. Asst. S.
Mesopotamia, Civil Medical Service.—Civil S.'s, Ophthal. S., Path., Dental S., and M.O.H. Rs. 750/- to Rs. 1500/- a month.
National Hospital for the Paralysed and Epileptic, Queen-square, W.C.—Hon. Dent. S. Also H.P.
Newport, Mon., Royal Gwent Hospital.—House S. and Cas. O. £200 and £180 respectively.
Northampton, Northamptonshire County Council Education Committee.—School Dentist. £400.
Nottingham General Hospital.—H.S. £150.
Preston, High Carley Sanatorium, near Ulverston.—Asst. Tuberc. M.O. £400.
Preston, Lancs, County Asylum, Whittingham.—Locum Tenens. £7 7s. per week.
Queen Charlotte's Lying-in Hospital, Marylebone-road, N.W.—Asst. Res. M.O. £60.
Reading, Royal Berkshire Hospital.—H.P. and Sec. H.S. £200.
Rochdale Infirmary and Dispensary.—Junior H.S. £125.
Royal Free Hospital, Gray's Inn-road, W.C.—Res. H.S's. £50. Hon. Asst. Dental S.
Ryde, Royal Isle of Wight County Hospital.—Res. M.O. £250.
St. Helens County Borough.—Asst. M.O.H. £400.
Sheffield Education Committee.—School Dental S.'s. £400. Asst. School M.O. £550
Sheffield, East-End Branch of the Children's Hospital.—H.S. £150.
Sheffield Royal Hospital.—Res. Asst. Cas. O. £120.
Sheffield Royal Infirmary.—H.S. £150.
Singapore, Straits Settlements, Health Department.—Asst. Health O. $4800-$5400.
Smethwick County Borough.— Female Asst. M.O.H. and Sch. M.O. £500.
Taunton and Somerset Hospital.—Sen. and Jun H.S.s. £200 and £150.
Ventnor, Isle of Wight Royal National Hospital for Consumption and Diseases of the Chest.—Asst. Res. M.O. £200.
Wakefield County Council of the West Riding of Yorkshire.—Chief Tuberc. O. £750.
Warrington Infirmary and Dispensary.—Junior H.S. £200.
Wells Asylum, Somerset.—Asst. M.O. £300.
Winchester, Hampshire County Council.—Two Asst. M.O.'s. £450.

The Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Eastbourne, Fleetwood, and Princes Risborough.

Births, Marriages, and Deaths.

BIRTHS.

Allfrey.—On Oct. 26th, at Froxfield, Southwick, Sussex, the wife of Frederic Henry Allfrey, M.A., M.B., B.C. Cantab., late Captain, R.A.M.C., of a son.

Catford.—On Oct. 29th, at Crouch Hall-road, Crouch End, N., the wife of Eric Catford, Captain (acting Major), R.A.M.C., of a son.

Hamilton.—On Nov. 2nd, at Aldersyde, Weybridge, the wife of Allan G. Hamilton, M.D., F.R.C.S. Edin., of a daughter.

Murch.—On Oct 30th, the wife of Dr. Angus H. Murch, Sutterton, Boston, Lincs., of a son.

Rice-Oxley.—On Nov. 2nd, at Victoria-road, Kensington, W., the wife of Douglas Rice-Oxley, M.C., M.B., B.S., of a son.

Ridout.—On Oct. 30th, at St. Elmo, Clarendon-road, Southsea, the wife of C. A. Scott Ridout, M.S., F.R.C.S., of a daughter.

DEATHS.

Gordon.—At Howden Isolation Hospital, of scarlet fever, William Bonnalie Gordon, Jun., M.B., B.C. (Cantab.), late Captain, R.A.M.C.

Laing.—On Oct. 31st, at Birkdale, Norman Preston Laing, M.D., M.Sc., in his 51st year.

Oakley.—On Oct. 29th, at Southport, John Oakley, J.P., surgeon, of Holly House, Halifax, in his 78th year.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

MEDICAL FEES IN JOHANNESBURG.

THE generosity of the decision of the Witwatersrand Branch of the B.M.A., quoted in another column of our present issue by our South Africa Correspondent, with regard to free medical treatment to dependents of soldiers, constitutes an effective reply to the criticisms recently made in the House of Assembly against the cupidity of the profession on the Rand. They have been accused of extortionate charges in the following terms (we quote from the *Cape Times* report of a question in the House of Assembly on Tuesday, Sept. 9th):—

Is the Minister of the Interior aware (*a*) that during the influenza epidemic instances occurred of wholly extortionate charges being made for medical attendance by certain doctors; (*b*) that the medical fraternity of Johannesburg have raised their fees as from Sept. 1st, 1919, to 15*s*. per visit up to 6 P.M., £1 1*s*. up to 9 P.M., and an indefinite amount in excess of this after 9 P.M., alleging as the reason for such action the increased cost of living; (*c*) that during war periods these doctors in Johannesburg who did not go on active service made incomes far in excess of their pre-war earnings; (*d*) that the charges for medical attendance make payment of doctors' bills a crushing burden to the industrial and middle classes in Johannesburg, and add greatly to the social and industrial unrest now prevailing?

The answers to these questions were of the usual non-committal nature, except for (*a*), to which the Minister of the Interior replied:—

"The Government received reports of extortionate charges in some cases, but has no information whether the amounts so charged were actually paid."

We have not very much sympathy with the citizens of Johannesburg—a wealthy community on the whole—as they seem to forget that the increased cost of living, to which they attribute their difficulty in paying doctors' fees, equally affects the medical profession. The raised prices do not seem to us excessive; there is a large and excellent hospital, with over 500 beds, in Johannesburg for those who live in the town, and the outlying mines have their own benefit societies, resident doctors, and, in most cases, local hospitals. On the other hand, now that the doctors have themselves fixed a tariff for night work the public have a right to demand prompt attention to night calls. We have not heard that a satisfactory solution has been reached for this problem of night work, on which we commented in September (THE LANCET, Sept. 20th, p. 551). It is our experience that the general public rarely complain of high medical fees if they are satisfied with the attention they receive.

ON OUR DEFENCE.

AN esteemed correspondent inquires whether all the present staff of THE LANCET consists of bacteriologists; the answer is in the negative, but the implied criticism of the contents of recent issues is justifiable, and deserves as satisfactory a rejoinder as we can supply. It is true that for many years there has been a progressive increase in the space allotted to bacteriology in its wider sense. A dive at random into our yearly volumes from 1880 to 1900 shows that while the balance was then held, as well as we were able to hold it, between the various systems of the body, disease was discussed almost exclusively from the clinical standpoint. If the balance has shifted, we hope that it is due to the alteration in comparative values of what has to be said in a medical journal, desiring to deal alike with the art and the science of medicine. The clinical and therapeutical aspect must always remain the most urgently important. Readers whose interests are necessarily centred round the personal element in medical practice may tire of articles dealing with the life-history and evil habits of the minute enemies of human existence. Instead of finding new methods crisp and practical, whereby the bodily ailments of actual men and women may be more expeditiously diagnosed and cured, the practitioner encounters contradictory theories and a host of apparently irrelevant detail with no application to daily medical practice. It is our endeavour to do justice to both sides, and to show by our pages their inter-relations.

A circular has reached us addressed last week to the parents of all the students in one of our leading women's colleges by the principal, the subject being prophylactic vaccination against influenza. This course is advocated by the college doctor on the ground that, even should inoculated persons not be rendered entirely immune to the disease, yet the attacks will be milder and rarely followed by pneumonia. As a consequence of this letter some hundreds of general practitioners up and down the country will be consulted by parents of scholars, and will have to make up their minds promptly and give a decision that in the present state of public information will be subjected to intelligent criticism. They will doubtless be called upon to comment on the value of a prophylactic vaccine at a time when no epidemic has arrived and when the period over which immunity (if any) is conferred has not been finally established; they may have to answer questions on the probability of Pfeiffer's bacillus being the cause of influenza as against a filterable virus, and to estimate the utility of a vaccine for a disease the cause of which is unknown. The assertion that pneumonia is less liable to follow the influenza of inoculated persons may have to be examined in the light of its bacterial causation and the composition of the vaccine to be used. It may be that some inkling of the new outlook in regard to the non-specificity of vaccines has reached his patients and require elucidation. The family practitioner will be the first to realise that the inoculation of a large number of educated people of the same age and sex, living under similar conditions, would form an admirably controlled scientific experiment. The problems arising out of this circular letter suggest that in opening our columns generously to bacteriological research we are acting with full appreciation of the needs of those not specially interested in this subject for its own sake.

We agree that certain communications that have appeared in our columns would have been, as it happens, more suitable to a purely technical publication, but it is not easy to foresee when any piece of work, if only by the light that it throws upon laboratory procedure, may not become of real clinical importance.

Lastly, we welcome our correspondent's criticism.

THE WEARING OF DECORATIONS WITH MORNING DRESS.

MANY members of the medical profession entitled to carry decorations or medals may not know exactly how these honours are worn with morning dress on official occasions and at public functions. We therefore reprint here the instructions issued in the *London Gazette* of Oct. 31st:—

> Knights Grand Cross or Commanders, Dames Grand Cross, and Knights or Dames Commanders should wear the *Star only* on the left breast of the coat or in a corresponding place on the dress, as the case may be.
>
> Members of the Order of Merit, men who are Members of the Order of the Companions of Honour, Companions of the several Orders of Knighthood, Commanders of the Royal Victorian Order, and men who are Commanders of the Order of the British Empire should wear the ribbon to which the Badge is suspended under the tie, *which should be a bow*, the badge hanging about three-quarters of an inch below the bow.
>
> Women who are Members of the Order of the Companions of Honour, Companions of the Distinguished Service Order, Officers of the Order of the British Empire, Members of the 4th and 5th Classes of the Royal Victorian Order, Members of the Order of the British Empire, and persons who have been decorated with the Victoria Cross, the Royal Red Cross, the Distinguished Service Cross, the Military Cross, the Distinguished Flying Cross, the Air Force Cross, and persons who have been awarded medals should wear the Badges, Decorations, and Medals on the left breast of the coat, or in a corresponding place on the dress, as the case may be.
>
> The method of wearing the *ribbons* of Orders, Decorations and Medals, which will be the same in all cases, both for men and women, is as follows:—A piece of the ribbon one and a half inches wide, or the width of the medal ribbon, and half an inch in depth, mounted on a bar of metal in the form of a brooch, to be worn on the left breast of the coat, or in a corresponding place on the dress, as the case may be. It is notified that these regulations refer to Morning Dress only, and do not alter the regulations with regard to wearing Orders, Decorations, and Medals with Uniform, or with Evening Dress.

Holders of the above distinctions may wear decorations or medals on all occasions at their own discretion.

COLONIAL HEALTH REPORTS.

Weihaiwei.—This territory, which lies in latitude 37·30 N., longitude 122·10 E., on the north-eastern coast of the Shantung Peninsula, was leased to Great Britain by China in 1898 in order to provide the former with a suitable naval harbour and for the better protection of British commerce in the neighbouring seas. During the year 1918 Weihaiwei fully maintained its reputation as a health resort during the summer months. All the accommodation available in the mainland and island hotels and in the bungalows owned by the local land and building company was fully occupied, and the number of visitors was quite as large as in the previous years, if not larger. The health of both residents and visitors during the warm weather was excellent, but there were two outbreaks of epidemic disease during the spring and towards the end of the year. The first was an outbreak in spring of typhus in the depôt in which Chinese labourers, recruited for service in Europe, were housed; the second was an epidemic of influenza which prevailed throughout the territory during October and November. Typhus was declared to be present in the depôt on Feb. 19th and lasted till April 9th. There were 298 cases and 18 deaths, all Chinese with the exception of Dr. Baxter, medical officer in charge of the depôt. The disease first appeared in coolies who arrived from

Tientsin. As the total number of inmates of the depôt when the outbreak occurred was 2519, great credit is due to the Canadian medical officers in charge for the able manner in which they combated the disease and for the efficiency of their administration which prevented its spread. The late Dr. Baxter contracted the disease in the execution of his duty and his death was deeply regretted by all who knew him, as he was held in very high esteem. The epidemic of influenza was universal throughout the territory in a very virulent form. In one family of eight six died of the disease, and in all 900 deaths were reported. It is not possible to give accurate mortality statistics, as registration of deaths is not compulsory. Great improvements are being effected on the Island of Lin Kung with a view to rendering it a health resort in every way satisfactory for His Majesty's Navy. Since 1909 the importation, sale, and smoking of opium and any other hypnotic have been prohibited, and only those who can produce a certificate from the Government medical officer stating that opium is necessary for them are granted a licence to smoke it, the issue of opium to such certified persons being made by the Government. The total number of licences issued during 1918 was 40 and the average age of the licensees 61. The Chinese of the territory have well maintained their reputation for good behaviour.

TO KING'S COLLEGE HOSPITAL MEDICAL STUDENTS.

To the Editor of THE LANCET.

SIR,—I should be glad to hear from former medical students living within easy distance of London, who qualified in 1912 or later, and who would like to play in the King's College Hospital Rugby Football Team.

I am, Sir, yours faithfully,
S. C. RANNER,
Secretary of the Medical School.
Nov. 4th, 1919.

MEDICAL SCHOLARSHIPS FOR THE WAGE-EARNER.

THE late Mr. Francis Fletcher, a director of Wyleys, Limited, manufacturing chemists, has left a contingent legacy of £35,000 to the University of Birmingham for the provision of scholarships for boys and girls of the industrial classes whose parents' weekly wage does not exceed 50*s.* and who are desirous of entering the medical profession. "In my opinion," the testator says, "there are potentialities of the born doctor being found among such children, in which case it would be in the interest of medical and surgical science, also the benefit of humanity." Each scholarship will be of the annual value of £100, tenable for five years. It is a little unfortunate that the testator should have named the maximum income-limit in terms of money, the purchasing power of which has diminished by one-half or more since the bequest was made. This will exclude from the benefit many of those who would be most likely to benefit by it.

THE CULT OF THE SCRUBBING-BRUSH.

To the Editor of THE LANCET.

SIR,—The A.Y.Z. bucket, scrubbing-brush, and mop form a complete answer to the question of "A Hospital Physician." The objection of the scrubbers to the old-fashioned mop is based on the difficulty of getting it (1) hard enough to remove the dirt, and (2) dry enough to remove the dirty water on the floor. The A.Y.Z. scrubbing-brush has a long handle and is dipped into the bucket of soap and water as required. The bucket has a perforated cup-like attachment inside, near the top, and the mop is first twisted round and then pressed into it to express the water. The bucket has proved a friend in need to many a stranded housewife. It can be obtained at the stores.

I am, Sir, yours faithfully,
DOCTOR'S WIFE AND LATE HOSPITAL SISTER.

A PORTABLE CINEMATOGRAPH.

THERE are obvious uses for a portable cinematograph in medical work. As a means of demonstration in clinics and in surgery it should have decided educational value. Occupying no more space than an ordinary dressing-case, the De Vry Projector will project an 8-ft. picture at a distance of 40 ft. The actual dimensions of the type C-90-100 to 110 volts D.C., a specimen of which was shown us in this office, are 17×17×7 inches over all, and the weight is 20 lb., motor drive. The price of this apparatus, complete and ready to operate, is £50. It is stated that the total current consumption does not exceed 500 watts, so it can be worked from the ordinary light socket. The focusing, framing, starting, motor drive, and illumination are controlled from the outside of the case, and the film is re-wound by the motor in the projector. A company known as British Instructional Films, Ltd., of Phœnix House, 19, 20, and 21, Oxford-street, London, W., retains a specialist in cinematography, who photographs any interesting scientific subjects presented to him for reproduction in the portable cinematograph machine. The field of its application in medicine and the collateral sciences may be wide and the results instructive.

A demonstration is taking place this week, at the Obstetrical Section of the Royal Society of Medicine, of motion pictures in normal labour.

T. O.—It is evidently unnecessary for every tuberculosis officer, every child-welfare medical officer, or every school medical officer to go through the ordinary full course of study prescribed for the diploma of public health. Many are doubtless prepared to remain specialists and to make a particular clinical branch of the public health service their career. But others enter these clinical services with the intention of ultimately proceeding to an appointment as medical officer of health, which carries with it greater responsibility and greater emolument.

Their Majesties the King and Queen have again been graciously pleased to show their interest in the work and welfare of the Great Northern Central Hospital by presenting bound volumes of the *Sporting and Dramatic News* for the benefit of the patients.

BOOKS, ETC., RECEIVED.

BUTTERWORTH AND CO., London and Calcutta.
A Manual of Conservancy. By Jahar Lal Das, L.M.S. With Introduction by Dr. C. A. Bentley. Pp. 190. Rs.5.10.
Painless Childbirth and Twilight Sleep. By C. Webb-Johnson, Captain, R.A.M.C. T. 2nd ed. Foreword by Comyns Berkeley, M.D. Pp. 169 and chart.

COLLINS, W., SONS, AND CO., London.
The Young Physician. By F. B. Young. Pp. 485. 7*s.*
Over and Above. By J. E. Gurdon. Pp. 250. 7*s.* 6*d.*
Madeleine: One of Love's Jansenists. By H. Mirrlees. Pp. 276. 7*s.*

DUCKWORTH AND CO., London.
Wine and Spirits; the Connoisseur's Text-book. By André L. Simon. Pp. 274. 7*s.* 6*d.*

MALOINE, A., ET FILS. Paris.
L'Ecole de Plein Air et L'Ecole au Soleil. By Dr. P. Armand-Delille and Dr. P. Wapler. With Preface by Dr. H. Mery. Fr.4.

PUTNAM'S (G. P.) SONS. London.
Wise Parenthood. By Marie C. Stopes, D.Sc. 5th ed. Pp. 60. 3s. 6d.

Communications, Letters, &c., to the Editor have been received from—

A.—Mr. S. R. Antoine, Christobal, Panama Canal Zone.

B.—Dr. H. W. Barber, Lond.; Sir J. Byers, Belfast; Mr. G. Bethell, Lond.; Mr. A. H. Blake, Lond.; Mrs. C. Brereton, Lond.; Sir C. A. Ballance, K.C.M.G., K.B.E., Lond.; Dr. R. Burges, Hartley Wintney; Dr. J. Brown, Blackpool; Mr. I. Back, Lond.; Dr. R. D Batten, Lond.; Dr. J. Blomfield, Lond.; Mr. C. W. G. Bryan, Lond.; Sir J. Bland-Sutton, Lond.; Messrs. G. Bell and Sons, Lond.; British Museum (Natural History), Lond., Director of.

C.—Dr. C. C. Chidell, Folkestone; Dr. F. G. Crookshank, Lond.; Dr. E. L. Collis, Cardiff; Dr. A. Cox, Lond; Miss G. Cowlin, Lond.; Mr. J. F. Colyer, Lond.; Conjoint Board of Scientific Societies, Lond.; Mr. A. P. I. Cotterell, Lond.

D.—Dr. H. Dutch, Lond.; Mr. H. Dickinson, Lond.; Decimal Association, Lond.; Dr. H. G. Davison, Newcastle-on-Tyne; Dr. T. V. Dickinson, Lond.

F.—Factories, Chief Inspector of, Lond.; Fight the Famine Council, Lond.; Dr. N. Farah, Alexandria; Dr. Z. P. Fernandez, Leeds; Dr. J. S. Fairbairn, Lond.

G.—Mr. G. E. Gask, C.M.G., D.S.O, Lond.; General Medical Council, Lond., Registrar of; Mrs. A. C. Gotto, Lond.; Dr. A. Glen, Glasgow; Great Northern Central Hospital, Lond., Sec. of.

H.—Dr. G. Henderson, Oxford; Mr. J. T. Henderson, Pietermaritzburg; Dr. W. Hodgson, Crewe; Dr. C. W. Hutt, Dudley; Mr. J. W. Harrison, Lond.; Dr. E. Hobhouse, Brighton; Sir T. Horder, Lond.; Prof. R. T. Hewlett, Lond.; Dr. C. T. W. Hirsch, Lond.

J.—Dr. E. Jones, Lond.

K.—Dr. E. H. Kettle, Lond.; Prof. A. Keith, Lond.

L.—Prof. E. M. Little, Lond.; Dr. H. C. Lambert, Colombo; Messrs. Longmans, Green and Co., Lond.; Dr. G. C. Low, Lond; Dr. A. Lewers, Melbourne; London and Provincial Anti-Vivisection Society, Sec. of; Dr. E. B. Leech, Manchester.

M.—Dr. D. M. MacLeod, Evesham; Ministry of Health, Lond.; Medical Research Committee, Lond.; Dr. M. F. Moloney, Dungarvan; Dr. J. A. MacDougall, Balerno; Sir G. H. Makins, G.C.M.G., C.B., Lond.; Rt. Hon. Dr. T. J. Macnamara, M.P.; Dr. J. C. McWalter, Dublin; Medical and Dental Defence Union of Scotland, Glasgow, Sec. of; Dr. W. Mitchell, Bradford.

N.—Dr F. J. Nattrass, Newcastle-on-Tyne.

O.—Dr. T. T. O'Farrell, Dublin; Sir William Osler, Oxford.

P.—Capt. G. E. Pepper, R.A.M.C.; People's League of Health Lond.; Dr J. G. P. Phillips, Lond.

R.—Royal Institution, Lond.; Dr. G. D. Robinson, Lond.; Royal College of Physicians, Lond.; Recovered; Röntgen Society, Lond; Dr. J. D. Rolleston, Lond.; Dr. C. J. Rutherford, Colombo.

S.—Dr. A. G. Shera, Eastbourne; Dr. H. Spencer, Lond.; Sir G. H. Savage, Lond.; Dr. R. H. Shaw, Great Yarmouth; Mr. F. B. Shawe, Liverpool; Dr. H. A. Smith, Ealing; Prof. G. E. Smith, Lond.; Dr. S. Samuel, Leeds.

T.—Dr. H. N Taylor, Ebbw Vale; Dr. A. H. Thompson Lond.

U.—University Press, Oxford, Controller of; University of Cambridge.

W.—Dr. S. A. K. Wilson, Lond.; Mr. C. E. West, Lond.; Dr. W. R. Williams, Walton-by-Clevedon; Dr. N. Walker, Edinburgh; Dr. F. J. Waldo, Lond.; Woolwich, Medical Officer of Health of; Dr. H. Williamson, Lond.; Dr. G. A. Watson, Liverpool; West London Medico-Chirurgical Society.

Communications relating to editorial business should be addressed exclusively to the Editor of THE LANCET, 423, Strand, London, W.C. 2.

Two Clinical Lectures
ON
PROGNOSIS IN SURGERY.

Delivered at St. Bartholomew's Hospital on
Oct. 8th and 15th, 1919,

By Sir D'ARCY POWER, K.B.E., F.R.C.S. Eng.,
SURGEON TO THE HOSPITAL.

Gentlemen,—The patient whose case I now describe was fortunate in belying the fatal issue which I predicted for him, so I thought he would form a fitting introduction to some remarks on prognosis in surgery. He is 57 years of age, and had never suffered from any previous abdominal trouble. He went to bed on Friday, August 29th, in his usual health, and woke up on the following morning with a stomach-ache. He took a dose of Glauber's salt, and as his bowels did not act he took a second dose in the course of the day. The pain increased, he called in a doctor, who, not being altogether satisfied about his condition, asked me to see him on Sunday afternoon, although the patient himself made light of the matter and said it was only a passing attack of constipation. I found him sitting up in bed and moving easily. His temperature was 100 6° F., and his pulse 80. The abdomen was rigid in the right lower quadrant, and there was marked tenderness in the right iliac region. I told his wife that the patient was seriously ill, for his appendix was inflamed and had probably mortified, and recommended that she should take him at once to the hospital. She took my advice, and within two hours I was operating upon him. The appendix was gangrenous at the base, the distal two-thirds being fairly healthy, but it was so adherent to the surrounding tissues that I was unable to free it. I therefore cut it across, disinfected it, and dropped the lower third back into the abdomen. The rest of the appendix was removed up to the cæcum and the wound was drained. A fæcal fistula formed within a few days, closed spontaneously, and the patient is now nearly ready for discharge and able to answer any questions. He is, as you see, a fat man; he had a gangrenous appendix, of which only a portion could be removed, and there was a collection of stinking pus. I gave a very grave prognosis, for I thought the patient would die. Thanks to his own powers of resistance and skilful nursing he has recovered.

ACCURATE PROGNOSIS.

Much of your reputation in practice will depend upon the skill with which you can forecast what is going to happen to your patient. This skill is difficult to acquire. You may quickly prove yourselves deft operators or most resourceful in the treatment of symptoms, but if you cannot foresee how a patient will progress or from what disabilities he is likely to suffer after an injury you will sustain some rude shocks and will fall in the estimation of the friends of the patient when the unexpected happens. Accurate diagnosis and a sound knowledge of pathology aided by experience are the bases upon which prognosis is built up; but even then prognosis is often falsified, for we have to confess with Heinsius, "Quantum est quod nescimus." Still, you may learn much from us if you will ask what we expect to happen to the various patients for whom you are acting as dressers in the wards. With an accurate prognosis you will be able to warn the friends in cases where death is impending, for there are very few causes of sudden death after an operation—indeed, the only one I can recall which is a real catastrophe is due to embolism—in all others the alert practitioner is able to give some warning of the calamity, whilst after injury the patient is often thankful to be told the degree and duration of any disability from which he is likely to suffer. He is, too, much more amenable to the restrictions imposed if an intelligent reason can be given for keeping him in bed or for prohibiting what seems to him to be some harmless action. In the particular case of appendicitis used as a text, I expected that the patient would have developed a general suppurative peritonitis with increasing abdominal distension, sloughing of the abdominal wound, and that he would have died from failure of the heart's action within a week.

Recovery the Rule after Early Operation.

The gravity of the prognosis in cases of appendicitis—even in the most acute forms—is often over-estimated. Recovery is now the rule in most of the patients who have been operated upon within 72 hours of the onset of symptoms, and if the patient survives the first two or three days after operation for a general peritonitis he usually recovers, although the convalescence may be very prolonged. Pain, sleeplessness, and a continued rapid pulse are of bad omen after an operation for suppurative peritonitis. Do not treat these symptoms, but make a determined attempt to discover the cause. The pain is probably due to an extension of the inflammation involving the parietal peritoneum; the drainage is insufficient or a fresh abscess is being formed; the sleeplessness and quick pulse are evidences of septic absorption. If you mask the pain by fomenting the wound and procure sleep with hypnotics you may find the patient dead when you have been prophesying recovery. If these symptoms only last for a day or two after the operation you will find that they disappear very rapidly after the formation of a fæcal fistula. I used to view fæcal fistulæ with apprehension until I reflected that before they were formed the intestine must have contracted sufficient adhesions to shut it off from the general peritoneal cavity. They now seem to me to be of the nature of a safety-valve. They usually close as readily as they form, and I do not remember any case where I have been called upon to close such an opening by operation.

Sequelæ of Appendicitis.

As regards other sequelæ of appendicitis which may influence your prognosis, you should remember that every abdominal operation leaves a sense of stiffness and weakness, the patient complaining that he cannot keep himself upright. This passes off in a short time, and if the scar is satisfactory he soon gets about as usual. The scar of the operation wound after prolonged drainage is often weak; there may be a ventral hernia, or the patient may suffer from that form of discomfort which is attributed to the formation of "adhesions." We rarely see a working man complain of adhesions, but the symptoms are apt to be exaggerated in the neurotic. Do not forget, too, that when silk has been used and the wound has suppurated a sinus may be formed a long time after the scar has appeared to be soundly healed, much to the alarm of the patient, until he is told that it will close quickly as soon as the piece of infected silk has been removed or discharged.

Time an Important Factor.

Time plays an important part in the prognosis of most acute abdominal conditions requiring surgical interference, and in none more than in perforation of the stomach and duodenum, in internal strangulation of the bowel, and in volvulus. Operations for their relief completed within the first 12 hours are usually successful. Your difficulty lies in the fact that you have not the courage of your opinions. You make a diagnosis and are then afraid to act upon it. You wait to see whether the patient will improve; he rallies from the initial shock; you are thereby deceived, and you let the precious hours slip by until the onset of undoubted peritonitis confirms your diagnosis, but too late for an operation to be useful. Although the prognosis is favourable in the majority of cases of acute perforation which have been operated upon early, it is distinctly unfavourable in the drink-sodden however soon they are operated upon and I am never satisfied as to the recovery of such persons unless the pulse resumes its natural rate, and they have lived through the first ten days. They often seem surprisingly well, until they die suddenly about the end of the first week.

Volvulus and strangulation of the bowel by a band both have a grave prognosis, not because they are serious in themselves, but because they are of rare occurrence, and the diagnosis is consequently too often delayed until the injury to the bowel has become irreparable. The earlier the operation the better the prognosis, but as the bowel has great powers of repair an operation should be performed even when there is well-marked tympanites and when there has been much vomiting.

Street Accidents.

I view with grave suspicion all street accidents when there is collapse with the history of abdominal injury without obvious external sign. When the bowel has been ruptured by such an accident there is often a fallacious calm due to the temporary arrest of intestinal peristalsis. The prognosis in all such cases should be of the most guarded character. Some of you may remember the case of a boy we had in the hospital who was admitted with a fractured pelvis after he had been run over by an omnibus. His abdomen was tender but he slept well; on the following day he ate well and had a second good night, though his abdomen was still tender and was slightly rigid. On the third day the distension increased, and on exploration the small intestine was found to be ruptured in the right iliac fossa and the peritoneum was acutely inflamed. The prognosis in rupture of the spleen is better in my experience than in laceration of the liver. The collapse is severe, but the operation of removal is easy and can be completed quickly, so I embark upon it with comparative confidence as soon as possible after the injury.

Cerebral Concussion.

As regards head injuries my colleague, Mr. L. B. Rawling, teaches us that the longer the period of primary concussion the more serious is the intracranial damage. But you must be careful not to give too sanguine a prognosis in cases of cerebral concussion even if the symptoms have been very slight and transient. Mr. Rawling tells us, too, that the first definite signs of intracranial pressure are slowing of the pulse, increasing blood pressure, and headache. When these symptoms are present after an injury to the head, recommend operation; do not wait until an increasing pulse-rate, a falling blood pressure, and stertorous breathing show that the medullary centres are becoming paralysed. Remember that about 50 per cent. of patients die after fracture of the base of the skull, and that of those who recover probably not more than half regain their faculties completely.

Just a word or two about children. The prognosis in cases of acute intussusception has improved very greatly as a result of early operation. The mortality was formerly nearly 100 per cent.; we now have long series of cases without a death. The prognosis in burns and scalds, to which the children of the poor are especially liable, is exactly the reverse: a very large proportion of such children die. They are either brought to the hospital moribund or they soon succumb to their injuries in spite of all that can be done for them.

PROBLEMS CONNECTED WITH THE AFTER-STATE OF PATIENTS.

Turning now from the prognosis as regards life to the after-state of a patient who has sustained an injury, I would draw your attention to this patient, a man of 57, who is in business in the City and was brought into the hospital seriously hurt as the result of a street accident. He has sustained a simple fracture of the right humerus, of the pelvis, and of the femur. He has also a compound comminuted fracture of the right tibia and fibula. The simple fractures are matters of comparatively small importance for him. The compound fracture of the leg is more grave. I told him the other day that it would be a long time before he could return to his business, and that he would then have a stiff ankle, with some deformity of the leg, which would oblige him to walk with a stick. Looking to the future, I suggested that if it was important for him to return to work as quickly as possible he would do well to let me amputate his leg in the lower third. He replied that he would rather wait, as his son, who had just been demobilised, could carry on the business, but if at any time his life was endangered by waiting he would have his leg removed. He is in good general health, he will be well nursed, and his mind is at rest. I have no doubt, therefore, that he will leave the hospital in some months' time, after several large sequestra have been removed from the tibia, with a maimed, but fairly useful, foot.

Cases to be Considered Individually.

These are the problems which you will have to solve in practice. Each case must be considered individually according to the circumstances of the patient. To a manual labourer a fracture of both bones of the leg means ruin, for he loses his work at once and on leaving the hospital he finds himself permanently amongst the unemployed. There are some occupations, like those of a dancing master or a professional dancer, to whom even a simple Pott's fracture is a much more serious matter than to the ordinary person on account of the flat-foot which is so often associated with the injury. Every care, therefore, must be taken during treatment to see that the arch of the foot is preserved. The patient, too, must be prevented from bearing weight on his leg at too early a period after the injury, for there is a great tendency for the outward displacement of the foot to recur in patients who have been allowed to return to work before the fracture has become firmly consolidated.

The patient has also sustained a simple fracture of the femur. We used to be contented if repair took place after this accident with a slight degree of shortening. Our ideal has changed during the last few years, and we now aim at repair without any shortening at all, or even with a slight lengthening of the broken bone. This gain is a very real advantage. It is obtained by careful attention to detail, a very prolonged course of treatment, but unless you are careful there remains a troublesome stiffness of the knee.

The prognosis after fracture of the shaft of the femur, therefore, is extremely good, whether the fracture be simple or compound, if the patient will give the time and the practitioner the patience to get a perfect result. It is far otherwise in old people who fracture the neck of the femur with slight violence. The prognosis in these cases is usually grave, and it is often difficult to persuade the friends that an accident apparently so trifling may be followed by such serious results.

Bear in mind that a transverse fracture of the patella does not necessarily mean a useless knee, even if it be not "wired" and union by fibrous tissue is allowed to take place instead of the bony union which is the ideal to be aimed at. You will meet with many patients upon whom it is undesirable to perform an operation. "Wiring" fractures of the patella is so recent a method of treatment that many of us recollect, when fibrous union was the rule, that the patients were able to follow their occupations of postmen and omnibus conductors with tolerable facility although there was a wide gap between the two fragments.

X RAYS IN PROGNOSIS.

In all injuries correct diagnosis is the key to accurate prognosis, and this is nowhere better exemplified than in those injuries of the carpus which are treated as sprains but are in reality fractures of one or other of the carpal bones, fractures of the scaphoid and semilunar being the most common. If a sprained wrist does not respond to treatment in a reasonable time a skiagram should be taken, especial attention being paid to the lower end of the radius, the carpal bones, and the base of the metacarpal bone of the thumb. The prognosis will depend upon the X ray findings, and can often be improved by operation. If you wait until there is a chronic synovitis and evidence of arthritis the prognosis is bad. Fracture of the lower end of the radius has a good prognosis in young people; a bad prognosis in old persons, in whom it nearly always leaves some permanent stiffness of the wrist.

CONCLUSION.

There are many other points in prognosis to which your attention might be directed did time allow. My object in bringing the subject under your notice is to incite you to a closer study of this important branch of surgery. You are too apt to content yourselves with watching the patients from day to day and taking no thought for the morrow. You ought to know whether a patient will live or die; you should try to foresee the disabilities from which he is likely to suffer after various injuries, for you will then be able to give him timely advice, and by foreseeing you may sometimes do much to prevent them. Some of us are credited with an uncanny gift in both respects, but it is merely the result of experience; for we are not really like the youngest son in the fairy tale, who won the princess by his skill in prognosis.

THE LATE MR. SKAIFE.—The death occurred at Chichester on Oct. 23rd of Mr. Frederic Skaife. Educated at St. Bartholomew's Hospital, he took the L.S.A. diploma in 1871, and proceeded to the L.R.C.P. Edin. and M.R.C.S. He settled at Chichester shortly afterwards, where he soon gained an extensive practice, and was for very many years on the medical staff of the Royal West Sussex Hospital. The death of a son, Captain Arthur Skaife, 1st Battalion, Middlesex Regiment, in the early days of the Great War, was a great blow to him, as was the news of the death of his elder son, Lieutenant-Colonel E. O. Skaife, Royal Welsh Fusiliers. This information happily turned out to be untrue, although Colonel Skaife had been wounded and was a prisoner of war. Early this year the toll of years began to tell on Mr. Skaife and owing to failing health he retired in March from practice, to the regret of a large circle of patients and friends.

THE WEIL-FELIX REACTION IN A MILD EPIDEMIC OF TYPHUS

OCCURRING AMONGST A TYPHUS-RIDDEN PEOPLE.

By L. E. NAPIER, M.R.C.S. ENG., L.R.C.P. LOND.,
LATE CAPTAIN, R.A.M.C., T.C.; BACTERIOLOGIST TO NO. 12 INDIAN GENERAL HOSPITAL, MESOPOTAMIA.

AN epidemic of a modified type of typhus occurred in the Armenian refugee camp which is situated at Baqubah, about 30 miles south-east of Baghdad. There were about 50,000 refugees in the camp—men, women, and children. The first cases were diagnosed late in November of last year, but it is probable that a number of earlier cases were missed as none of us were familiar with this mild form of the disease. At the beginning of April, when I left Baqubah, there were very few fresh cases occurring.

During this period, roughly four months, the admissions to, and the deaths in, the isolation hospital of typhus cases were as follows (Table I.):—

TABLE I.

Refugees.	Admissions.	Deaths.	*Others.*	Admissions.	Deaths.
Men	30	4	British officers	1	1
Women	58	3	,, other ranks	4	1
Children	14	0	Indian ,, ,,	2	1
Total	102	7	Total	7	3*

* Died in Baghdad Isolation Hospital.

Thus it will be seen that whereas amongst the refugees the mortality was only about 7 per cent., amongst the others it was as high as 43 per cent. The high percentage of the latter may be due to chance as the numbers on which it is based are so small. If one may be permitted for the moment to draw conclusions on an insufficient basis the explanation that suggests itself for the difference in these two percentages is that we were dealing not with a mild strain of the disease but with an ordinary strain, occurring on the one hand amongst a partially immune population, the refugees, and on the other amongst a highly susceptible one. From conversations with the more intelligent of the refugees we gathered that typhus was more or less endemic in their own countries.

The Course of the Disease.

The disease differed from the text-book typhus principally in the lack of severity of the symptoms. The patients seldom "reported sick" until they had been ill for about five days, and frequently later. The rash appeared about the fifth, sixth, or seventh day, and the temperature fell by crisis on the fourteenth, fifteenth, or sixteenth day of the disease.

Towards the end of December Lieutenant-Colonel J. C. G. Ledingham, who was the consulting bacteriologist to the Mesopotamian Expeditionary Force, sent us a "proteus-like" organism, labelled X 19, together with a short résumé of the literature on the subject of the Weil-Felix reaction, and suggested that we should apply the test to some of the cases at Baqubah. We noticed that this organism differed in its biochemical reactions from the organism described in some of the literature. It gave acid only in glucose and saccharose with no change in lactose, mannite, and dulcite. The liquefaction of gelatin was very marked.

Technique.

At first we used both living and dead cultures, performing each test in duplicate, but we soon discarded the living cultures, as there appeared to be little advantage in them, and their use entailed repeated standardisation. All the results recorded below are with killed emulsions. A 24 hours' growth on agar was scraped off into a 0·5 per cent. solution of carbolic acid in normal saline. This emulsion was heated to 56° C. for two hours and standardised to contain 2000 million organisms per c.cm. All the tests were carried out with one "brew" of the emulsion, which was frequently tested against a standard serum to ascertain that its agglutinability had not decreased. The test was performed by Wright's method with capillary pipettes. The final reading was taken after 18 hours at room temperature.

Two sets of controls were done, one with the blood of normal refugees and the other with that of refugees in hospital with diseases other than typhus.

Control: Group I.

A specimen of blood was taken from each of 50 refugees—men, women, and children—who had come up for vaccination and who gave no history of having been in hospital since they had been in Baqubah—that is to say, at least six months—or of having been ill during this period. These were put up against an emulsion of X 19 in dilutions of 1 in 10 upwards. In no case was there any agglutination in a dilution of 1 in 320. The specimens grouped themselves as follows (Table II.):—

TABLE II.

Group.	No. of specimens.	Dilutions.				
		1 in 10.	1 in 20.	1 in 40.	1 in 80.	1 in 160.
1	14	–	–	–		–
2	9	+	–	–	–	–
3	20	+	+	–	–	–
4	5	+	+	+	–	–
5	1	+	+	+	+	–
6		+	+	+	+	+

The test was repeated with the seven specimens of the last three groups, but dilutions of 1 in 50, 100, and 200 were taken on this occasion. (Table III.)

TABLE III.

Group.	No. of specimens.	Dilutions.		
		1 in 50.	1 in 100.	1 in 200.
a.	3	–	–	–
b.	3	+	–	–
c.	1	+	+	–

That is to say, that of the 50 specimens taken from normal refugees, only one gave agglutination in a dilution of 1 in 100, and four gave agglutination in a dilution of 1 in 50. Therefore, for diagnostic purposes, it is of little value to start with a dilution lower than 1 in 50.

Sex appeared to have no influence on the result, but there was a distinct tendency for the titre to vary in direct ratio to the age of the individual. Thus: Of those aged 15 and under, of 29 specimens the average titre reached was 1 in 11·38; and of those aged 16 to 37, inclusive, of 20 specimens the average titre was 1 in 22. The other specimen, from a man aged 40, gave a titre of 1 in 160. The figures are not large enough to draw any conclusions from this, but it appeared to be a fact worth noting.

Control: Group II.

Twenty-four cases suffering from febrile conditions totally incompatible with a diagnosis of typhus, and 3 other hospital cases. (Table IV.)

In the first eight cases the specimens were sent to the laboratory for the Weil-Felix test, as it was thought that they might possibly be cases of typhus. The other specimens were either sent by our request as controls, or the blood was sent to the laboratory for some other purpose, such as a Widal. Only in the last four cases was the serum tested in a lower dilution than 1 in 50.

Thus, of the 24 cases suffering from a febrile condition, not typhus,

2 cases gave agglutination in a dilution of 1 in 100,
8 cases ,, ,, ,, ,, of 1 in 50;

or, excluding the four cases of typhoid,

No case gave agglutination in a dilution of 1 in 100,
5 cases ,, ,, ,, ,, of 1 in 50.

Comparing the results of these two sets of controls, there is some evidence that the agglutinability of the blood for this particular organism is increased to a slight extent in any febrile condition, but that this increase is quite marked in the case of typhoid fever. The reverse is also true; that is to say, the blood of a patient suffering from typhus will usually agglutinate *B. typhosus* in a dilution of 1 in 50, and often in 1 in 100.

We commenced a third set of controls with the blood from a normal population (i.e., hospital staff, &c.). This, however, was cut short by a sudden spell of hot weather which spoilt

TABLE IV.

Name.	Day of disease.	Highest dilution in which agglut. occurred.	Disease.
Case "A."	5th 7th	1 in 50 50	Malaria.
,, "C."	4th 10th	0 0	Lobar pneumonia.
,, "D."	7th	0	Relapsing fever.
,, "E."	8th	0	N Y.D. fever.
Lo. Sh. ...	8th	1 in 50	Lobar pneumonia (died).
Ma. Mu. ...	5th	1 in 50	Relapsing fever.
Mo. Jo. ...	7th 14th	0 0	N.Y.D. continued fever.
V. Ca. ...	9th	0	N.Y.D. fever.
A. Ma. ...	17th 30th	0 0	N.Y.D. continued fever.
Case "G."	16th	0	N.Y.D. fever.
Ap. La. ...	19th	0	N.Y.D. continued fever.
S. Sh. ...	19th	0	,, ,,
Os. Ka. ...	18th	1 in 50	,, ,,
A. Wa. ...	20th	0	,, ,,
Ma. Kh. ...	17th	0	,, ,,
K. So. ...	19th	0	,, ,,
E. Ya. ...	17th	0	Paratyphoid B.
Ma.	20th	0	Paratyphoid A.
K. Kh. ...	14th 19th	0 1 in 50	,, ,,
Mi. Ja. ...	16th	0	Typhoid Widal positive 1/2000.
La. Ab. ...	12th 18th	1 in 50 0	Typhoid Widal 1/100. Typhoid Widal 1/1000.
Y. Sh. ...	20th	1 in 100	Typhoid.
Ge. Is. ...	16th	1 in 100	,,
Sh Ma. ...	6th	1 in 20	N.Y.D. fever.
Ma. Oh. ...	?	1 in 20	Convalescent dysentery.
V. Pe. ..	?	1 in 20	,, ,,
Mi. Ov. ...	?	1 in 20	Conjunctivitis.

both our emulsion and standard serum, the laboratory being in a tent and no ice being available. The few specimens that we tested gave no agglutination in a dilution of 1 in 20. We made no further effort to carry out this control, as it will almost certainly have been done elsewhere.

Definite Cases: Group I.

The following table shows the results obtained from specimens from 40 patients in the isolation hospital. All these were clinically typical cases of typhus, of the mild type which was prevalent in Baqubah, and in no case did the diagnosis depend on the result of the Weil-Felix reaction (Table V.).

TABLE V.

Name.	Day of disease.	Highest dilution in which agglut. occurred.	Name.	Day of disease.	Highest dilution in which agglut. occurred.
Ma. Y. ...	7th	1 in 2,500	N Tu. ...	14th	1 in 3,200
Sa. Is. (*a*)	8th	1 in 200	V. Se. ...	14th	1 in 3,200
Sh. Y. ...	8th	1 in 5 000	M. Sa. ...	15th	1 in 4,000
W. Ba. (*b*)	8th	1 in 20,000	S. Is. ...	16th	1 in 10,000
Na. S. (*c*)	8th	1 in 10,000	Y. Ja. ...	17th	1 in 10,000
A. Ca. ...	9th	1 in 10,000	N. Ba. ...	19th	1 in 10,000
Ra. G. ...	10th	1 in 1,250	N. Ab. ...	20th	1 in 1,000
Is. K. ...	10th	1 in 2,500	Fr. Se. ...	20th	1 in 10,000
Kh. S. ...	10th	1 in 1,600	M. Se.† ...	20th	1 in 800
Sh. (*d*) ...	10th	1 in 5,000	Ya.	20th	1 in 10,000
Os. Me.*	10th	1 in 800	Va.	20th	1 in 3,200
Ma. Ba. (*e*)	10th	1 in 800	So. A. ...	21st	1 in 10,000
Ma. Oh. ...	10th	1 in 3,200	R. Jo. ...	21st	1 in 2,500
Ma. W. (*f*)	10th	1 in 400	Ma. Be. ...	21st	1 in 3,200
G. Da.† ...	11th	1 in 1,250	R. Be. ...	23rd	1 in 640
An. Ja. ...	12th	1 in 10,000	Y. Yo. ...	23rd	1 in 800
G. Ky.† ...	12th	1 in 800	Ks. Ba. ...	24th	1 in 1,600
M. Os. ...	14th	1 in 4,000	M. Ar. ...	24th	1 in 5,000
A. Pa. ...	14th	1 in 10,000	T. Jo. ...	25th	1 in 1,000
Ko. M † ...	14th	1 in 800	Y. Ba. ...	30th	1 in 3,200

* Very old man † Child.

Subsequent results—(*a*) 19th day, 1/10,000. (*b*) 17th day, 1/5000. (*c*) 17th day, 1/12,500. (*d*) 30th day, 1/2000. (*e*) 21st day, 1/1600. (*f*) 21st day, 1/800.

Definite Cases: Group II.

Specimens were sent to the laboratory from the following 11 cases, either to confirm the diagnosis, or by a sceptical medical officer who did not believe in our ability to make a diagnosis in the laboratory without first seeing the case (Cases "B" and "F"). All these were eventually clinically unmistakable cases of typhus, and were treated as such, but as the result of the Weil-Felix test possibly influenced the diagnosis they are placed in a separate table. (Table VI.)

TABLE VI.

Name.	Day of disease.	Highest dilution in which agglut. occurred.	Name.	Day of disease.	Highest dilution in which agglut. occurred.
Ma. Ma.* ...	5th 7th	1 in 50 200	Or. Os. ...	8th 10th 15th 17th 21st	1 in 200 800 5,000 3,200 3,200
Jo.*	5th 8th 12th 16th 22nd	1 in 100 800 5,000 5,000 3,200	O. Ka. ...	8th	1 in 3,200
Mi. Ba.* ...	5th 10th 20th 26th	1 in 3,200 10,000 10,000 12,500	Case "F."	9th 12th	1 in 400 20,000
Pa. Sh.* ...	6th 20th 26th	1 in 3,200 5,000 3,200	Ka. Ac. ...	9th 16th 18th 25th 27th	1 in 10,000 20 000 12 500 1,600 1,600
Na. Ma. ...	8th 9th 11th 15th 18th 20th 25th	1 in 400 800 3,200 3,200 3,200 3,200 3,200	Case "B."	14th	1 in 10 000
			Mi. Ya.† ...	15th 19th 22nd 29th	1 in 400 800 400 100

* Rash on 6th day.

† Mild case. Rash and temperature chart typical, but never ill.

It was very unfortunate that we were not able to obtain the blood earlier than the fifth day, and only in three cases as early as this. It will be noted that in two of the four cases in which the blood was taken before the rash developed the titre obtained was quite high, but in the first two cases a laboratory diagnosis could not have been made on the result of the first test, although the markedly increased titre on the seventh and eighth days respectively put the diagnosis beyond doubt.

As the height of the titre varies so much with the individual, and as comparatively few specimens were taken from each, it is impossible to obtain anything but a very irregular graph showing the relation between the titre and the day of the disease of the whole of the observations. The day of disease given is only the "probable" day, and as histories were somewhat vague it would be quite fair to assume that the "possible" days of disease in each case were the day itself and the two days directly before and after it. Thus, in plotting the graph for the twelfth day of disease, for instance, we have taken the average of all the titres obtained on the eleventh, twelfth, and thirteenth days.

FIG. 1.

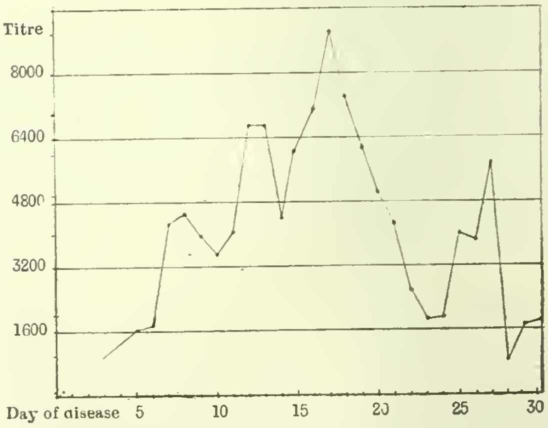


Fig. 1 is a graph showing the relation between the "possible" day of disease and the highest titre reached on that day of the whole of the 85 specimens from definite cases.

Doubtful Cases: Group I.

Three cases which were being treated as typhus in the isolation hospital but in which the disease ran an atypical course.

Name.	Day of disease.	Highest dilution in which agglut. occurred.	Remarks.
As. Jo....	10th 22nd 30th	1 in 50 200 200	Temp. fell by lysis on about 14th day. She had a thrombosis subsequently. Widal, Para. B. 1/800 +.
A. Sa. ...	14th 26th	1 in 400 400	Temp. only for few days. No rash. Diagnosis due to positive Weil-Felix 12th day, 1 in 320.
Na. Da.	20th 25th	1 in 1,600 800	Female child, aged 6. 14 days irreg. temp. Mother suffering typhus.

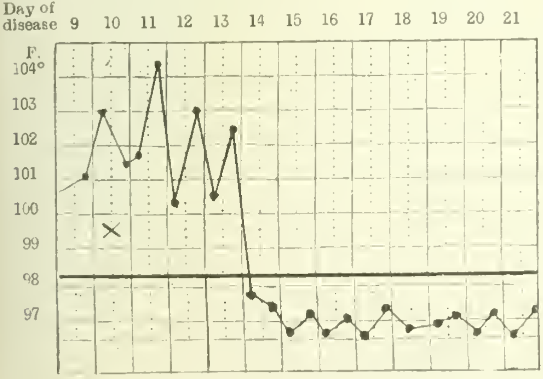
The first two cases are probably not typhus, and should therefore possibly have been included in our control, Group II. The high titre reached may have been due to a comparatively recent attack of typhus. Had the diagnosis depended on the results of the Weil-Felix reaction the first case would not have been diagnosed typhus, as in none of the 51 definite cases was so low a titre obtained on the tenth day. The positive Widal did not appear until the twenty-second day. Again, in the second case 1 in 400 is an exceptionally low titre for the fourteenth day, and one would have expected a markedly diminished titre by the twenty-sixth day. The third case is probably just a clinically atypical case of typhus occurring in a child.

Doubtful Cases: Group II.

Seven cases not diagnosed as typhus, the notes and temperature charts of which were very suggestive of the disease and in which no other definite diagnosis was made.

Name.	Day of disease.	Highest dilution in which agglut. occurred.	Remarks.
El. Ja. ..	10th	1 in 1,600	Typ. chart. Temp. fell 14th day.
Th. Ja....	9th	1 in 2,500	Ditto. Rash.
B. Al. ...	12th	1 in 5,000	Typ. chart. Temp. fell 15th day. Rash.
Ja. Th. ...	10th	1 in 5,000	Ditto.
Sh. In....	10th 30th	1 in 400 1,600	Ditto.
Oh. A. ...	6th 10th	1 in 1,600 10,000	Temp. fell by lysis 13th day. History of rash.
At Is....	10th 15th 22nd 30th	1 in 640 800 400 400	Clinically paratyphoid but Widal not conclusive. Temp. fell by lysis 14th day.

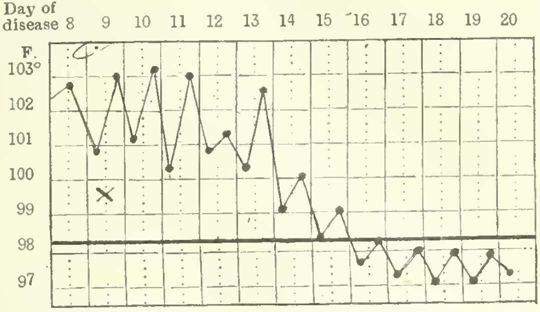
FIG. 2.



Temperature chart of E. J., provisionally diagnosed as broncho-pneumonia. At X Widal and Weil-Felix tests were taken.

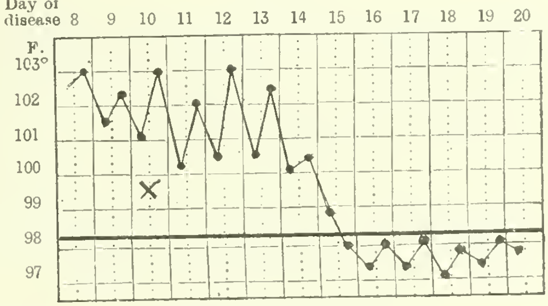
In these cases the blood was sent to the laboratory for a Widal. The result was negative except in the fifth and seventh cases; in these it was positive to typhoid at 1 in 50 and 1 in 100 respectively, and then only on the first occasion. In all the cases the blood was put aside after the Widal had been done, and the Weil-Felix was not done for some days, they were therefore not diagnosed as typhus at the time. When, however, the charts and notes were examined it was quite obvious that the first five had been cases of typhus, and that, although the notes and temperature charts of the last two were not quite typical, their clinical condition had been compatible with a diagnosis of typhus. Serologically, all these cases are typhus, the last being the only one in which there is any room for doubt.

FIG. 3.



Temperature chart of T. J., provisionally diagnosed as broncho-pneumonia.

FIG. 4.



Temperature chart of J. T.

Figs. 2, 3, and 4 are the temperature charts of the first, second, and fourth cases, respectively, of this group.

Discussion on Results.

Although an extraordinarily interesting reaction and of very definite value for purposes of diagnosis, the Weil-Felix reaction will still have to be classed, with the Widal, as an aid to diagnosis only. From the fact that a positive result in a dilution of 1 in 50 is given by 8 per cent. of normal refugees, 25 per cent. of patients with fever other than typhus and typhoid and in nearly every case of typhoid fever, it is obviously unsafe to make a positive diagnosis unless a higher titre than this is obtained. It is very exceptional to get any agglutination in a dilution of 1 in 100 except in cases of typhus and typhoid; so that, if one can exclude the latter, one can with comparative safety regard a case that gives agglutination in this dilution within the first six days of the disease as one of typhus. However, as in the Widal reaction, the most reliable points in diagnosis are the increasing titre in the early and the decreasing titre in the later stages of the disease.

Comparing this reaction in the diagnosis of typhus with the Widal in the diagnosis of typhoid, the former has two distinct advantages: (1) a positive reaction can be obtained at an earlier date; and (2) agglutination occurs in much higher dilutions. Of 59 cases, including 8 cases which were classified as doubtful, only 12 failed to cause agglutination in a dilution of 1 in 1600, and of these only 2 were adults who were tested at a period of the disease when one would expect to find a high agglutinating power in the blood—that is to say, between the tenth and twentieth days of the disease. None of the 59 probable typhus cases failed to give agglutination in a dilution of 1 in 640, and of the 77 control and 2 probable non-typhus cases, classified as doubtful, not one gave agglutination in a dilution of higher than 1 in 400, and only one in a dilution as high as this. Thus there is a very sharp line of distinction between the positive and negative results.

A disadvantage of the reaction is that in an ordinary severe case by the seventh day, the earliest day on which one can guarantee a definite result, the diagnosis, clinically, is usually beyond doubt. This, however, does not apply in the milder form of the disease, where the diagnosis is often in doubt until about the fifteenth day, when the temperature drops suddenly.

Our thanks are due to Captain W. Rees-Thomas, R.A.M.C. (T.C.), for much valuable assistance, and to Captain D. Craig, R.A.M.C. (T.C.), who was in charge of the isolation hospital, for supplying us with most of the specimens and for allowing us free access at all times to his wards.

STUDIES ON THE

WEIL-FELIX SEROLOGICAL TEST

FOR THE LABORATORY DIAGNOSIS OF TYPHUS FEVER.

BY ARTHUR COMPTON, M.B., B.CH.(R.U.I.), D.SC.(N.U.I.),

EX-CAPTAIN, R.A.M.C.; LATE OFFICER-COMMANDING NO. 32 MOBILE BACTERIOLOGICAL LABORATORY, E.E.F.

TOWARDS the close of 1918 and the beginning of 1919, during the typhus season in Syria, I had an opportunity of carrying out a number of blood tests on cases of acute typhus, from the point of view of the Weil-Felix reaction recently described in connexion with this disease.[1] The reaction, be it recalled, is an expression of the power often possessed and developed during the disease by the blood serum of the typhus patient, of specifically agglutinating in vitro a bacterial emulsion of *B. proteus* X 19. Although the studies with which this paper deals make no pretence at being exhaustive—which they could scarcely be, considering the "field conditions" under which they were carried out—still, in the confirmation which they afford of the constancy of the reaction in the disease, a short account of them may prove instructive. The contribution is merely a pioneer one.

Clinical Material and Technique.

Forty-seven blood tests were performed in all, on some 14 cases (British, Indian, and Turkish prisoners of war) of the disease, the tests ranging from the fourth to the thirty-fourth day of illness, and consequently covering the various stages of the disease from onset to convalescence.

To Captain William Forsyth, R.A.M.C., and to Captain K. B. Dickson, R.A.M.C., under whose clinical care these cases were, my best thanks are due for placing them at my disposal for the purpose of this investigation.

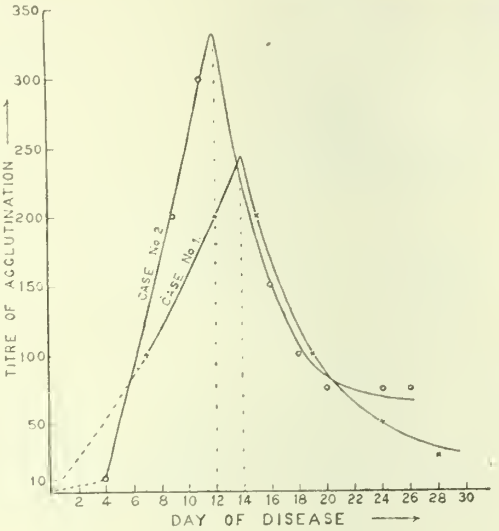
Blood from the patient's thumb was collected in a Wright's blood tube, and on arrival at the laboratory was centrifuged to separate off the serum. The agglutination titre of the latter was then determined towards a 10–12 thousand bacterial emulsion of *B. proteus* X 19 in saline phenolated to 0·5 per cent. The slide method of macroscopic agglutination associated with the names of Alcock[2] and Garrow[3] was employed, the results being read off after three minutes' rotation of the slide in the agglutinometer-box.

Experimental Findings.

The table here given briefly summarises the main features of the cases, and the results of the blood tests performed.

The table (columns 5 and 6) shows that these cases all, with the exception of Case 3, gave a markedly positive reaction from the first days of the disease, and that the strength of the reaction varied from day to day. Some idea of the nature of this variation is revealed by the accompanying diagram, which is a graphical representation of the findings for Cases 1 and 2.

The curves show that the Weil-Felix reaction in typhus fever steadily increases during the first fortnight to attain its maximum about the twelfth to fourteenth day of the disease (the period when, in the uncomplicated case, the temperature, as a rule, falls by crisis), to decrease rapidly thereafter during the period of convalescence. This finding indicates to what extent, other things being equal, the Weil-Felix reaction may render conspicuous service to the physician. It points to the conclusion that in an early case of doubtful pyrexia, which shows a positive Weil-Felix reaction steadily rising in the 24 hours, there is strong presumptive evidence of typhus fever.



No. of case and name.	Nationality.	Date in 1919 of blood specimen.	Rash.	Day of illness (patient's statement).	Result of agglutination test, for following dilutions of patient's serum. (Saline control: negative.) 1/2	1/10	1/50	1/100	1/200	1/400	Date patient's temp. fell to normal.
1. S.	British.	1/1	Present	7	VM	VM	VM	D	–	–	5/1
		5/1		12	,,	,,	,,	VM	D	–	
		8/1		15	,,	,,	,,	,,	,,	–	
		12/1		19	,,	,,	,,	D	F	–	
		17/1		24	,,	,,	D	–	–	–	
		21/1		28	,,	,,	F	–	–	–	
		27/1		34	,,	,,	,,	–	–	–	
2. R.	,,	5/1	,,	4	,,	D	–	–	–	–	12/1
		8/1		7	,,	VM	VM	D	F	–	
		10/1		9	,,	,,	,,	VM	D	–	
		12/1		11	,,	,,	,,	,,	,,	F	
		17/1		16	,,	,,	,,	,,	F	–	
		19/1		18	,,	,,	,,	D	,,	–	
		21/1		20	,,	,,	,,	F	–	–	
		25/1		24	,,	,,	,,	,,	–	–	
		27/1		26	,,	,,	,,	,,	–	–	
3. H.	,,	8/1	,,	7	–	–	–	–	–	–	17/1
		10/1		9	–	–	–	–	–	–	
		12/1		11	–	–	–	–	–	–	
		17/1		16	VM	–	–	–	–	–	
		19/1		18	,,	F	–	–	–	–	
		22/1		21	D	–	–	–	–	–	
		27/1		26	,,	–	–	–	–	–	
4. Capt B.	,,	9/1	Absent.	4	,,	–	–	–	–	–	
		10/1	Present	5	VM	D	–	–	–	–	
		12/1		8	,,	VM	–	–	–	–	
5. S.R.	Turkish P. of W.	10/1	,,	5	,,	–	–	–	–	–	19/1
		15/1		10	,,	VM	F	–	–	–	
		23/1		14	,,	,,	–	–	–	–	
6. M.A.	,,	10/1	Absent.	4	,,	,,	–	–	–	–	19/1
		15/1	Present	9	,,	,,	VM,	VM	–	–	
		23/1		17	,,	,,	D	–	–	–	
7. A.S.	,,	10/1	Absent.	4	,,	,,	–	–	–	–	21/1
		15/1	Present	9	,,	,,	VM	VM	–	–	
		23/1		17	,,	,,	D	–	–	–	
8. M.	British.	23/1		5	,,	D	–	–	–	–	
		25/1		7	,,	VM	F	–	–	–	
		27/1		9	,,	,,	D	–	–	–	
9. O.M.A.	Turkish P. of W.	10/1		10	,,	,,	VM	D	F	–	15/1
		23/1		23	,,	,,	F	–	–	–	
10. Y.S.	,,	10/1	Fading.	12	,,	,,	D	F	–	–	21/1
		23/1		25	,,	D	–	–	–	–	
11. M.H.	,,	10/1	Present	5	,,	VM	F	–	–	–	22/1
		23/1		18	,,	,,	–	–	–	–	
12. K.S.	Indian.	11/1		9	,,	,,	VM	D	–	–	11/1
13. R.R.	,,	12/1	,,	9	,,	D	–	–	–	–	
14. Y.M.	Turkish P. of W.	15/1	Present 4 days.	6	,,	VM	D	–	–	–	

VM = Agglutination very marked. D = Agglutination distinct to naked eye. F = Agglutination feeble, requiring hand-lens to be certain. – = Agglutination negative.

---

[1] E. Weil and A. Felix: Wien. Klin. Woch., xxi. (No. 2), 1916, 33–35.

[2] Broughton Alcock: Journ. R.A.M.C., xxx., 1918, 424–431.

[3] R. P. Garrow: THE LANCET, i., 1917, 262; Journ. R.A.M.C., xxviii., 1917, 566–572.

Case 3 appeared to us at first an exception (see tests of Jan. 8th, 10th, and 12th), there being no doubt clinically as to the diagnosis of typhus. This man's Weil-Felix reaction was persistently negative throughout the first fortnight, to become positive about the sixteenth day of the disease, when it was observed for the first time, his blood having then acquired the power to agglutinate markedly *B. proteus* X 19 in a serum dilution of 1/2, but not beyond. On the sixteenth day his temperature fell by crisis. A blood test 48 hours later revealed that the titre of agglutination, although still low, had increased slightly, being well marked in the 1/2 dilution and feebly so in the 1/10 dilution. Thereafter in his case, as in the others, this feebly positive Weil-Felix reaction, which might well have been missed on the method employed had it not been persistently studied in very low dilutions, gradually fell off, its maximum having been reached.

Of the 14 cases, then, of typhus fever tested by us 13 showed well-marked Weil-Felix reactions, and one gave such a feeble reaction that it might well have passed unperceived and been returned as negative.

Conclusion.

The significance of positive Weil-Felix reactions, other than the practical one that they may be utilised as a laboratory method for the diagnosis of typhus, is unknown.[4] As to that of such feebly positive reactions as the one above described—for no truly negative Weil-Felix reaction has been met with in any case of typhus examined by me—it may be that such reactions are related to the curious phenomenon, recently described by Nicolle and Lebailly,[5] of "inapparent infection." In the latter phenomenon, observed so far only in laboratory animals in connexion with experimental typhus, a guinea-pig occasionally shows no temperature reaction following inoculation with the virus of typhus, and yet its blood, at the time when the control animals show well-marked fever, is found to be virulent, especially for the African monkey. Rats, again, do not ordinarily react, even by an elevation of temperature, to the virus of typhus, but their blood is nevertheless virulent about the twelfth day.

These, then, are some, at least, of the problems connected with this interesting disease which it is for future investigation to solve.

OSTEITIS FIBROSA.

BY E. G. SLESINGER, M.B., B.Sc., F.R.C.S.,
HUNTERIAN PROFESSOR, ROYAL COLLEGE OF SURGEONS OF ENGLAND.

THE condition known as osteitis fibrosa is now recognised to be a good deal commoner than was at one time supposed, but even at present some obscurity attaches to it, partly on account of the very mixed nomenclature under which it has been described and partly because it is still in many cases confused with, and described in conjunction with, several other entirely different diseases occurring in bone.

The fact that osteitis fibrosa frequently leads to cyst formation, and that the consequences of such cyst formation in bone are often the patient's reason for seeking advice, has led to a tendency to presume osteitis fibrosa as the cause of the cyst formation in such cases, often on inadequate evidence, and in many of the published cases the diagnosis is left as "cyst in bone" without any detail as to the underlying condition. That many such cysts in bone depend upon a cystic degeneration occurring in the course of osteitis fibrosa is undoubted, but, on the other hand, there is good reason to think that some of the other conditions leading to cyst formation—e.g., extreme degeneration of a myeloma, the so-called blood cyst, callus cyst, &c.—are less rare than some writers would have us believe. A further difficulty occurs in the fact that opinion appears to be still divided as to whether osteitis fibrosa, as it occurs in a single bone, and von Recklinghausen's multiple fibro-cystic disease of the bones are or are not identical conditions. The rarity of the latter and the lack of sufficiently long after-histories of the former make it difficult to hazard an opinion, but such evidence as there is would rather lead one to the belief that the two conditions are unconnected, excepting in so far as in both there occurs a localised or generalised replacement of the bone marrow by a fibroid tissue. I can find no case in the literature of the appearance of osteitis fibrosa in other bones after its operative treatment in any one bone. A case reported by V. P. Gibney of a cystic condition in the femur of a boy of 12, followed a year later by an apparently similar condition in the fibula of the same side, is anomalous in that both were operated on, and the pathological report on the condition in the fibula was "a chondroma with extensive calcareous areas and some cellular connective tissue," while in the case of the femur opinion was divided between osteitis fibrosa and "osteo-chondro-fibroma."[1] Further, von Recklinghausen's disease occurs, as a rule, fairly late in life, while osteitis fibrosa is essentially a lesion of the epiphyseal period. In spite of the above-mentioned confusion sufficient data now exist to enable a fairly definite clinical and pathological picture of the condition known as osteitis fibrosa to be built up, and the satisfactory results that have followed its treatment by comparatively simple means make it desirable that it should be more often recognised in its earlier stages, and before its extension and complications have led to the production of considerable deformity.

Ætiology.

Many theories have been advanced to account for this condition since Virchow's original description of two cases which he regarded as the result of degeneration occurring in a chondroma. At the present time opinion is fairly evenly divided between the views that (1) it represents a metaplastic transformation of the bone marrow into a fibroid tissue, and (2) that it is the result of a chronic inflammation of unknown origin occurring in the endosteum. Whatever view is held as to its exact pathology, certain predisposing factors are fairly constantly present.

Trauma.—There is no definite evidence that trauma is of much importance as an ætiological factor, though in many cases the patient first has his attention drawn to the condition by the disproportionate results of comparatively slight accidents. It is by no means uncommon for a pathological fracture following some slight injury to be the first important symptom, and only on careful questioning are previous symptoms suggesting the condition brought to light. Bloodgood denies that trauma is in any sense a causative factor, but the predilection which osteitis fibrosa shows for the juxta-epiphyseal region of the bones, together with the importance of slight injuries in this region as a predisposing factor in other bone diseases, suggest that frequency of a history of trauma may have considerable significance.

The Influence of Sex and Age on the Condition.

Sex does not seem to influence the appearance of the condition. Age, on the other hand, has an important bearing, the great majority of the cases occurring before the twentieth year and the commonest age being about 12. The case from which the accompanying radiogram was taken is exceptional in that her age on presenting herself was 25, and in spite of the most careful questioning no suggestion of anything abnormal could be obtained in her history earlier than two years previously. Silver reports 97 cases, of which 75 occurred before the twentieth year and 22 after. These figures, however, are of little value, as many of the cases were undoubtedly cases of cysts occurring in sarcomata, chondromata, &c., and in many of the others there was no proof that the pathology of the cyst present was connected with osteitis fibrosa. In Bloodgood's 69 cases five only were over 20 years at the time of onset; but here again the pathology seems uncertain, especially in the group of cases in which a cyst only, with no lining membrane, and therefore no evidence of origin, was found. A. Tietze published a series of 24 cases, which appear to have more value in this respect in that they represent a group of definite cases of osteitis fibrosa. In these 24 cases, 20 patients were under 20 years of age and two were between 20 and 30; two were over 30 at the time when they came under observation, and in these it is noted as probable that the disease had already been present for a long time.

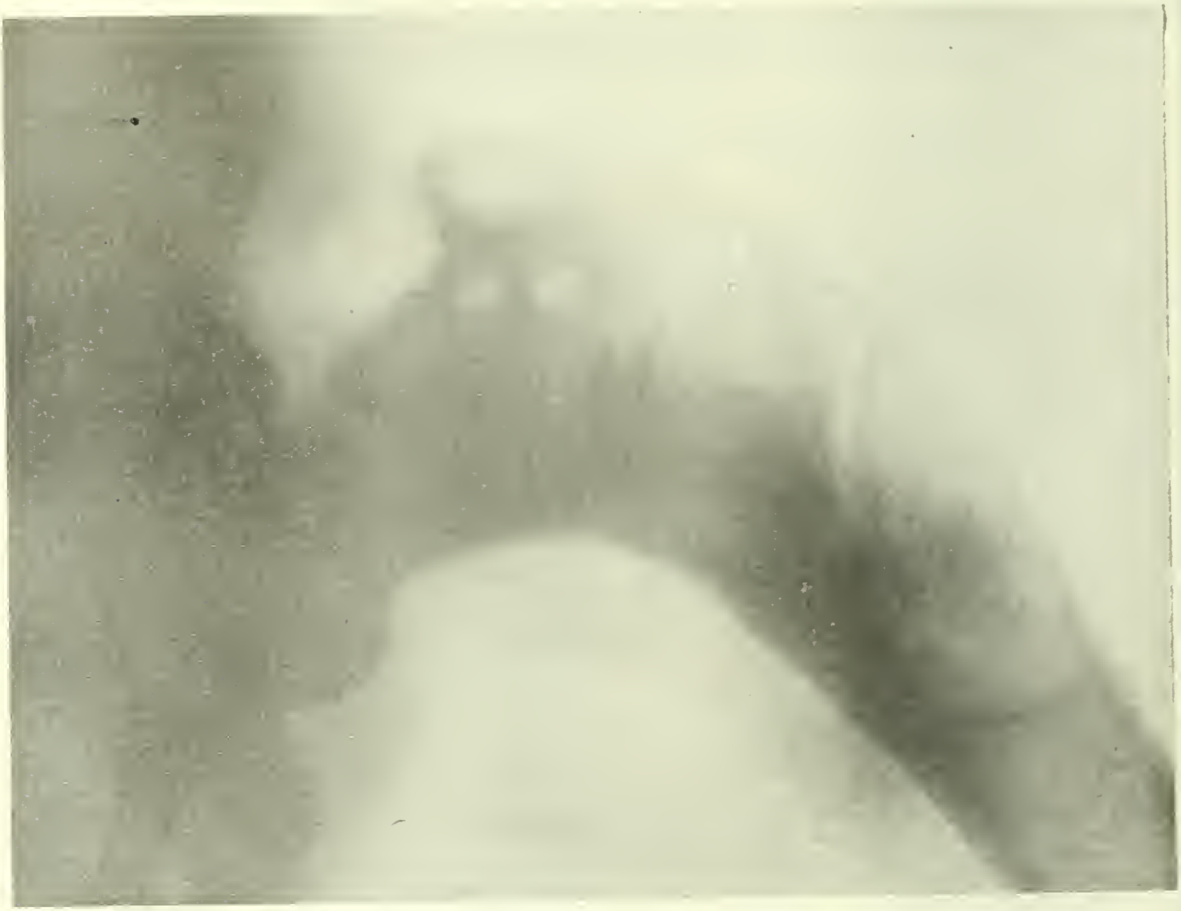
Bone Affected.

Three of the long bones of the skeleton seem particularly liable to this condition—namely, the femur, the humerus, and the tibia. Muller gives 38 per cent. in the femur, 22 per cent. in tibia, and 16 per cent. humerus. Bloodgood reverses this order. Of the definite cases reported as occurring in these three bones, the order of frequency appears to be about 46 per cent. in the femur, and 27 per cent. each in the humerus and the tibia. One very interesting fact emerges in relation to the site of the lesion; almost without exception all the cases in which the solid form of the disease, as in the example here illustrated, has been observed have occurred in the femur. The reason for this is not clear, but a possible explanation is that in an important weight-bearing bone such as the femur, the resultant thinning is more likely to give rise to deformity and to bring the patient under early observation; as compared with the neck of the femur there is no structure in the humerus or tibia likely to show such early evidence of strain. After these three bones, the next most liable are the fibula and the phalanges (5 per cent.), while cases have also been reported in the clavicle, ulna, os calcis, radius, pelvis, carpus, tarsus and metatarsus; but all of these are, however, very rare.

---

[4] C. Craig and H. Fairley (THE LANCET, Sept. 28th, 1918, 386) view the Weil-Felix phenomenon in the light of a group agglutination, the virus of typhus being probably an organism allied to *B. proteus* X 19, but resistant to cultivation on ordinary media.

[5] Ch. Nicolle and Ch. Lebailly: Comptes rendus, clxviii., 1919, 800.



Osteitis fibrosa of upper end of femur in a woman aged 25.

Pathology.

The essential pathology of osteitis fibrosa is still uncertain, but the naked-eye and histological picture is fairly definite. In cases showing cyst formation the cavities may be present as numerous small spaces, or one single cyst, often of considerable size, may be found. In the majority of these cases a definite cyst wall having the microscopic characteristics of osteitis fibrosa can be demonstrated, and in the absence of this lining membrane the underlying condition can only be conjectured by analogy, and this has led to much of the confusion on this subject. The fluid found in the cysts is not, usually, under any great tension, and is never definitely hæmorrhagic, but is clear or light brown in colour and often very considerable in amount. The surrounding bone is thinned, with no evidence of new deposit, and the condition extends, as a rule, up to the epiphyseal line. In the cases without cyst formation the cavity in the bone is found filled with a fairly firm fibrous tissue, often containing fluid in its meshes. Histologically the marrow is seen to be replaced to a greater or lesser extent by fibrous tissue, evidently formed from the endosteum, and there is usually evidence of active and irregular bone formation and absorption. Associated with this condition giant cells are frequently found in excess in the neighbouring tissue. These can, however, clearly represent an increase in the normal giant cells of the part, and are not to be confused with the giant cells of a myeloma. Islands of cartilage are sometimes seen, but only in the neighbourhood of the epiphyseal cartilage, and even then with no constancy. Cultures taken from the fluid in the cysts have so far given a negative result.

Symptoms.

The symptoms of osteitis fibrosa are essentially those of its complications and of the deformities that result from it, and the disease may be, and often is, present for a considerable time without sufficiently inconveniencing the patient to force him to seek advice. Pain is very often absent until the onset of some complication, such as fracture, but some patients complain of aching in the bone, particularly at night. In the lower limb cases a gradually developing limp is usually the first symptom noticed by the patient, and as this becomes more pronounced some swelling in the part may also become evident. In the femur these cases closely simulate an ordinary coxa vara, though on careful examination the swelling in the region of the great trochanter can be made out to extend to and merge with a swelling of the upper part of the shaft itself. Tenderness on palpation is often well marked, and judging from the degree of thinning in some cases egg-shell crackling should sometimes be demonstrable. In the humerus the occurrence of a spontaneous fracture or of a fracture following some quite slight degree of violence is frequently the first indication of the disease. The most helpful evidence from a diagnostic point of view is often given by the X ray appearances. Expansion and thinning of the bone, most marked in those cases with cyst formation and the appearance of a clear space in the bone, crossed by a number of trabeculæ, form the usual picture. The trabeculation, however, is no guide to the extent of actual cyst formation, and may be as marked in the solid cases as in those in which a number of cavities are present. A further point noticed in the X ray pictures is the tendency of the clear area to be prolonged down the shaft in a pointed extension, in contrast to the usually rounded lower limit of a myeloma. The differential X ray diagnosis between osteitis fibrosa, myeloma, other cyst-forming conditions, and some cases of tuberculous disease, is often difficult or even impossible.

Treatment.

There is now universal agreement that a purely local treatment of this condition is abundantly justified by results. The older methods of partial resection, or even amputation, have proved to be unnecessarily severe, and have been abandoned. At present treatment consists in cutting through the bony shell, so as to expose the affected area, which is then thoroughly curetted until all the diseased tissue has been removed. At the same time, or afterwards, any co-existing deformity such as coxa vara, is corrected. The resulting bony cavity is either filled with some such filling as decalcified bone, Mosetig or other paste, or is allowed to fill with blood clot. The only case I can find where recurrence of the disease is reported after this treatment is one published by Korte in 1870. There is often, however, considerable bleeding after this procedure, and Bloodgood mentions two deaths from hæmorrhage and one case where secondary amputation was necessary from the same cause. This freedom from recurrence after purely local treatment is to some extent in support of the view which looks on osteitis fibrosa as a metaplasia rather than an inflammatory condition, and is valuable evidence of its separate pathology from von Recklinghausen's disease.

Diagnosis.

The diagnosis of osteitis fibrosa rests on its differentiation from other conditions causing expansion of the bone during the epiphyseal period. Difficulty sometimes occurs in regard to tubercle, but in this condition the limitation of movement which occurs is in all directions, whereas in osteitis fibrosa it is merely that of the resultant deformity, and, further, in the latter condition it is rare to find pain. From myeloma or endosteal sarcoma the differential diagnosis is often extremely difficult, and here the results of X ray examination are often of great value. In many cases, however, the diagnosis can only be made at operation, or even only after microscopical examination of the tissue removed. Even here difficulties sometimes occur, and cases are seen in which the cellular character of the tissue makes it difficult to be certain of the innocent nature of the section. Indeed, almost all stages, from a typical osteitis fibrosa to an equally typical fibrosarcoma, can be met with, and in doubtful cases only a guarded opinion from the pathological point of view can be given.

Cases Described.

The following case illustrates the disease as it is most often found in the upper end of the femur.

P. W., female, aged 26, attended Guy's Hospital complaining of gradually increasing limp and pain for the past two years following slight trauma. Both the patient and her relatives were positive that nothing abnormal had been noticed more than two years ago. The trouble had got considerably worse for the last two months. On examination the left hip was found to be adducted, flexed, and internally rotated, but some movement was possible in all directions, and there was no spasm. The great trochanter was nearly an inch above Nélaton's line; there was tenderness over it on deep pressure, and it could be felt considerably thickened, the thickening extending down to the shaft. The condition was one of considerable coxa vara associated with expansion of the bone. On X ray examination the extent of the expansion could be seen, and the interior of the bone up to the head and a good way down the shaft was seen to be occupied by a clear space showing well-marked trabeculation.

The patient was admitted and operated on by Mr. E. C. Hughes, to whom I am indebted for permission to use the case. A portion of the outer wall of the femur was removed and the firm fibroid tissue which was found to fill the cavity thoroughly scraped out. At the same time the coxa vara present was corrected as far as possible. On microscopical examination the tissue removed was found to consist of very œdematous fibrous tissue. Although there were no naked-eye cysts, some small ones were seen under the microscope. There were well-marked areas of new bone formation, so that the tissue obviously originated in the endosteum, and the newly formed bone could be seen in active process of absorption by numerous normal-looking giant cells.

The type of osteitis fibrosa as it is commonly found in the humerus is illustrated by the following case, which Mr. C. H. Fagge kindly permits me to use:—

C. H., male, aged 12, attended hospital in 1915. He had broken his arm, after slight violence, three years before and again a year later. Three weeks before attending hospital he had sprained the arm and worn a splint, and a few days later fell and fractured it. There was no pain, but on examination a swelling the size of an egg could be felt below the neck of the humerus. X ray examination showed a growth, expanding the bone, and thought to be an endosteal sarcoma. At the operation, performed by Mr. Fagge, a thin-walled cyst with a definite lining membrane was found, and this was cleaned out and packed with decalcified bone. The material removed proved to consist of blood clot, fibrous tissue, and marrow, with an excess of normal-looking multinuclear giant cells. This patient has had no further trouble with his arm and is quite well four years after the operation.

References.

Elmslie, P. C.: Brit. Jour. of Surg., 1914, ii., 17–67.
Bloodgood, J. C.: Ann. of Surg., 1910, lii., 122.
Canaguier, P.: Arch. Prov. de Chir., Paris, 1912, xxi., 585.
Gibney, V. P.: Med. Rec., N.Y., 1916, lxxxix., 1037.
Kingston, A. R.: Amer. Jour. Orth. Surg., Boston, 1917, xv., 317.
Muller, G. P.: Univ. Penn. Med. Bull., Phil., 1906, xix., 174.
London, L. H.: Trans. Phil. Acad. Surg., 1915, xvii., 90.
Lewis, D.: Internat. Clin., Phil., 1918, 28 S., ii., 74.
Silver, D.: Amer. Jour. Orth. Surg., Phil., 1911, ix., 563.
Simmons, C. C.: Boston Med. and Surg. Jour., 1909, clxi., 392.
Skinner, M.: Surg. Gyn. and Obst., 1915, xx., 570.
Tietze, A.: Beitr. z. Klin. Chir., 1906, lii., 495.
Rutherford, H.: Glasgow Med. Jour., 1914, lxxxi., 214.
Bockenheimer, P.: Arch. f. Klin. Chir., Berl., 1906, lxxxi., 236.
Jenckel: Centralbl. f. Chir., Leipz., 1912, xxxix., 350.
Jones, R., and Morgan, D.: Arch. of Ront. Rays., 1906, xi., 316.

AN EXPERIMENTAL RESEARCH INTO THE SPECIFICITY OF THE AGGLUTININS PRODUCED BY PFEIFFER'S BACILLUS.

A Preliminary Report to the Medical Research Committee,

BY ALEXANDER FLEMING, M.B., B.S., F.R.C.S.,
ASSISTANT DIRECTOR, INOCULATION DEPARTMENT, ST. MARY'S HOSPITAL;
AND
FRANCIS J. CLEMENGER, M.D.,
LIEUTENANT-COLONEL, M.C., U.S.A.; LATE ASSISTANT IN THE INOCULATION DEPARTMENT, ST. MARY'S HOSPITAL.
(*From the Laboratory of the Inoculation Department, St. Mary's Hospital.*)

THIS work was undertaken with the object of ascertaining whether different strains of *B. influenzæ* of Pfeiffer were identical in their immunity reactions—a question of some importance in regard to the ætiology of epidemic influenza. Pfeiffer described this bacillus as the cause of the 1890–91 epidemic of influenza, and until the recent pandemic there had been no opportunity of confirming his work. The findings in the recent epidemic have, however, cast doubts on the ætiological relationship of Pfeiffer's bacillus to the epidemic infection. The bacteriological findings can be summed up by saying that Pfeiffer's bacillus, where the bacteriologist used a medium which specially favoured its growth, was shown to be present in something like 90 per cent. of the cases. It was, however, rarely present alone, but was usually associated with pneumococci or streptococci. The bacillus was more commonly present in cases complicated with bronchitis or pneumonia than in simple cases.

Immunity Reactions of Pfeiffer's Bacillus in Connexion with the Ætiology of Influenza.

The question at issue is whether Pfeiffer's bacillus is the primary infective agent, or whether it is a secondary invader along with the other organisms—pneumococcus and streptococcus—which ordinarily cause inflammatory conditions in the respiratory tract.

Arguments against its being the primary cause of influenza are: 1. It has been found impossible to induce an attack by spraying the throat or nose with a pure culture of Pfeiffer's bacillus.[1]

2. Pfeiffer's bacillus was very commonly present in catarrhal conditions of the respiratory tract for some years before the recent epidemic, and especially was it common in chronic bronchitis. Its presence had often been overlooked owing to the unfavourable nature of the culture media used. When, however, an improved medium was introduced in 1916,[2] its presence was very frequently revealed. It seemed unlikely, therefore, that an organism which was present so commonly when there was no epidemic should suddenly have caused a world-wide pandemic of influenza. It could easily be understood how such a bacillus on gaining access to a community which had previously had no dealings with it could set up a local epidemic, but it is difficult to understand how this bacillus could set up an epidemic rapidly spreading over the whole world and affecting communities in which it had been a common inhabitant of the human body.

In favour of its being the primary cause is the relative constancy of its presence in people suffering from influenza.

If all strains of Pfeiffer's bacillus could be shown to give the same immunity reactions this would form evidence in favour of the spread of infection from one person to another. But if the immunity reactions were different it would then appear probable that the infective agent was of a different nature and that it excited a secondary invasion with Pfeiffer's bacillus, which possibly was leading a saprophytic existence in the respiratory tract of the individual.

The immunity reaction which was chosen for observation was agglutination, as this was easily observed and capable of accurate measurement. Strains of Pfeiffer bacillus were obtained from Boulogne, Etaples, and London. We have accepted as Pfeiffer's bacillus any small Gram-negative bacillus which stains badly with the ordinary basic stains other than carbol fuschin, which does not grow on agar, which gives pin-point colonies on blood agar, which grows luxuriantly on agar containing boiled blood, and which is powerfully symbiosed on blood agar by the proximity of a colony of other organisms, such as pneumococcus or staphylococcus.

Eight rabbits were inoculated with pure cultures of eight different strains. To begin with three subcutaneous inoculations were made, the amount varying from one loopful from a boiled blood agar slope to the whole of the growth from a similar slope. These inoculations evoked practically no response in the production of agglutinins. Then two intraperitoneal injections were given, the first being one loopful and the second the growth from a boiled blood agar slope. These were followed after two days by a moderate production of agglutinins. (Agglutination appeared in a 1 in 160 dilution.) Seven days later intravenous injections were made, and repeated at weekly intervals in doses up to the whole of the growth on one boiled blood agar slope.

All the injections were made with living microbes, and none of the rabbits seemed to suffer from any of the injections, with the exception of one (rabbit No. 3), which appeared to be ill after the first intravenous injection. After three intravenous injections the sera gave a comparatively high titre of agglutinins, so the rabbits were bled and the serum separated. This serum had added to it carbolic acid up to a strength of 0·3 per cent., and was stored in the ice-chest.

Technique of the Agglutination Tests.

Emulsions of the microbe were made in 0·3 per cent. NaCl from 24 hours' old boiled blood agar slopes. We were unable to use cultures in fluid media owing to their liability to spontaneous agglutination. The emulsions used were approximately of the same thickness as Dreyer's standard emulsions for typhoid agglutination. Serial dilutions of the serum to be tested were made in small test-tubes, advancing by twofold steps. ½ c.cm. of the serum dilution was used, and to it was added ½ c.cm. of the bacterial emulsion. Incubation was carried out at 55° C., and it was found that the agglutination of Pfeiffer's bacillus was a very slow process, so that incubation at 55° C. had to be continued for 20 hours before the real power of the serum was manifest. This is shown in the following table, which gives the readings in the same experiment after 7, and again after 20 hours.

TABLE I.—*Showing the Agglutination of Pfeiffer's Bacillus by Serum after 7 and 20 hours' Incubation.*

	7 hours. Control = 0.						20 hours. Control = 0.					
	1/20	1/40	1/80	1/160	1/320	1/640	1/20	1/40	1/80	1/160	1/320	1/640
1	0	0	0	0	0	0	††	††	††	††	††	††
2	0	0	0	0	0	0	††	†††	††	††	††	0
3	†	†	†	0	0	0	†††	†††	†††	†††	†††	††
4	†	0	0	0	0	0	†	††	††	††	††	††

The scheme used in registering our results is as follows:—

††††	signifies	very coarse agglutination.
†††	,,	coarse agglutination, but finer than ††††.
††	,,	agglutination just visible to the naked eye.
†	,,	agglutination visible with a hand lens.
0	,,	no agglutination.

The agglutination of Pfeiffer's bacillus is a coarse one, the bacilli gathering into large woolly masses and settling to the bottom of the tube. It is not quite so coarse, however, as with the typhoid bacillus.

Great care must be taken that the solutions used are not acid in reaction, otherwise agglutination will occur in the controls; Pfeiffer's bacillus is very sensitive to acids, and is agglutinated by them even in very weak dilution.

Specificity of the Agglutinins.

The agglutinating power of the serum obtained from each of the immune rabbits was tested to each of the different strains of Pfeiffer's bacillus, and the results are set forth in Table II.:—

TABLE II.

Serum 1.—Rabbit Immunised with Strain 1, obtained from Boulogne.

Strain of bacillus.	Dilution of serum. Control = 0.							
	1/50	1/100	1/200	1/400	1/800	1/1600	1/3200	1/6400
1	†††	†††	†††	†††	†††	††	†	0
2	0	0	0	0	0	0	0	0
3	†††	†††	†††	†††	†	0	0	0
4	††	††	††	0	0	0	0	0
5	†	††	††	†	0	0	0	0
6–8	0	0	0	0	0	0	0	0

Serum 2.—Rabbit immunised with Strain 2, obtained from Etaples.

Strain of bacillus	Dilution of serum. Control = 0.					
	1/50	1/100	1/200	1/400	1/800	1/1600
1	0	0		0	0	0
2	†††	†††	††††	††††	††††	0
3	0	0	0	0	0	0
4–10	0	0	0	0	0	0
11	††††	0	0	0	0	0
12–13	0	0	0	0	0	0

Serum 3.—Rabbit immunised with Strain 3, obtained from London.

Strain of bacillus	Dilution of serum. Control = 0.							
	1/50	1/100	1/200	1/400	1/800	1/1600	1/3200	1/6400
1	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0
3	†	†	††††	††††	††††	†††	†	0
4–10	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0
12–13	0	0	0	0	0	0	0	0

Serum 4.—Rabbit immunised with Strain 4, obtained from London.

Strain of bacillus.	Dilution of serum. Control = 0.					
	1/50	1/100	1/200	1/400	1/800	1/1600
1	††	††	0	0	0	0
2	††	†	0	0	0	0
3	†††	††	0	0	0	0
4	†††	†††	††	††	†	0
5	0	0	0	0	0	0
6	0	0	0	0	0	0
7–13	0	0	0	0	0	0

Serum 5.—Rabbit immunised with Strain 5, obtained from Etaples.

Strain of bacillus.	Dilution of serum. Control = 0.						
	1/50	1/100	1/200	1/400	1/800	1/1600	1/3200
1	0	0	0	0	0	0	0
2	††	0	0	0	0	0	0
3	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0
5	††††	††††	††††	††††	††††	††	0
6	††	0	0	0	0	0	0
7–13	0	0	0	0	0	0	0

---

[1] Lister and Taylor and others: Publications of the South African Institute for Medical Research, No. XII., 1919.

[2] Matthews: THE LANCET, ii, 104, 1918.

Serum 6.—Rabbit Immunised with Strain 6, obtained from Boulogne.

Strain of bacillus.	Dilution of serum. Control = 0.								
	1/50	1/100	1/200	1/400	1/800	1/1600	1/3200	1/6400	1/12800
1	0	0	0	0	0	0	0	0	0
2	†	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0
4	†	†	††	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0
6	††††	††††	††††	††††	††††	††††	††††	††††	††††
7-9	0	0	0	0	0	0	0	0	0

Serum 7.—Rabbit immunised with Strain 7, obtained from Boulogne.

Serum 8.—Rabbit immunised with Strain 8, obtained from London.

Strain of bacillus.	Dilution of serum. Control = 0.						Dilution of serum. Control = 0.					
	1/50	1/100	1/200	1/400	1/800	1/1600	1/50	1/100	1/200	1/400	1/800	1/1600
1	0	0	0	0	0	0	††††	0	0	0	0	0
2	0	0	0	0	0	0	††††	††††	††††	††††	††††	0
3	0	0	0	0	0	0	†††	††	0	0	0	0
4	0	0	0	0	0	0	†††	†††	0	0	0	0
5	0	0	0	0	0	0	†††	††††	0	0	0	0
6	0	0	0	0	0	0	†††	†††	0	0	0	0
7	††††	††††	††††	††††	††	0	††	††††	††††	††	0	0
8	†	†	0	0	0	0	††††	††††	††††	††††	††††	0
9	0	0	0	0	0	0						

Conclusion.

These results show clearly that the different strains of *B. Pfeiffer* are very different in their agglutination reactions, and as there was so much difference between them it seemed quite unprofitable to engage in a more extended series of tests. In most of the cases the agglutinins formed are either quite specific to the particular strain injected, or they are very nearly so, and in every case but one agglutination was observed in a much higher dilution with the homologous strain than with any of the others. The one exception (8) agglutinated one of the heterologous strains to the same titre as the homologous strain, and it agglutinated all the other strains tested to a lesser extent.

In marked contrast to this is the case of Serum 3, which agglutinated the homologous strain to a dilution of 1/1600, but gave no agglutination with any of the others even in a dilution of 1 in 50.

While this work was being done a communication was received through the Medical Research Committee from Dr. Park, of New York, who had been working on the same lines. Dr. Park obtained results similar to those set forth above, showing that almost every strain as regards agglutination is a law unto itself. He had had the opportunity, however, of testing the reactions of Pfeiffer's bacillus obtained from different members of a small community who had obviously been infected with influenza from a common source. In this small community the different strains of Pfeiffer's bacillus were entirely different as regards the agglutination test.

These results indicate that the *B. influenzæ* of Pfeiffer is really an associated group of bacteria without the marked unity in its immunity reactions as is seen in other epidemic-causing bacteria, such as typhoid and cholera.

So far as our present knowledge of epidemic bacteria goes, the facts set out above, agreeing as they do with Dr. Park's results in New York, are a strong indication that Pfeiffer's bacillus is not the primary cause of influenza, but that the primary infective agent awakens the activity of organisms which have been leading a more or less saprophytic existence in the respiratory tract.

These results are also of importance in connexion with the preparation of stock vaccines of Pfeiffer's bacillus. The results obtained during the last epidemic have shown that such a vaccine is valuable both for prophylactic and therapeutic purposes, and the experiments cited above indicate that such a stock vaccine should consist of a very large number of strains. It might be that in the vaccine there were a number of strains similar to Strain 8, which stimulated the production of antibodies to many other strains; but it seems more likely that most of the strains would be less complete antigens, so that in the present state of our knowledge it would be desirable to incorporate many strains of Pfeiffer's bacillus in the vaccine to make it widely polyvalent.

In conclusion, we wish to thank Colonel S. L. Cummins, who, while Adviser in Pathology to the British Army in France, was the means of our being supplied with strains of Pfeiffer's bacillus from different areas.

RUPTURE OF INTESTINE WITHOUT EXTERNAL INJURY.

BY LLEWELLYN LINDOP, M.R.C.S. ENG., L.R.C.P. LOND.,
SURGEON COMMANDER, R.N.; SENIOR MEDICAL OFFICER, SHOTLEY.

IN Mr. Gerald Stanley's and Mr. W. H. Battle's very interesting papers on traumatic rupture of intestine without external wound in your issues of July 19th and Oct. 25th I see, in discussing the cause of the rupture, that Mr. Stanley says (p. 727):—

> "If the abdomen is struck above the umbilicus the force is transmitted to the first few feet of the jejunum. The mobility of this coil allows it to be pushed till it is checked ultimately by the vertebral column, and between the latter and the moving body it is crushed and ruptured."

I am inclined to think there are two other factors: (1) Hydrostatic pneumatic effect; (2) kink.

The small intestine contains fluid and gas, sometimes more, sometimes less. Any sudden violent compression applied to the abdomen tends to force fluid and gas out of the coils in its way. This force, acting on fluid and gas in a tube, acts equally and in all directions, and at first tends to balloon the tube. If the ends are unobstructed the contents are forced, aided by the elastic recoil of the tube, in the direction of its length—path of least resistance. This goes on until contents, or pressure only if tube full, slams up against the kink where the resistance is absolute. The pressure, communicated in the case of a full tube, or actual movement of contents in one collapsed, accentuates the kink. The tube balloons and ruptures at its unsupported margin. A complete transverse rupture occurs in a tube full of fluid to which sudden pressure is applied. It slams against the kink (duodeno-jejunal flexure), as in the case described by Mr. Stanley. It is the *full* tube which causes the rupture. It will be argued that fluid and gas should go down as well as up. So they do. Some goes up and some goes down. But there is no kink below.

In rupture of intestine a small rent indicates gas and a large one fluid contents. Gas is compressible, but fluid, for the purposes of this tube, absolutely incompressible. In the case of a full tube there is no actual movement of contents, only transmission of force. The duodenum ruptures above the duodeno-jejunal kink, and the ileum below. Any coil of small intestine temporarily caught distended with gas and some fluid, and from this cause having a slight twist, supplies its own kink. It is already ballooned, and if sufficient force is applied it ruptures at its unsupported margin. Rupture is more serious in the upper part of this tube, as there is more fluid and less gas. Gas tends to remain in the stomach and not pass on. The effects of sudden pressure are much more smashing on a tube distended with fluid than one distended with gas. In the lower part of the intestine any distension is caused by gas and effects of sudden pressures are less noticeable, and there are no kinks, except at the ileo-cæcal junction.

Intestinal Gas and Fluid Pressure in other Abdominal Conditions.

Duodenal and gastric ulcer.—I think the cause of the ulcer is not an erosion in the first place, but is an expression of damage to mucous membrane due to constant ballooning by plus pressure gas and fluid. The pressure acts at the pyloric end of the stomach and duodenum. If there is any disturbance with the mechanism at the pyloric sphincter, such as may be shown on the X ray screen by delay after an opaque meal, the pylorus tends to balloon and is most unsupported on its anterior surface. Constant stretching causes a wound of the mucous membrane with subsequent irritant action of acid contents and bacterial infection due frequently to pyorrhœa. The ulcer is prevented from healing by the constant stretching, and when rupture takes place it needs a very little plus pressure to do it. An ulcer in the stomach is subjected to gas pressure. An ulcer in the duodenum is subjected to fluid pressure, hence the urgency of the symptoms of the rupture. A chronic dyspepsia, bad teeth, and constipation all cause gas.

Hernia.—I wondered for some time what force took the small intestine through the neck of a hernial sac. The force is: (1) Increased pressure inside the abdomen—dyspepsia and constipation, causing gas; (2) compression of abdominal cavity by muscles—strain, lifting weights, and application of force. Both forces usually act—effort causes attempted diminution in size of cavity containing gas. A small knuckle of intestine containing gas balloons through a hernial aperture and more gas passing through tends to distend it. Its margin is temporarily unsupported. The peritoneal surface of the intestine in health is smooth, shining, and slippery. The resistance due to ballooning of the engaged knuckle is obviously greater than friction to be overcome in bodily moving the tube.

A Richter's hernia is an example in which the force acts and balloons the unsupported margin, as it cannot move the tube owing to (1) adhesions, (2) undilatability of neck of sac owing to strong surrounding structure: e.g., femoral—Gimbernat's and Poupart's ligaments; obturator—bone and thyroid membrane. The mechanism of reduction is to squeeze out the contents and then the gut follows—hence the familiar gurgle. Once gas is squeezed past the neck of the sac it pulls the gut back. Many hernias reduce themselves on lying down, as pressure in the abdomen is normally negative with slight positive variations.

Strangulated hernia.—The condition of the gut found at operation is not so much due to strangulation of the vessels as to ballooning and thinning of the intestine owing to gas pressure. There is an absolute kink at each end and gases are being formed by bacteria, &c. This seems fairly obvious as the intestinal tube can be clamped during operation, its blood-supply absolutely cut off, with no urgent symptoms. The urgency of the symptoms is due to a kink at the upper end of the hernia affecting the tube *above* the hernia.

Hernia operations.—Plus pressure in the abdomen, either caused by strain, gas, or a combination of the two, tends to balloon intestine through any aperture. Operations should close the aperture, leaving a smooth well-supported surface with no pockets. If any pockets are left, the gas in the gut tends to dilate them as the pressure acts equally in all directions. In recurrent operations I rather think more care should be taken to keep abdominal pressure negative.

Appendicitis.—Put in a word, the mechanism here is: appendix—short mesentery, kink; cæcum—fluid and gas pressure. Bad teeth lead to a preference for carbohydrate diet, which is easier to chew. Bad teeth and diet lead to dyspepsia and constipation, which means gas production. In the cæcum there is increased pressure, and cæcum tends to balloon. This does not do much harm to the cæcum. It is quite a different matter for the appendix to which the pressure is transmitted. It cannot balloon much and tends to rupture at the kink. If peritonitis occurs as a result of perforation of the appendix, it is caused by a sudden great increase of pressure. If an abscess occurs as a result of perforation it is due to chronic small increase of pressure. Enemas in "observation" appendix cases may do good or do harm. If they relieve the pressure by removing contents of the colon and gas the pressure falls and the appendix will not rupture immediately. If the usual measures are taken (starvation, &c.) the case gets well without operation. On the other hand, if they remove some of the contents of the colon but no gas, they may actually increase the pressure and cause the rupture.

Constipation.—Gas caused by bacteria, &c., balloons the tube, as colon is unsupported in the correct position except at kinks. This condition becomes permanent as intestinal muscle loses tone. The ballooning accentuates the kinks and so actually obstructs the passage of the contents. All secondary effects are due to invasion of the mucous membrane of the tube with organisms, &c.

Gas Pressure.

In conclusion, I may add I have purposely laid stress on gas pressure in the abdomen as an exciting cause of acute and chronic abdominal conditions. Everybody is agreed as to gaseous distension *after* the condition is produced, but I do not think its effect as a *cause* of abdominal conditions has been sufficiently recognised, except perhaps in intussusception and volvulus. Sir Arbuthnot Lane's operation is designed to relieve the patient of a colon damaged by gas and infected by various organisms. The absence of the intestinal contents means no gas, as there is nothing for the organisms to grow on.

Gas pressure is the origin of intestinal movements. It excites peristalsis in a normal tube and if increased or often applied in a tube with kinks, causes ballooning and pouching. Organisms present cause gas. Most purgatives act by increasing gas formation and excite increased peristalsis, hence their gradual failure; the tube ceases to react to the pressure and dilates. It seems very unwise often to subject a tube, with as many kinks as the colon, to increased pressure. When this has been done, usually by the patient having himself used purgatives wholesale, the advisability of short-circuiting, to relieve him of the secondary toxic effects, has to be considered. Mr. Fletcher's method of eating seems to reduce the gas formation to a minimum. People who bolt their food may actually swallow gas with each bolus; otherwise the bolus would stick, but wrapped in an air cushion it passes safely on.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A CASE OF
GENERALISED TUBERCULOSIS
PRESENTING DIFFICULTIES IN DIAGNOSIS.

By F. J. Nattrass, M.B., B.S. Durh., M.R.C.S. Eng., L.R.C.P. Lond.,
CAPTAIN, R.A.M.C. (T.), SPECIAL MILITARY SURGICAL HOSPITAL, NEWCASTLE-UPON-TYNE.

THE following case of obscure illness is of interest in illustrating the difficulty in diagnosis of deep-seated tuberculous infection, and the value of X ray examination of the chest in such cases.

Pte. J. R. R., aged 18 years, with nine months' service, was admitted to the 1st Northern General Hospital, Newcastle-upon-Tyne, April 7th, 1919. The history was that in the previous month he spent a week in hospital with influenza; a week after discharge from hospital he began to have pain and swelling in the right hand and pain in both hips. On admission temperature was 103° F., pulse 110, respirations 24, and the case was diagnosed as acute rheumatism. Sodium salicylate was administered, but the temperature remained high, varying in the evenings from 100·5° to 102°, with morning remissions of about one degree. This was the condition when the case was transferred to me on May 6th, on the demobilisation of the 1st Northern General Hospital. The patient was pale and sweating, had lost much weight, but was not markedly emaciated; in the neighbourhood of the right carpo-metacarpal joints there was a painful fluctuating swelling, which was not red and showed no sign of pointing. The pain in the hips, which had never been severe, was now only slight. X ray photographs of the hand showed slight blurring of the joint surfaces between the carpal bones and the three inner metacarpals; X ray photographs of the hips showed no abnormality. There was no sign of endocarditis, no discoverable abnormality in the abdomen, no cough, and the only physical sign of disease other than the swelling of the hand was a localised dry pleuritic rub at the base of the right lung. Within four or five days this rub disappeared, and was replaced by an occasional crepitation at the bases of both lungs posteriorly; these crepitations, however, also disappeared in a few days, and after this no physical signs of disease could be found in the chest, on repeated examination, until within ten days of death, which took place on July 4th, 1919.

As the diagnosis of acute rheumatism appeared to be definitely negatived careful search was made for other forms of infection. Specimens of urine, passed in the early morning and the centrifugalised deposit of 24 hour's collection, were examined by Dr. P. C. W. Laws for gonococci with negative results. On the supposition of a secondary infection following influenza, a specimen of blood was examined for the presence of organisms, but no growth was obtained. Meanwhile the temperature of the patient remained high with morning remissions, and the general condition became steadily worse. A deep-seated tuberculous infection was suspected in spite of the absence of physical signs, and this was finally confirmed in two ways. Firstly, after the examination of numerous films of the urinary deposit, Dr. Laws discovered, on June 10th, one tubercle bacillus. Secondly, on the same date, Major W. D. Arnison took an X ray photograph of the chest, which showed beautifully the lesions of a hilum tuberculosis spreading outwards to the surface of the lungs.

Not until ten days before death could any definite physical signs of disease be found in the lungs, and then there appeared almost simultaneously in each axilla a few moist crepitations, which rapidly increased in number, at the same time the patient developed a slight cough, but this was never marked, and he brought up very little sputum. On July 2nd, two days before death, the patient was seized with sudden severe abdominal pain, and the abdomen rapidly became very distended and tympanitic; the cause of this was only elicited after death. The patient died on July 4th, and the post mortem was performed on July 5th by Professor Stuart McDonald.

Report of Post-mortem Examination.

Abdomen.—Large amount of free gas in peritoneal cavity evidence of septic peritonitis, mainly in the neighbourhood of the iliac and pelvic colon, but not much free fluid. The peritonitis was found to be due to the rupture of a tuberculous ulcer in the pelvic colon; there were numerous other ulcers in all parts of the colon, and a few in the lower part of the ileum. There were numerous tuberculous glands in the mesentery and tubercles in the omentum. The liver and kidneys showed advanced cloudy swelling and many small tuberculous deposits of varying size, but larger than those generally found in acute miliary tuberculosis.

Chest.—Beyond slight fatty change the heart showed no abnormality and there was no pericarditis. Over the whole surface of both lungs the pleura was thickened into a firm fibrous plate about one-tenth of an inch thick. From the inner surface of this dense plate, thickened fibrous strands of the interlobular septa extended in towards the hilum of the lungs; in addition, there was considerable fibrosis in connexion with the bronchial sheaths (peribronchial fibrosis). Scattered more or less uniformly through the lung substance, but especially evident in the upper lobes, were fibro-caseous tubercles with polycyclic outlines; these ranged in size from one-fifth of an inch to a pin's head. The majority of these were in relation to the bronchial sheaths and the interlobular septa, but in some places there were moniliform tubercles along the septa and peribronchial sheaths. The intervening lung tissue showed comparatively little change, but there was decided and diffuse fibrosis; there was no cavitation. The glands at the hilum of each lung were enlarged with fibro-caseous tubercles and some anthracosis.

Microscopic examination of the lungs.—The outstanding feature was the presence of conglomerate areas of fibro-caseous tubercles, which stood in relation to the bronchial sheaths and which extended outwards to some extent into the surrounding lung tissue. In some places the tuberculous process had eroded through into the small bronchi. The surrounding lung tissue showed comparatively little change, the alveolar capillaries being engorged and the alveoli somewhat collapsed; the latter contained a serous exudate with a small number of catarrhal and pigment-bearing cells. In the alveoli immediately adjacent to the tuberculous areas there was a considerable amount of cellular exudate. The bronchial sheaths showed considerable old fibrosis, and the vessel walls were somewhat thickened. Sections stained for tubercle bacilli showed that in the caseous areas tubercle bacilli were present, but comparatively scanty. In the surrounding zone of cellular infiltration they were present in very large numbers. In the more healthy alveoli very few bacilli were to be seen, and in the neighbourhood of the terminal bronchioles they were also scanty. The carpo-metacarpal joints of the right hand showed tuberculous disease with erosion of the cartilages. The head was not examined, but there was no indication during life of involvement of the central nervous system.

The points in this case which are of special clinical interest are as follows:—

1. The onset of symptoms in the form of a comparatively mild attack of so-called influenza.
2. The unusual and early involvement of the small joints of the hand.
3. The complete absence of physical signs at the apices or any other part of the lungs until a late stage of the case; the extreme universal thickening of the pleura doubtless made it impossible to detect any slight parasternal dullness such as might have been expected.
4. The absence of tubercle bacilli in the sputum in spite of the enormous number demonstrated in the lung tissues after death.
5. The mode of death by rupture of a tuberculous ulcer in the pelvic colon.
6. The great value of X rays in the diagnosis of deep-seated tuberculosis in the chest.

I have pleasure in acknowledging my indebtedness to my commanding officer, Lieutenant-Colonel D. Wells Patterson, O.B.E., R.A.M.C. (T.), for permission to report the case; also to Dr. Laws, bacteriologist to this hospital and to the X Ray and Pathological Departments, Royal Victoria Infirmary, Newcastle-upon-Tyne.

A CASE OF

BILHARZIASIS IN NATAL, TREATED BY TARTAR EMETIC.

BY F. G. CAWSTON, M.D. CANTAB.

ON July 17th L. P. came to me for treatment. He stated that he had suffered from continuous hæmaturia ever since he was 7 years of age, when he contracted bilharzia disease from bathing at Pietermaritzburg, Natal. *Physopsis africana* is plentiful in the river at Pietermaritzburg. In 1916 I collected over 400 specimens from the reeds at the water's edge there and found that 75 harboured schistosomes.

The hæmaturia had shown itself every day and had not responded to treatment by various medicines, including large doses of male fern taken under medical supervision. The patient was now 25 years of age, anæmic, and unable to take severe exercise without exhaustion. The cloudy urine contained shreds of mucous membrane, blood cells and spine-pointed ova. These ova were 0·14 by 0·07 mm. in diameter.

In view of his general malaise, I advised him to take the following prescription for a few days:—

Ferri et ammon. cit. ... gr. v.
Liq. ars. ... ... ♏ iii.
Inf. gent. add ℥ss. t.d.s., a.c.

I then commenced treatment by intravenous injections of a solution containing antimonium tartrate gr. ½ in 15 minims of distilled water, gradually increasing the dose to gr. 2, and then reverting to gr. 1 every few days. In all gr. 12 were given, and 3 c.cm. of collosol antimonium. Treatment was started on July 17th, when the urine was cloudy and contained ova. By August 9th the urine was clear of ova, and with the exception of one ovum seen in a specimen examined on August 20th no more were ever found, though examinations were continued until Sept. 27th. The last injection was given on Sept. 6th. In every case the solution was made up fresh and boiled shortly before each injection. After an injection the patient kept his arm well bathed with cold water to avoid any local reaction. He stayed indoors for the remainder of the day, but experienced no discomfort, except an irritating cough which lasted about two minutes, immediately after the administration of gr. 2 of the drug. Throughout the treatment he was able to carry on his work as an engineer without interruption. After an intramuscular injection of collosol antimonium on two occasions, however, he felt ill throughout the following day, but was still able to attend to his work. After the fourth injection the patient did not notice any more blood in the urine except very occasional clots, and he discontinued taking the tonic. At the end of a fortnight he said he felt much better and that the urine was remaining clearer than it had been for 18 years. After six weeks' treatment he had gained 4 lb. in weight.

In examining the urine for ova the patient was instructed to procure the last few ounces passed and to send along any suspicious-looking specimen. Unless centrifugalised, this was set aside for 36 to 48 hours and the sediment submitted to a thorough microscopic examination. On each occasion the fresh specimen of urine was found to be acid.

In this case a relatively small quantity of antimony, given at short intervals, seemed to be sufficient to effect a cure for this common and intractable parasitic affection.

In view of the reported hepatitis occurring in patients who have harboured the bilharzia worm and undergone treatment by tartar emetic injections, it is interesting to note that this patient suffered from occasional biliousness and a distinct tender swelling in the region of the gall-bladder which he had noticed for several years. Since discontinuing the intravenous injections this tender swelling has completely disappeared, and it is more than probable that it was in some way related to the presence of the parasites in the portal system.

Durban, Natal.

NOTES ON A CASE OF

FILARIA LOA (SUBCONJUNCTIVAL).

BY R. R. JAMES, F.R.C.S. ENG.,
ASSISTANT OPHTHALMIC SURGEON, ST. GEORGE'S HOSPITAL;
AND
E. L. HUNT, M.B., B.S. LOND., D.P.H. CAMB.,
BACTERIOLOGIST, ST. GEORGE'S HOSPITAL.

CASES of filaria loa are unusual in this country, but since such cases may be more frequently met with now that men who have been on active service in the African campaigns are returning to England, it may be of interest to record one observed by us.

Major T. was on active service in the Cameroons and left Africa at the end of 1916; he subsequently served in France. Beyond an occasional "tight" feeling in the chest he had had no symptoms until the evening of Sept. 12th, when he experienced a pain in the left eye, which he attributed to a foreign body. He looked at his eye in a glass and was able to see something wriggling on the lower part of the globe just under the surface. He went to St. George's Hospital, where the house surgeon could see nothing wrong with the eye and was inclined to be sceptical about the presence of a worm. However, the house surgeon advised him to consult one of us (R. J.), who found on Saturday morning, Sept. 13th, a worm wriggling about on the upper outer side of the globe between the edge of the corner and the equator of the globe under the conjunctiva.

It is of prime importance in these cases to fix the worm as soon as it is discovered, so after instilling four drops of 2 per cent. cocaine solution, a suture was passed through the subconjunctival tissue beneath the worm, thus fixing it in its position. There being no assistance at hand, Major T. was asked to hold the ends of the suture and to keep them taut. With scissors and forceps an incision was made into the conjunctiva at the upper pole of the curled-up worm; almost at once a loop of worm projected itself through the opening, and one blade of the forceps being passed through the loop, the worm was seized and pulled out. The parasite proved to be a parent female *Filaria loa*, and measured approximately 2½ inches in length. Under the microscope (one-sixth objective No. 6 eye-piece) the surface of the worm was seen to be studded at intervals with small protuberances. Examination of the patient's blood, some two hours after removal of the worm, failed to reveal the presence of any micro-filaria diurna, but showed an eosinophilia of about 20 per cent.

A MUNIFICENT GIFT FOR RESEARCH.—The Rockefeller Institute, which has already received from its founder, Mr. John D. Rockefeller, gifts to the value of £5,500,000, and real estate approximating to £500,000, has now received a further gift of £2,000,000 for medical research. The present scientific staff of the institute numbers 65, while 310 persons are employed in technical and general service.

WEST OF ENGLAND EYE INFIRMARY, EXETER.—The annual meeting of the governors of this charity was recently held. The medical report showed that 2653 patients had been treated during the past year. It was stated that shortly a small ward will be used for the admission of infants suffering from contagious eye disease. The committee, with great regret, alluded to the resignation of the senior honorary surgeon, Mr. A. C. Roper, who has been connected with the institution for the past 27 years, and he was elected on the honorary consulting staff.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF PATHOLOGY.

THE RELATIONSHIP BETWEEN SPHENOIDAL SINUS EMPYEMA AND EPIDEMIC CEREBRO-SPINAL FEVER.

A MEETING of this section of the Royal Society of Medicine was held on Nov. 4th, Professor W. BULLOCH, the President, being in the chair.

Mr. DENNIS EMBLETON read a paper on the Relationship between Sphenoidal Sinus Empyema and Epidemic Cerebro-spinal Fever. The findings in post-mortem examinations made on cases dying from cerebro-spinal fever in the Netley district between 1915 and 1919 were quoted. Of the 34 deaths, 21 were the result of the acute illness, 6 the result of a recrudescence, and 7 from hydrocephalus after recovery from the acute illness. Empyema of the sphenoidal sinus was present in 32 cases and was not found in 2. Meningococci were seen or grown from the empyema in 20 cases; were not found in 12 cases. Inflammation of the sphenoid bone overlying the empyema was not found in hydrocephalus or recrudescence cases, but was found in 7 cases dying during the acute illness. The meningococcus was found 3 times in the inflamed bone. In no case was any naked-eye sign of inflammation discoverable about the cribriform plate of the ethmoid. The contents of the pituitary fossa showed inflammation in every case. The middle ear was only found to be inflamed in 2 cases. Only 11 cases out of 34 died during the first week of the disease. Other observers had not found so high a percentage of sphenoidal empyemata in their fatal cases, and had found that more than half the deaths occurred during the first week of the disease. It was suggested that the early and systematic use of antimeningococcic serum at Netley saved many patients who would otherwise have died during the first week of the disease, and also those patients in whom sphenoidal empyemata were not persistent.

The relationship between sphenoidal empyema and the onset of cerebro-spinal fever was then discussed. The primary site of meningococcus infection in the human body was the nose, where a catarrhal condition might eventuate. The frequency of the carrier condition and the relative infrequency of the disease had been noteworthy. The whole population of England had probably been carriers during the last five years, yet the total number of cases had been small. It was considered probable that the natural disease produced by the meningococcus was a nasal catarrh, and that it was only when some other factor came into play that cerebro-spinal fever resulted. An increase in virulence of the meningococcus did not seem to be this factor, for camp epidemics about Winchester were only on one occasion due to one serological type of meningococcus. Usually during an epidemic two or more types of coccus were found in consecutive cases. On one occasion two cases of cerebro-spinal fever occurred in one ward within four days of one another. One was due to a Type 2 coccus, the other to a Type 1 or 3. It was suggested that the factor which produced a case of cerebro-spinal fever in a man infected with the meningococcus was the occurrence of a sphenoidal empyema, set up by an inflammatory reaction to the meningococcus on the part of the mucous membrane of the sphenoidal ostia. The various possible routes by which the meningococcus could gain access from the nasal mucosa to the meninges, and so produce meningitis, were then discussed.

1. *The arachnoid prolongations round the olfactory nerves* was the route favoured by Netter and Debré, and Flexner, but the experimental data on which this path was advocated only showed that meningococci could gain access to the nose from the meninges and not the reverse. It was considered unlikely that meningococci could pass by this route against the lymph stream, unless inflammatory extension occurred. No inflammation was seen by naked eye in the ethmoid region.

2. *Perineural lymphatics* suggested a possible route, inasmuch as the lymph flow was in the right direction—i.e., towards the brain—and particulate material could be conveyed into the cerebral substance. As, however, cerebro-spinal fever did not start as an encephalitis, and as it was

shown that neither toxins, dyes, nor bacteria gained access to the cerebro-spinal fluid when passing by this route, this path was not thought to be the correct one.

3. *Inflammatory extension* from an empyematous sphenoidal sinus was present in seven cases in this series of necropsies, meningococci having been found in the sphenoidal bone overlying an empyema three times. In the other cases no naked-eye inflammatory change was seen. This path was not felt to be the usual one.

4. *The pituitary fossa* was found inflamed in all cases, but as this would have occurred from its intimate association with the cerebro-spinal fluid, a possibly patent connexion with Luschka's pharyngeal tonsil was not considered as a likely path for the spread of infection from the nasal mucosa to the meninges.

5. *Systemic lymphatics* flowed from the naso-pharynx by way of the deep cervical lymphatics to join the venous system in the neck. Inflammation of the nasal mucosa, especially if followed by a sphenoidal empyema, would pour large numbers of meningococci from the very beginning of the disease into the blood stream. It was suggested that if an empyema of the sphenoidal sinus occurred a reversal of the lymphatic stream might occur in the neighbourhood of the sphenoidal sinus, whereby meningococci might be driven toward the meninges instead of following the normal lymph stream in the opposite direction. This might give rise to infection of the meninges without naked-eye signs of inflammation over the sphenoidal bone.

6. *The blood stream* was shown to be early infected with the meningococcus, which by this route might infect the meninges. Empyemata of the sphenoidal sinus, which were frequently found in connexion with "Spanish influenza" necropsies, were very rarely found associated with meningitis.

7. *The middle ear* only showed inflammation in two of the 34 post-mortem examinations. It was considered unlikely that infection occurred by this route.

Meningococci probably gained access to the meninges by way of the lymphatics from the empyematous sphenoidal sinus, with or without signs of inflammatory extension. It was also thought possible that meningococci could be conveyed by the blood stream.

The relationship between persistent sphenoidal empyema and the development of hydrocephalus was considered. A persistent sphenoidal empyema was found in all the 10 cases of hydrocephalus, the meningococcus having been demonstrated in the pus in 5 cases. Five cases were operated upon for drainage of the sphenoidal empyema; 3 recovered completely and showed no further signs of hydrocephalus; 2 died. The 3 cases that recovered as a result of this operation were the only cases of hydrocephalus that did not die. The relationship between a persistent sphenoidal empyema and the development of hydrocephalus appeared to be close. Operation on the sphenoidal empyema always produced an exacerbation of the symptoms. Three cases that were operated upon during the acute stage for drainage of the empyemata died. The increase in the severity of the symptoms following the operation appeared to accelerate at any rate a fatal termination. In hydrocephalus cases the operation was followed by recovery in 3 out of 5 cases, the only 3 cases that recovered from this condition. One of these went through a typical relapse, the meningococcus reappearing in the cerebro-spinal fluid, apparently as a result of the operation. The patient subsequently made a complete recovery.

In conclusion, in 34 necropsies on persons dying from cerebro-spinal fever, empyemata of the sphenoidal sinus were found 32 times. In 10 cases of hydrocephalus following cerebro-spinal fever, an empyema of the sphenoidal sinus was found in every case. In 47 completely recovered cases, no sphenoidal empyemata were present. The course of events in a case after infection of the nasal mucous membrane with the meningococcus might be as follows: 1. A simple catarrh followed either by recovery or a chronic infection. 2. A vigorous local reaction in the nasal mucosa, followed by sphenoidal empyema. This might produce a general blood infection, with or without infection of the meninges. If the sphenoidal empyema cleared up, the body, with or without the aid of antiserum, might be able to deal with the meningococci that had gained access to it, or death might result. If the sphenoidal empyema persisted, and very heavy discharges of meningococci were poured into the body, death would probably occur. If, however, the empyema remained quiescent, improvement might take place, but at any time a recrudescence or a relapse might supervene. A quiescent empyema might also keep up a smouldering infection which would lead to hydrocephalus.

A BODO-LIKE FLAGELLATE IN THE URINARY TRACT.

Professor **ARTHUR POWELL** read a paper describing a Bodo-like Flagellate persisting in the Urinary Tract for five years. Four previous observers, he said, had found flagellates in urine, but always in urine which was decomposing and stale and never in freshly drawn urine. Pathologists were therefore justly sceptical as to their parasitic nature. They had been found in human urine, but not in the human body, and were regarded as accidental contaminations. In his case the flagellates were constantly present in the urine drawn with aseptic precautions, and they died when the urine decomposed. They were first seen when the urine was chylous (filariasis) and they persisted when the urine was otherwise normal. This pointed to the flagellates being emigrant, via the lacteals, from the alimentary canal. There was a striking difference in the habits of the flagellates in 1914 and in 1919. Was this an adaptation to the new environment? As far as he could judge the parasites were harmless.

SECTION OF SURGERY: SUBSECTION OF ORTHOPÆDICS.

EXHIBITION OF CASES.

A MEETING of this section of the Royal Society of Medicine was held on Nov. 4th, Mr. **MUIRHEAD LITTLE**, the President, being in the chair.

Birth Palsy in a Boy.

Mr. **R. C. ELMSLIE** showed a case of Birth Palsy in a boy aged 11 years, who was the eldest of three children. Delivery was instrumental, and three days later it was noticed that the arm hung at the side and was not used. There had been no treatment. At the present time all the muscles of the right upper limb appeared to be acting except the external rotators of the shoulder. The arm was held in a position of abduction and forward flexion, only a small range of movement being present. The elbow was flexed, complete extension being impossible. There was a posterior subluxation of the head of the humerus. X ray examination showed that the head of the humerus was much deformed and flattened. Mr. Elmslie proposed to perform Mr. Fairbank's operation of division of the anterior part of the capsule of the shoulder-joint and the tendon of subscapularis, after which he would fix the arm in a position of abduction to a right angle for three months, to be followed by physical treatment.

Mr. **H. A. T. FAIRBANK** said that the position of the arm was not unusual, though it was difficult to explain. Subluxation was due to lack of support behind the joint, associated with contracture of the anterior muscles. The abduction was difficult to understand. He had found at operation that until the suprapinatus and the coracoid ligament were divided adduction was impossible. The after treatment was interesting and important. The results were not good on account of the difficulty in getting the children to attend regularly and frequently for treatment. He thought that the position with the elbow at the side was bad, and in future would suggest abduction for the first month, and for the next two months a splint should be worn, which could be removed to allow massage.

Mr. **A. S. BLUNDELL BANKART** said that it was contrary to experience for contracture to follow immediately after an injury to a nerve, but he had seen contracture follow very soon after birth, and thought it was congenital and not due to birth palsy. He thought that half the cases which were regarded as birth palsy were congenital contracture with malformation of the shoulder-joint. In this case there was no evidence that there had been any paralysis. He had seen cases with the arm in the same position very shortly after birth.

Mr. **LAMING EVANS** said that the hooking of the acromion process was important and might be pathognomic of birth palsy. He asked if cases in which hooking of the acromion process was seen in after life were cases of old birth palsy.

Mr. **ELMSLIE** said that he had seen cases of primary palsy with flail joint develop within a few weeks into contracture. He usually treated cases of birth palsy with splints, the arm being abducted and externally rotated, and at a right angle.

It was difficult to get the position after two or three weeks as contracture had set in. He thought that the subluxation was due to shortening of the anterior part of the capsule, which levered the head of the humerus backwards behind the joint.

A Case of Os Tibiale Sesamoideum.

Mr. ELMSLIE also showed a case of a girl, aged 11 years, who, three weeks before coming to the hospital, had fallen down some steps and hurt her left foot, which was doubled under her. From that time there had been pain over the inner side of the instep. Examination showed the tender spot to be over the tubercle of the scaphoid. X ray examination of both feet showed that there was a separate ossification for the tubercle of the scaphoid on either side. On the left side the separate piece of bone appeared to be a little rough on its deep surface. The affected ankle and foot were immobilised in plaster-of-Paris for a fortnight, the plaster being removed on Oct. 30th. The case was one of os tibiale sesamoideum, in which an injury appeared to have loosened slightly the separate piece of bone on the left side and thus rendered it temporarily painful. He intended to put the foot into an outside iron, so as to throw the weight on to the outer side of the foot and so rest the scaphoid.

Dr. HENRY KELLER said that in the X ray picture the metatarsal appeared to be chipped, and this might be the cause of the pain. In children it was necessary to immobilise completely by some mechanism which could not be removed.

Infantile Paralysis with Affection of Hip.

Mr. LAMING EVANS showed the X ray photographs of the hip of a child of 5 years of age, who was suffering from Infantile Paralysis with Bi-lateral Affection of the Hip. During operation, while he was manipulating the joint with very little force, something seemed to give way in the joint. X rays showed that there was a fracture of the neck and separation of the epiphysis. He thought that the combined condition was rare and asked for diagnosis.

The PRESIDENT said that in severe cases of infantile paralysis with the bones poorly developed (as were cases requiring operation) fractures were very apt to recur.

Chronic Synovitis in Both Knee-joints.

Mr. FAIRBANK showed a case of Chronic Synovitis in Both Knee-joints. The patient was a young soldier who had had rheumatic fever in Egypt three years ago. He was ill for nine months, many joints being affected. Both knees had been swollen ever since. He was discharged from the army early in 1917. He had been treated in a number of different ways, but there had been no improvement. He had rested in bed with the knees in splints at different times; he had been allowed up, with prolonged gymnastic treatment, massage, and electrical treatment of the quadriceps. He was at Bath for four months, and had had the various forms of treatment which were there provided. Both knee-joints had been aspirated, and 5 c.cm. of ether had been injected into the right. The joint fluid was slightly turbid. Cultures were sterile. X rays showed little change in the left knee-joint, but osteo-arthritic changes in the right. The Wassermann reaction was negative. Iodides had been used without result. He asked for suggestions as to treatment, two possibilities of which were: (1) excision of the anterior portion of the synovial membrane, or (2) excision of the joint.

The PRESIDENT thought that a treatment similar to the firing of horses—light touches of the linear cautery—was worth trying. In his opinion the osteo-arthritic changes were more important than the hydrops.

Mr. W. ROWLEY BRISTOW said that he had seen many cases of synovitis due to some form of infection acquired abroad. Treatment was disappointing as recurrence was usual. Operation, he thought, would almost certainly fail. Excision would be justifiable only for severe pain. Excision of the synovial membrane was not very satisfactory. He suggested the application of a compression bandage, and that the patient should be allowed to get about.

Mr. G. N. GIRDLESTONE said that there was early osteo-arthritis, and thought that some microbial element was present. He recommended prolonged immobilisation and hyperæmia by ionisation or diathermy for six months, after which the muscles could be developed.

Mr. ELMSLIE suggested making a small incision in the joint and washing out with saline. He thought there were some loose bodies in the right joint, and possibly in the left also.

Mr. LAMING EVANS advised opening the joint and sewing the synovial membrane to the subcutaneous tissue and closing the wound. The joint would thus be drained into the tissues.

SECTION OF GYNÆCOLOGY AND OBSTETRICS.

THE RÔLE OF THE CINEMATOGRAPH IN THE TEACHING OF OBSTETRICS.

A MEETING of this section was held on Nov. 6th, Mr. J. D. MALCOLM, the President, being in the chair.

Dr. G. DRUMMOND ROBINSON gave a demonstration on the Rôle of the Cinematograph in the Teaching of Obstetrics. He said that at the present moment great interest was being taken in an effort to improve the teaching of obstetrics in London. Their society had quite recently issued a report on this most important branch of medical education, which it was sincerely hoped might do much to improve a state of things which, to put it very mildly, was highly undesirable. Any method which would assist the student to get a better grasp of this subject would be valuable. They all knew how helpful it was in any branch of study to be able actually to see what happened—if that were possible—as well as to hear and to read about it. By means of the cinematograph a process or an operation could be actually shown to as large an audience as might be desired and as often as might be necessary. By means of photographs of actual labours all that it was possible to show an onlooker of normal or abnormal labour might be demonstrated in the classroom under the most convenient conditions and by the most experienced teachers, as vividly as at the bedside. This would to some extent remedy the defect in our present system of teaching pointed out in our recent report—namely, that instruction on the actual labour case is at present left practically entirely in the hands of junior teachers. By means of animated diagrams and drawings the internal processes of development and of disease, as well as the manipulations and movements that take place unobserved during most obstetric operations, would be demonstrated to the eye. Dr. Robinson then showed the films. They comprised animated diagrams, shown successively at slow and at rapid speed, of the complete process of labour in vertex and breech presentations, from the first contractions of the uterus to the birth of the body of the fœtus. There was also an animated diagram showing the processes of the third stage of labour. The moving pictures of the natural subject included the second stages of labour in vertex and breech cases at close range and brilliantly illuminated, and also the birth of the placenta and the treatment of asphyxia neonatorum. On the completion of the films Dr. Robinson said that for the present occasion it had seemed desirable that the process of labour should be shown completely by the photographs as it actually occurred. For teaching purposes no doubt the photographs would be arranged according to the stages of labour. He had only concerned himself with normal labour, but it was obvious that such subjects as the development of the Graafian follicle and corpus luteum, the passage of the ovum along the Fallopian tube, the meeting of the ovum with the spermatozoon, the development (microscopic and macroscopic) of the decidua, the development of the placenta, the changes in size and shape in the gravid uterus, the involution of the uterus, the action of the uterine segments, ante-partum hæmorrhage, and obstetrical operations such as version, forceps, and craniotomy, could all be admirably shown. Also, by photographs of the actual subject, such operations as forceps delivery, Cæsarean section, and others could be demonstrated. The drawback to this method of teaching was the initial expense of the production of the film. The photographing of the actual subject was not unduly expensive, but in the production of animated drawings the result depended largely upon the number and character of the drawings, and as a large number of drawings was necessary this could never be cheap. However, if this method of teaching were largely adopted and a considerable number of copies were disposed of, the expense would be insignificant. He felt convinced that some individual of means could confer a great benefit on medical education and on humanity by investing a sum of money in the production of films that would illustrate the whole subject of obstetrics completely.

Discussion on the Demonstration.

Sir Francis Champneys, after expressing admiration for the films, said that in the animated diagram of the breech case the spine appeared to rotate backwards instead of forwards. He also criticised the position of the hands in tying the second knot on the umbilical cord. If the knuckles are far apart and the cord slips the results may be disastrous. In the diagram of the third stage the vagina should not have remained ballooned after the birth of the placenta.

Dr. Amand Routh regretted the jerky movements of the diagrams.

Mrs. Scharlieb expressed great interest in the films, but commented on the dilapidated appearance of the fœtus.

Dr. Herbert Spencer suggested that photographs of models might have been used instead of diagrams.

In reply, Dr. Robinson referred to the difficulties in preparing the films and the great expense involved. Models had been tried, but had not been found successful.

Inversion of the Uterus.

Dr. Spencer read a paper on Nine Cases of Inversion of the Uterus. The cases were as follows :—

Case 1.—Inversion at unassisted labour; putrid placenta and membranes adherent removed on admission (nineteenth day). Under continuous irrigation with boric acid solution spontaneous reduction on forty-first day. Good recovery. Highest temperature 102·6° F., fell to 100° fourth day; normal nearly every day afterwards. Discharged thirty-first day.

Case 2.—Inversion at unassisted labour; extreme anæmia. Seen on fifth day, uterine tissue too soft safely to permit pressure. Continuous irrigation. Aveling's repositor on eleventh day; reduction within 8¾ hours. Good recovery. Temperature on admission 101° F., second day 101·4°, third day 100·8°, afterwards below 100° except on one occasion (100·6°). Discharged twenty-ninth day.

Case 3.—Inversion at labour, attended by medical assistant; condition unrecognised. Aveling's repositor on twenty-second day; reduction within 5½ hours. Normal afebrile recovery. Discharged fourteenth day.

Case 4.—Inversion at labour, attended by medical assistant; condition unrecognised; extreme anæmia. Twenty-two months later advised at a hospital to have uterus removed; refused. Subsequently another doctor tried cup and straight-stem pessary for 36 hours, and again for 15 hours without benefit. Aveling's repositor applied 2 years and 8 months after labour; reduction within 44 hours. Good recovery. Highest temperature 102·4° F., gradually fell to normal. Discharged eighteenth day.

Case 5.—Inversion at labour, attended by doctor; condition unrecognised. Aveling's repositor 9 months later; reduction in 47½ hours. Good recovery.

Case 6.—Inversion by gangrenous sessile submucous myoma. Temperature 99·6° F. Excision of myoma; immediate reduction with fingers; iodoform gauze tampon applied for 12 hours. Good recovery. Temperature only twice reached 99°. Discharged twenty-first day.

Case 7.—Inversion by gangrenous sessile submucous myoma. Bisection and enucleation of myoma; immediate reduction with fingers; iodoform gauze tampon for a few hours. Good recovery. Temperature only once rose to 100° F. after the operation. Discharged thirteenth day.

Case 8.—Inversion by fundal intra-mural cystic myoma of size of pigeon's egg. Inverted organ resembled ordinary inversion except that it was twice as big as normal uterus; no line of demarcation between and no hardness where tumour was. Incision into fundus; enucleation of tumour; immediate reduction with fingers; iodoform gauze tampon for 12 hours. Good recovery. Highest temperature 99·6° F. Discharged fourteenth day.

Case 9.—Inversion by spindle-cell sarcoma of body. Uterus bisected and removed per vaginam. Recovery. Recurrence after four months. Local removal with cautery. Recurrence.

Dr. Spencer had also seen five cases under the care of Sir John Williams, three of them successfully treated by Aveling's repositor and two by removal of the polypoid sarcoma. He protested against the modern surgical methods of treating chronic inversion, and expressed his opinion that nearly every chronic inversion of the puerperal uterus could be successfully treated by Aveling's repositor; should it fail he would prefer to operate by the abdomen. For myoma inverting the uterus excision of the myoma was usually sufficient, the uterus being afterwards easily replaced. For sarcoma inverting the uterus hysterectomy and radium or X ray treatment were called for.

Discussion on Dr. Spencer's Cases.

Sir Francis Champneys said that the series of cases was unusual in that five out of the nine were complicated. The salient features of uncomplicated cases were the complete involution of the uterus, the fact that the inversion was no more difficult to replace after several years than after a few months, and that Aveling's repositor never failed.

Dr. M. Handfield-Jones said that shock was by no means always present, and quoted two cases in which the inversion had not been diagnosed for some time after it had taken place.

Dr. Amand Routh said that in cases where shock was not a prominent symptom the inversion had probably been partial only at the start. He always used Aveling's repositor.

Dr. Spencer briefly replied.

NORTH OF ENGLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY

At a recent meeting held at Liverpool, with Mr. Miles Phillips, the President, in the chair, Professor J. Munro Kerr, of Glasgow, opened a discussion on

The Cicatrix of the Uterine Wound in Cæsarean Section.

He put forward the following reasons why the ordinary longitudinal incision should be considered as unsatisfactory: 1. The scar was inevitably starved, because sutures were used both as hæmostatic agents and coaptors; satisfactory coaptation was difficult to secure because the sheets of muscle in the uterine wall were irregularly distributed, and the uterus was in a state of unrest (normal contraction) and of involution; and (3) blood tended to collect between the raw surfaces leading to a more or less broad band of fibrous tissue, which might stretch or give way in a subsequent pregnancy. He suggested three alternatives to the ordinary through-and-through sutures after delivery of the placenta: (1) Immediate suture after delivery, while the uterus was in a state of rest and before the placenta was delivered—this being left to pass through the cervix; (2) suture in layers; (3) delivery through a low transverse incision in the lower uterine segment, assisted by the Trendelenburg position, with expression of the child by a hand behind the fundus. The cord was to be replaced in the uterus and the placenta allowed to deliver itself naturally. He had practised this method, which led to very little bleeding, for the last two years, and strongly recommended it. The only pertinent objection that he could see was the possibility, in suspect cases, of the gravitation of deleterious material towards the uterus.

Discussion.

A discussion developed which was notable for a frankly expressed distrust of the lower uterine segment and for confidence in the more usual incision, provided certain precautions as regards technique were observed.

Professor Henry Briggs (Liverpool) advocated that suturing with catgut in horizontal layers should be begun as soon as the child was delivered, while the uterus was at rest, and that the incision should be a small and longitudinal one.

Dr. J. E. Gemmell (Liverpool) sutured a high vertical incision with three layers of catgut, while Dr. E. O. Croft (Leeds) preferred fine silk.

Dr. Harold Clifford (Manchester), who adopted through-and-through catgut sutures, omitting the mucosa, with chromic catgut superficially, was supported by several members in his contention that the lower uterine segment was essentially weak, became more so during the course of a protracted labour, and was thereby an inauspicious site for incision.

Details from various clinics were put forward by members who did not consider there was sufficient evidence that a longitudinal incision in the contractile portion of the uterus was less satisfactory than one in the lower uterine segment.

Professor Munro Kerr briefly replied.

ULSTER MEDICAL SOCIETY.

THE opening meeting of the session 1919-20 was held in the Belfast Medical Institute on Oct. 30th. After a short valedictory address from Dr. JAMES COLVILLE, the retiring President, to whom a cordial vote of thanks was passed, Mr. A. FULLERTON, the incoming President, delivered his presidential address on

Recent Work on Shock and Hæmorrhage.

After reviewing at some length the work done during the war in France, America, and England on shock, Mr. Fullerton said that certain conclusions appeared to be justified in the state of our present knowledge. Wound shock might be defined shortly as that state of depression of the bodily functions which is produced by wounds received in warfare. In civil practice injuries and surgical operations might be taken to represent "wounds." Shock might be divided into primary and secondary shock. Primary shock, the nature of which is as yet undefined, comes on immediately after injury. Secondary shock comes on gradually, the degree depending to some extent on the care of the injured man during transit. Recent investigations have confirmed none of the theories as to the causation of shock except that it appears to have been produced in certain cases by absorption of metabolites from injured tissue, especially muscle. After commenting on the low blood pressure, which is one of the outstanding features of shock and the contributory factors in its production, Mr. Fullerton spoke of the great importance of preventive treatment of shock, and then went on to describe the treatment of the established condition. Since toxic products from injured tissue, especially muscle, can produce shock, all dead and damaged tissue should be removed as early as possible. The main object in the treatment of shock is to restore the blood pressure; the most successful agents are warmth and rest. The administration of stimulants found very little favour in France and strychnine had long been abandoned.

Mr. Fullerton condemned the use of vaso-constrictors, glucose solutions, subcutaneous saline, and intravenous injections of simple isotonic or hypertonic saline as useless or only of transient benefit. Calcium salts when added to solutions for intravenous injection do not lessen the tendency of the fluid injected to escape, and alkaline injections have been abandoned. The only intravenous injection of any lasting value was that of solutions which did not leave the blood-vessels, of which the most suitable appeared to be Bayliss's gum saline solution. This was a 6 to 7 per cent. solution of gum arabic in 0·9 per cent. sodium chloride. It had the viscosity of blood and the osmotic pressure of its colloids. It had had an extensive trial in France, and the reports were favourable. Bayliss found that in animals even when severe hæmorrhage had taken place restoration might be produced by gum saline solution alone. In cases of severe hæmorrhage it might be used with blood to economise the latter. It had to be used early and before the low blood pressure had had time to cause a loss of excitability of the bulbar centres.

It was not till 1916 that blood transfusion was used to any great extent by British surgeons in France. The arrival of the American surgeons in 1917 gave a fillip to its use, and in the later stages of the war it had a great vogue. Of the two methods in use the direct method was described in detail by Bazett, Dreyer, and Fullerton.[1] This method required more skill than the indirect methods, and the quantity of blood transfused was not easily determined. Of the indirect methods paraffined tubes of 400 to 500 c.cm. capacity were much used in France, as were also record syringes with Lindemann's cannulæ. Citrated blood transfusion was used extensively, and the work of Rows and Turner, published in 1916, initiated the use of preserved blood corpuscles. Blood from a donor was received into a mixture of dextrose and citrate of sodium solutions which was isotonic, and the blood corpuscles allowed to settle. In four or five days the blood was available for use. The supernatant fluid was drawn off and the sediment of corpuscles mixed with a 2·5 per cent. solution of gelatin in normal saline. Good results were obtained by this method, and the preserved blood corpuscles could be kept in good condition for several weeks, and could be transported considerable distances without damage to the red cells. In the later stages of the war tests of compatibility were always carried out. Moss's classification of donors was used. Roger Lee, of the United States Army, showed that it was only necessary to test the serum of the recipient against the cells of the donor. The serum of the donor was diluted in the blood of the recipient and did not cause agglutination or hæmolysis of the latter's corpuscles, which were in addition protected by their own plasma.

The President concluded by illustrating the use of blood transfusion in civil practice by giving particulars of several cases in which he had employed the method.

On the motion of Professor J. A. LINDSAY, seconded by Colonel T. SINCLAIR, a vote of thanks was accorded Mr. Fullerton. It was decided to elect as an Honorary Fellow Sir James Mackenzie. The annual dinner of the society is fixed for the evening of Wednesday, Dec. 3rd.

LONDON ASSOCIATION OF THE MEDICAL WOMEN'S FEDERATION.—A meeting of this association was held at 11, Chandos-street, on Nov. 4th, Dr. Emily Flemming, the President, being in the chair. The subject for discussion was Work in the Mediterranean Area, and several members who had been attached to the R.A.M.C. during the war gave an account of some of their experiences.—Dr. Elizabeth Lepper gave particulars of a fulminating case of cerebral malaria in which the symptoms began four hours before death took place, and showed microscopical preparations from the post-mortem material. She then described a case of blackwater fever and one of liver abscess secondary to amœbic dysentery. Specimens and slides from both cases were shown.—Dr. Dorothy Hare reported on cases of paratyphoid fever occurring in Malta in the later months of 1916. The cases were all of mild uncomplicated character, and the chief interest lay in the diagnosis. The difficulty of basing a diagnosis on agglutination tests alone in inoculated patients was emphasised.—Dr. Elizabeth Hurdon (Baltimore) described some of the cases under her care in Malta and Salonika. She referred to the difficulties in diagnosis between malaria and dysentery, and in dealing with the mixed infections.—Dr. Effie Craig gave an account of her work in Malta and Salonika, referring to the great prevalence of malaria and scurvy among the Serbs.—Dr. Mary Blair described some of the features of life in a camp and the way in which infection was avoided in cases of dysentery. No cases occurred during the winter months among the hospital staff in the camp to which she was attached.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.—A clinical meeting of this society was held at the West London Hospital on Nov. 7th, Mr. Herbert Chambers, the President, being in the chair.—Cases were shown by Dr. E. Arthur Saunders of Rheumatoid Arthritis with excessive affection of the right knee associated with pyorrhœa and tabes dorsalis with Charcot joint (right knee).—Mr. Laming Evans showed a most interesting and successful case illustrating the result of a free fascial transplant replacing the extensor tendons of the wrist. Before operation the patient, an officer wounded by H.E. casing, had complete loss of extending power in the long extensors of the third, fourth, and fifth fingers at the metacarpo-phalangeal joints. On Jan. 3rd, 1919, six months after the wound, the proximal ends of the extensor tendons and the distal ends of the extensor muscles were exposed. Seven inches of intervening scar tissue was excised, and a free fascial transplant 8 in. long from the left thigh was laid as one piece in the prepared bed and was sutured by catgut to the muscle belly above and the tendons below. He was afterwards treated by massage, faradism, baths, and education. As a result he now has good independent action of extension of the third, fourth, and fifth metacarpo-phalangeal joints, although no attempt was made to connect the proximal ends of the tendons by separate slips to the muscle belly. Mr. Evans considered that the single transplant minimised adhesions and gave the best chance for subsequent independent action.—Mr. O. L. Addison showed a case of a woman one year after interscapulo-thoracic amputation (La Contes' method) for sarcoma of the upper end of the humerus. There had been no recurrence.—Mr. Addison showed also a woman with Chronic Ulceration of the Tongue. Wassermann's reaction was a partial positive, but two injections of novarsenobillon were given without effect on the ulcer. There were no signs of malignancy, and it was suggested that the ulceration might be tuberculous.—Dr. F. HALLS DALLY showed a case of a boy of 15 with Asthma and Emphysema in association with Generalised Adiposis and Delayed Development, which Dr. Arthur Saunders suggested was due to defects of the pituitary gland and probably deficiency of the other internal secretory glands.—Dr. J. BURNFORD showed cases of: (1) Cyanosis with Polycythæmia and Congenital Heart Disease. Red corpuscles 11,600,000, hæmoglobin 140 per cent.; (2) Elephantiasis, of unknown cause, of both legs in a woman aged 45; and (3) Raynaud's Disease in a woman aged 28.

---

[1] THE LANCET, 1917, i., 715.

Reviews and Notices of Books.

Dementia Præcox and Paraphrenia. By Professor EMIL KRAEPELIN. Translated by R. MARY BARCLAY, M.A., M.B. Edited by GEORGE M. ROBERTSON, M.D., F.R.C.P. Edinburgh: E. and S. Livingstone. 1919. Pp. 331. 15*s.*

LAST July, after the interesting lecture on the Psychogenesis of Mental Disease given by Professor Jung at the Royal Society of Medicine, there was a good deal of discussion about dementia præcox. One held that the case cited by Professor Jung[1] was not a case of dementia præcox at all. Another laid emphasis on physical stigmata as against the psychical changes emphasised by the lecturer. Dr. Henry Head declared that no such thing as dementia præcox existed. Professor Kraepelin is the first champion of this questionable "clinical entity," though, as Dr. Robertson points out, the "secondary dementia of adolescence," described by Clouston so long ago as the year 1888, must be considered as at least a prophecy of Kraepelin's work. Many who have read the author's clinical lectures translated into English, and who remember his power of keen observation and lucid expression of thought, will turn with interest to this chapter from the eighth German edition of the "Text-book of Psychiatry." They will not be disappointed. In nearly 100 pages devoted to the clinical forms of the disease they will find again many incisive pen pictures of mental conditions and an abundance of corroborative detail. Yet we venture to believe that they will find no sufficient answer to Dr. Head's agnosticism.

What is the characteristic feature of dementia præcox? Is it dementia? Professor Kraepelin lays increasing emphasis on this aspect of the disease. His former classification into the hebephrenic, catatonic, and paranoid groups was, he says, undoubtedly inadequate. The present classification is based mainly on various types of dementia—the simple, the silly, the simple depressive, the delusional depressive, and so on. And yet it is admitted that a certain number of cases of dementia præcox do attain to a complete and permanent recovery. The connexion with a youthful age-incidence is even less constant. True, there has been propounded a theory in which it is claimed that those cases which appear to begin late in life have in reality commenced much farther back and have developed insidiously through months, years, and even decades. This theory is not, in the author's own opinion, supported by any sufficient evidence. The attempt to delimit the entity is not more successful than the attempt to christen it. In the volume under review one group of cases is considered as belonging to the "endogenous dementias," but is separated from the dementia præcox group on account of the "far slighter development of the disorders of emotion and volition." It is relegated to a separate chapter at the end of the book under the title of paraphrenia. Paraphrenia, dementia præcox, and true paranoia are all said to develop from a paranoid condition, which in the early stages does not admit of this differentiation. The author himself is clearly not satisfied with his present means of deciding into which partition every individual case shall be placed. The chapters on psychic and bodily symptoms form a kind of epitome of the varieties of symptoms described in the rest of the book. It is perhaps surprising that in so comprehensive a work more attention is not given to the very common phenomena of echolalia and echopraxis. An explanation is suggested for the causation of negativism in opposition to the theory of Bleuler, who stresses the influence of emotional conflict. Kraepelin regards negativism as resulting from the delusions of compulsion from which these patients suffer, but many psychologists will think that he has not carried his inquiry far enough.

Perhaps the most interesting section of this book is that which deals with the cause of these dementias. Many possible origins are considered; among them is noted as "much more important than the physical signs of degeneration" the fact that "in a considerable number of cases psychic peculiarities have come under observation in our patients from childhood up." Professor Kraepelin will not admit, however, that Jung has proved a case for the psychogenesis of this disease. If the destructive toxins are, as Jung suggests, developed through emotion, why is it, he asks, that the manic depressive cases with their violent emotions do not produce these toxins in the greatest quantity? We wonder whether Professor Jung would retort that the emotional energy of an affective state must not be measured by its conative counterpart!

So the spirit of controversy breathes through almost every page and makes the whole work intensely interesting. It is a valuable addition to our English library, and it will contribute, as Dr. Robertson hopes, to a better understanding of these cases, which make up an eighth of all the admissions to our asylums.

A Text-book of Surgery for Dental Students. By G. PERCIVAL MILLS and HUMPHREY HUMPHREYS. Second edition. With 57 illustrations. London: Edwin Arnold. 1919. Pp. 340. 14*s.*

THE curricula for the various diplomas in dental surgery require that the student should have a general knowledge of the principles of pathology and surgery, and should possess a fair acquaintance with the surgery of the jaws and associated parts. In the past the student has only been able to obtain this knowledge by consulting the ordinary text-books of surgery, which include subjects that have no bearing upon the speciality of dentistry. This difficulty of the dental student has been smoothed away by the authors of the present book, for they have produced a text-book on surgery containing all the information that is necessary to enable him to practise his calling in an intelligent manner.

The book might, perhaps, be made still more useful by the introduction of a chapter on minor surgery and an account of the technique of aseptic operations. The method of performing the operation of laryngotomy should be understood by everyone practising dental surgery, and we think the authors might well include a detailed account of this operation in the next edition. The section on Fractures of the Jaws would be of greater value if the more recently proved methods of treatment were described. In the present edition very few alterations have been made, and the general scheme is similar to that of the first edition.

Hygiene and Disease in Palestine in Modern and Biblical Times. By E. W. G. MASTERMAN, M.D., F.R.C.S. London: Palestine Exploration Fund. 1919. Pp. 70. 2*s.* 6*d.*

DESPITE its small size and unpretentious appearance this little book contains a vast amount of interesting information. Palestine has always been, and will continue to be, a land which is very much in the minds of men on account of its religious and political history. And as it may chance that in the future the British Empire is to be the preponderating influence in the land, the health of its inhabitants should be a matter of concern to all Britons. Dr. Masterman probably knows Palestine from the medical point of view better than any other man living, and the eight chapters of the book are reprinted from the quarterly statement of the Palestine Exploration Fund, a society which has done much to throw light upon biblical problems. Part I. of the work deals with the diseases of modern Palestine and Syria, and Part II. with diseases of the Bible. There is also an appendix upon the water-supply of Jerusalem as it used to be and as it has been since the British occupation. This gives a most interesting account of the improvements effected by our Royal Engineers within some six months of their arrival. Chapter IV. treats of ideas among the natives regarding disease, which are mainly derived from primitive folk-lore and mediæval medicine, together with certain beliefs connected with the orthodox religions of the land. Dr. Masterman points out a fact which is well known but not sufficiently recognised by many—namely, that it is impossible to say definitely what was the biblical disease called in the Hebrew "zar'ath" which has been translated leprosy. The word probably was used to describe a number of different skin diseases, but, whatever the disease or diseases were, it was not modern leprosy. Altogether the book is one to be read and pondered over by all who realise the responsibilities of their position as subjects of the British Empire.

---

[1] See THE LANCET, July 19th, p. 109.

A Treatise on Regional Surgery. By Various Authors. Edited by J. F. BINNIE. Vol. II.: Genito-Urinary Section. London: H. K. Lewis and Co. Pp. 656. 32*s.*

THE second volume of this treatise is divided into four main sections, viz.: The Kidney and Ureter, by W. E. Lower; the Bladder, by E. Rhuyminck; the Disease of the Prostate, by C. O. Gibson; and Diseases of Injuries and Deformations of the External Male Genitalia, Seminal Vesicles, by E. O. Smith, and may be recommended to our readers though the subjects are not uniformly well treated, and in some parts the points of interest are ill-defined. However, the whole is a good résumé of genito-urinary surgery at the present time.

One of the striking features is an article written about horseshoe kidney, which is not universally regarded as being a causative factor of symptoms such as are suggested by the author. The subject of renal tumours is little noted, which is unfortunate when it is one which is demanding the attention of genito-urinary surgeons at the present time. An essentially practical article upon the surgery of the bladder contains much valuable information for the general practitioner. The article on gonorrhœa is so short as not to deal fairly with its topics.

The illustrations are very good, and the letterpress is well printed.

White and Martin's Genito-Urinary Surgery and Venereal Diseases. By EDWARD MARTIN, BENJAMIN THOMAS, and STIRLING MILLHEAD. Eleventh edition. London: J. B. Lippincott Company. 1919. Pp. 936. 30*s.*

THE fact that this volume was first published in 1897, and has since gone through eleven editions, speaks for it. It covers the whole work of genito-urinary surgery, including venereal diseases, and is quite up to date, containing information which is not usually found in many published works on these subjects. It is essentially a practical book, and, so far as we are able to discover, omits no needful thing.

The illustrations are disappointing in many places, especially those which are designed to demonstrate the appearances seen in X ray photographs. This is unfortunate, as pyelography is a subject which is more and more calling for attention. In future editions this may be improved. Many of the plates are very good indeed, especially those illustrating the appearances in the bladder as seen by a cystoscope, though they suffer rather from their small size.

One of the features of the book is the care which is taken in differential diagnoses. Some 300 pages are devoted to the diagnosis and treatment of syphilis. All the more modern methods are fully discussed. This book should have a popular reception.

Anæsthesia in Dental Surgery. By T. D. LUKE and J. S. ROSS. Fourth edition. Illustrated. London: William Heinemann. 1919. Pp. 255. 8*s.* 6*d.*

THIS book deserves its continued popularity as a guide to those who are called upon to administer anæsthetics for dental surgery. The present edition contains additional short chapters on ether and chloroform; but the chief value of the book remains its explicit directions for the use of nitrous oxide, its descriptions of the necessary apparatus, and its valuable practical hints for the use and the keeping of the same. Local anæsthesia is also fully treated. The authors might, we think, be more decisive in their opinion against the use of this method when inflammation or actual suppuration is present.

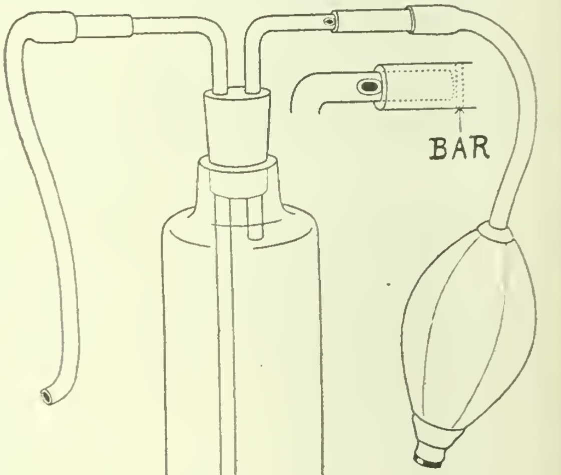
JOURNALS.

THE leading general scientific journal, our esteemed contemporary, *Nature*, reached its jubilee issue last week, and we heartily join in the congratulations received from all sides by the founder, Sir Norman Lockyer, the editor, and his staff. An extremely interesting special number celebrates the event. It contains a series of articles by well-known authorities on the progress made during the past 50 years by every branch of science. It is interesting to learn that four of the contributors to this symposium—namely, Sir Archibald Geikie, Sir E. Ray Lankester, Professor T. G. Bonney, and Canon Wilson—were contributors to *Nature* from its inauguration. Sir Norman Lockyer writes an interesting account of the birth of the journal, and this is succeeded by a sketch of Lockyer's scientific career by M. H. Deslandres, Vice-president of the Academy of Sciences of Paris, and Director of the Astro-physical Observatory of Meudon. Other writers in their own special fields of study include Sir T. Clifford Allbutt, Sir E. Sharpey Schafer, Dr. C. J. Martin, Dr. A. Smith Woodward, Professor Hugo de Vries, Professor W. Bateson, Professor J. Cossar Ewart, Sir Edward Thorpe, Professor Henry E. Armstrong, Professor H. B. Dixon with H. Stephen, Professor J. C. Philip, Sir J. J. Thomson, Sir Ernest Rutherford, Professor Frederick Soddy, Professor J. S. Townsend, Professor A. Fowler, Professor W. H. Bragg, Dr. A. C. Jordan, Professor A. J. Fleming, Dr. W. C. Unwin, Professor H. C. H. Carpenter, L. Baistow, Professor C. H. Lees, W. H. Dines, Sir John Scott Keltie, R. Chapman Jones, Emery Walker, Sir William A. Tilden, Dr. Alex. Hill, J. H. Reynolds, and Sir Richard Gregory. Truly an all-round testimony to the high esteem in which *Nature* is held by the pioneers of scientific work in all its branches.

New Inventions.

A SAFETY CHLOROFORM INHALER.

THE form of Junker's inhaler shown in the figure is designed to prevent the pumping of air through the apparatus in the wrong direction; it is impossible for liquid chloroform to be delivered into the face-piece. The metal exit-tube coming from the stopper of the bottle has an aperture in the side. The metal nozzle attached to the bellows is provided with a bar passing across its lumen, which prevents the nozzle from being brought sufficiently far over the exit-tube to close the aperature in it, while the nozzle attached to the face-piece, having no bar, passes over and closes this aperture when pushed home. If the apparatus be wrongly put together, and the bellows brought into action, the air pumped in escapes through the hole; the pressure in the bottle is not raised, and no liquid is driven over. The apparatus is represented in the figure as wrongly put together.



The inhaler is made by Messrs. Maw, Son and Sons, 7, Aldersgate-street, London, E.C.

E. L. KENNAWAY, M.D., D.Sc.

Bland-Sutton Institute of Pathology, Middlesex Hospital, W.

ROYAL DEVON AND EXETER HOSPITAL.—At the quarterly meeting of the governors of this institution, which was held last week, the chairman, Sir Chaning Wills, stated that a contract had been signed for £30,000 for the extension of the hospital. £10,000 had been given by the British Red Cross Society, £2000 by the Government, and £10,000 had been already subscribed. The chairman added that it was confidently hoped that the additional funds required would be raised. The enlargements of the hospital will give accommodation for 100 additional beds, and also provide for the treatment of discharged disabled sailors and soldiers.

THE LANCET.

LONDON: SATURDAY, NOVEMBER 15, 1919.

The Behaviour of Influenza.

THE recent outbreak of catarrhs, the change in the season, and the passing of the fine weather, combine to bring more vividly to the public mind the recent experience of the influenza epidemic, and to raise fears of a return of the dreaded pestilence. For catarrh, season, and weather are—and with reason—associated, not only in the lay, but also in the medical, mind, with influenza. Two significant questions frame themselves readily in connexion with the matter: Is another epidemic of the disease probable? and, Have we learnt from the experience of last autumn and winter anything of value in checking the epidemic, should it arrive? The answers to both questions, it must be confessed, are unsatisfactory, and yet they are not without some elements of comfort. So far as the question of a likely return of the disease in epidemic form is concerned, it is interesting to note that the same phases of case-incidence and of morbidity that were presented by the epidemic of 1889–91 have been closely repeated by the epidemic of 1918–19. These phases have consisted of a period of mild scattered outbreaks, then a very severe and almost universal epidemic, and then a rapid dying down of the specific disease, but with a period of raised virulence of the secondary infecting agents, leading to high incidence of respiratory affections and of other maladies having close association with the true influenza. It is, perhaps, not unreasonable to hope that the relative freedom from anything like a large wave of incidence of the disease proper, which followed the earlier epidemic, may be our lot now. The occurrence of sporadic cases, the occasional occurrence of local epidemics, and the increased prevalence of severe pneumonias and of other allied infections which followed the general epidemic of 30 years ago, will doubtless be seen —indeed, this phase is now actually occurring; but this is one of the known features of epidemic influenza, and must be distinguished clearly from the true waves of specific incidence. The increase in virulence of the secondary infecting agents as the result of their passage through the influenzal patient, climatic conditions, and increased susceptibility of the community, are the postulates by which this particular phase may be explained. Consideration of these facts should serve to check the alarm that is prone to arise in the presence of an increased number of catarrhal affections and of scattered cases of influenza, the existence of which does not of itself give any real ground for fearing an epidemic of the disease

The meagre character of the data available to the epidemiologist from which to predict an epidemic of influenza doubtless forbids our saying more than this. And careful study of the statistics of the subject warns us also. In THE LANCET of Nov. 8th Dr. JOHN BROWNLEE,[1] as the result of such a study, and dealing with the records between the years 1889 and 1917, points out two striking facts: (1) epidemics of influenza are of extreme rarity between the end of June and the beginning of December; (2) the periodicity of influenza epidemics is very constantly 33 weeks, the epidemic being "missed" if due in the autumn. Prediction based upon these two facts would have been falsified, as Dr. BROWNLEE points out, by the great epidemic of October, 1918, for this was an autumn month, while it should have been followed by an epidemic last June, unless we consider that this was "missed." If, now, the glaringly aberrant epidemic of October, 1918, follows the same periodic law, the next epidemic is due in January–February, 1920. Let us hope that there will be a negative aberration upon this occasion as there was a positive aberration two periods ago, but should this occur only the non-thinking among us will consider that an argument has been furnished against the value of medical statistics. In the minds of some there is, no doubt, a hope that improvement in the general conditions of living following upon the cessation of the war may act as a deterrent factor in regard to a fresh epidemic; the more intense part of the nerve strain is over, exposure and excessive fatigue are much reduced, and food is both better and more abundant. But is it a fact that the bad food conditions, the nerve-strain, the exposure, and the fatigue of the war-time were ætiological factors of much, or of any, consequence in determining the recent epidemics? It seems quite doubtful if they were. It has never been shown that, as the result of these bad conditions, sickness was more rife than usual just prior to the arrival of the 1918 epidemic, and such an experience might surely have been expected were the civilian health so undermined as to raise the susceptibility to infection. Again, the fact that the maximum morbidity and the maximum mortality fell upon young adults of both sexes is another point against such a view, seeing that at this age the adverse conditions referred to could be better tolerated than in children and in the elderly. Bearing upon this same question is the observation that in Switzerland, where food was not so scarce nor the general strain so severe, the mortality was higher than in Germany, where food was scarcer and anxiety greater. The hope that improved general conditions give any guarantee against a fresh epidemic, therefore, is perhaps somewhat elusive.

Turning to the second question—whether or not we have, during the experience of the last epidemic, made any advance in preventive methods which will serve us in good stead against the next—the answer is again unsatisfactory in the general sense, though not without some qualification in particular points. We are still without certain knowledge of the causative agent in the disease; indeed, we had less certain knowledge when we emerged from the last epidemic than we thought we had when we entered it. On both bacteriological and clinical grounds the historic claim made for Pfeiffer's bacillus is much less secure than it was 18 months ago. In the opinion of many who have a right to express a view, this claim is almost entirely discounted. And no other single microbic element has as yet established a claim that attracts really responsible adherents. It follows that measures of specific immunisation are very much in abeyance. In favour of the various formulæ for vaccines to be used as prophylaxis "against influenza," the most that can be said, when the evidence is calmly weighed, is that their employment probably confers some degree of temporary immunity against serious grades of infection by the secondary invaders in the disease. No small gain to the patient when the time of stress arrives, let it be granted, but scarcely justifying the enthusiasm of some optimists, the differences between whose injections provide a powerful argument against the specificity of the remedies. Yet it is to some kind of specific immunisation that we look forward, sooner or later, for protection. And it is just as well to remind ourselves that this does not mean that we must necessarily wait for the full elucidation of the bacteriological problem. The earliest of all methods of preventive treatment in infectious diseases has rendered small-pox a curiosity rather than a dread in this country, and we still remain ignorant of the essential nature of the virus.

---

[1] In this interesting article (see THE LANCET, Nov. 8th, p. 856) a small correction is necessary. In the last paragraph Dr. Brownlee is made to say, "from March 1st to Oct. 1st is also 33 weeks": the second date should, of course, be Oct. 21st.

It is obvious that our need is more knowledge, and this is to be gained only by strenuous research in the laboratory and in the field, and by careful observations of the characters of the epidemics at various places. Here data are daily coming to hand. The annual public health reports for 1918 are becoming available for study, and last week we published notes upon the reports of the medical officers of health of Brighton and of Ealing, selecting for notice the references to the behaviour of influenza. This week we publish similar notes from the reports of the medical officers of Salford and Liverpool. The reports, while they perhaps add no striking fact to what is already known, do emphasise and confirm some very important points, and help to clarify a situation that is still very perplexing, alike to the epidemiologist, the bacteriologist, and the clinician. Dr. DUNCAN FORBES notes the fact that of 271 deaths occurring in Brighton 159 were in bed from the day of onset of the disease, and over 200 were in bed by the second day; showing that in this epidemic the majority of the severe cases were severe from the onset. Dr. FORBES'S study of the disease in the Brighton secondary schools gives suggestive details on the question whether or no one attack confers immunity against subsequent attacks. In an investigation of over 1000 children it is seen that one attack protects to a certain extent only against later attacks, and that a second attack in any one year is quite probable. At Ealing Dr. THOMAS ORR noted the rapid recovery of the school children first affected. Dr. E. W. HOPE traces the introduction of the severe form of the disease into Liverpool by means of shipping, the actual contacts being coloured seamen and American troops. Soldiers who were acutely ill were transferred to hospital, but convalescents, who were probably still infectious, mingled with the general population. The crews, too, were affected, and the great pressure upon the hospital beds made it impossible to obtain accommodation for these cases. Dr. C. H. TATTERSALL finds that at Salford healthiness, or otherwise, of occupation had apparently little influence upon the death-rate. Facts of this sort, collected over large and differing areas, may at any moment when compared, be found to tell a fruitful story, and we recommend to our readers the study of the reports of the medical officers of health as they become available.

Concerted Anti-Venereal Effort.

VENEREAL disease is now recognised as a grand factor in destroying the health and happiness of the community, and it is natural that a section of the medical profession should be keenly interested in the discovery of the most potent methods for combating it. In the last few weeks a process of crystallisation has set in with regard to the two most prominent attempts at the solution of the problem. On the one hand, there is the medico-physical group, whose task is to discover whether it is possible by medical methods to prevent the contraction of venereal disease, and then to ascertain what method is most likely to prove successful. Should the primary question be answered in the affirmative they would proceed to induce the community by all available means to utilise the method found successful. The artifice which holds the field at the present time is that known as "early disinfection" or the provision of disinfecting material to be utilised at the time of exposure to risk of infection. Solid grounds are given for believing that this method used under ideal conditions would markedly diminish the incidence of venereal disease and avoid much suffering to participators and non-participators. It would be a simple matter to render the necessary materials easily and economically available to the community at large But the proceeding to the minds of many would be of sinister import, the fear being that many individuals, hitherto restrained from promiscuous intercourse by caution or fear, would now transgress, buoyed up by a hope of safety, which through inefficiency, would prove but a phantom On this view the promulgation of measure intended to be protective to the communit would, especially among the more untutored classes result in propagating disease rather than i preventing it. The view assumes a belief in the potency of fear as a deterrent factor. We ma express a doubt whether among the less educated classes fear holds back many from indulgence. Fea may restrain for a while, but it is not an abidin factor, and eventually the brink is overstepped with added danger should no preventive measure have been taken. To make fear—or its twin sister ignorance—part of the programme is, we fee neither in the interest of a hardy morality nor of ult mate hygiene. Secondly, there is the physico-ethica group, whose object is the reduction of venerea disease without endangering the ethical standard To them early disinfection is an incentive to vic in the case of those restrained by fear. The find a via media in the shape of clinics for earl treatment. There is here, it is claimed, not th same incentive to vice as exists when protectiv material can be carried about, but, alas, time i lost between exposure to risk and attendance a a clinic. Appeal has been made to statistic on both sides, without carrying much conviction.

This being accepted as a brief but fundament survey of the position, the urgent question t decide is: What policy does it behove the natio to put into practice in order to secure a greate degree of freedom from venereal disease? W believe that, although the differential value of sel disinfection on the one hand and early treatmen on the other has not yet been definitely ascertaine yet there is no doubt that both methods can be so developed as to produce a marked immunity from disease. It is a real misfortune that to so many the solution of the problem seems to depend upon the selection of one or other of these methods. Temperament is many-sided, and both policies, in some perfected form, may find their proper application. It can hardly be doubted that there are great masses of persons, calmly contemplating venery, who could and would efficiently utilise the method of self disinfection, and for whom no other means of securing safety is ready. There must remain unnumbered others who would not for various reasons—inebriety, for example—utilise these methods. For such negligents safety lies in the clinics for early treatment. In the thoughtful article by Dr. DOUGLAS WHITE, which we published last week, the author shows a catholicity of view too seldom brought to bear on the investigation of this problem. It is to him not merely a medical question of the relative bactericidal values of chemicals, but a social question of the ultimate effects of a line of social policy. Antiseptic values being settled, he says, the medical man, as such, is no better qualified than other persons of intelligence to determine how or whether such knowledge can be effectively introduced into social life. Where the medical profession can be of special help is, we agree, in its practical knowledge of sex-psychology and of the hygienic aspect of sociological relations. The Ministry of Health has associated with it medical men and others possessing these qualifications. Immediate action is desirable in the following directions. The best technique for the administration of self-disinfection needs to be worked out. Opportunities for early treatment should be increased and elaborated. A desirable method of instructing the public in these methods should be devised. Knowledge should be promulgated so as to apply most incisively to those who by habit or determination stand in need of it, but all propaganda must be devoid of suggestiveness.

It will be asked: Are there no other methods of ameliorative or preventive power? There are indeed. Dr. WHITE refers to Colonel L. W. HARRISON'S endorsement of the value which he attaches to the "improvement of social conditions and encouragement of games." There is no doubt such factors are potent for good and their further development is of the greatest importance. Another factor which has only recently been receiving a modicum of the attention which it should receive is sex education. The effect of its wise development upon the lives of the young and as a prevention of venereal disease in the future we believe to be immense; it will avail little, however, with existing frailty. All agree with Dr. WHITE that there is no royal road to freedom from venereal disease. There is a long straight hill to climb. But the means are already to hand by which the climbing of the hill may be rendered easier and quicker. Briefly they are: (1) opportunities for self-disinfection; (2) the provision of early treatment centres; (3) the provision of better social conditions; (4) hygienic education, especially as regards the sexual factor; (5) the provision of some form of compulsory notification. Some of these measures will appeal with more force to one class, and some to another class. But all these factors are complementary, not antagonistic. Each must ply the lever which he best can work, and so enable the Ministry of Health to formulate a scheme to coördinate the whole mechanism.

Naval Medicine—Then and Now.

ON Monday evening last Surgeon Rear-Admiral Sir ROBERT HILL, Medical Director-General of the Navy, as President of the War Section of the Royal Society of Medicine, gave a presidential address before a large meeting, who listened with attention to a retrospect of naval medical conditions, which ranged through Nelson's battles and concluded with an analysis of the casualties at the battle of Jutland. At the battle of Camperdown, in 1797, the total force was 8221, and the percentage of casualties was 10·03, 203 being killed and 622 being wounded. At the battle of the Nile, in the following year, the total force was rather less—namely, 7985—while the percentage of casualties was slightly higher, 11·22, 218 being killed and 678 wounded. At the battle of Trafalgar, in 1805, the total force was 17,772, the figures being obtained from the Admiralty Muster Books, and the percentage of casualties was 9·51, 449 killed, and 1242 wounded. At the battle of Jutland, in 1916, the total force of the Grand Fleet engaged was about 60,000, and the percentage of casualties was almost exactly that at the battle of the Nile—namely, 11·14—but the figure is terrible on analysis, for of the 6688 casualties over 6000 were killed outright or drowned, the total wounded amounting to only 674. This pathetic reversal of ratio between killed and wounded was, of course, due to the sinking of four battle-cruisers, and it is to the analysis of the figures of the wounded that we must look to gauge the part played by medicine in the terrible circumstances of a modern naval battle. At Jutland we find that of the 674 wounded by shell, burning, and gas-poisoning, singly or in combination, only 74 died, and this result may be quoted to show that the naval doctor of to-day, though the environment of battle is more perilous to him and to his patients, will emerge with triumph from the ordeal. But he requires all the help that science can give him, and every chance of coöperation with medical colleagues.

In the whole-hearted manner in which medical men from all parts of the United Kingdom and Overseas joined up with the Naval, Military, and Air Forces during the war, Sir ROBERT HILL saw two things for the future. The new section of the Royal Society of Medicine, he said, would provide opportunities for reunions that would be fruitful in exchange of experience; and, secondly, a medical organisation could in this informal way be constructed, upon which, at need, the three combatant services could call when it became necessary to augment their ranks, and to distribute the strain upon any one branch throughout the medical personnel of the country. He frankly treated his general retrospect mainly from the naval point of view, choosing his illustrations from events connected with his own service. He gave illustrations to show that anything like a scientific medical service in the Navy dates only from the latter half of the nineteenth century, in proof of which he adduced the following humorous instances:—In 1798 the newly-appointed surgeon to the *Serapis*, arriving on board his ship on the East Indies Station, was met by the commanding officer, who said that "he was a surgeon himself and allowed no other surgeon on board his ship." In 1810 the surgeon of the *Violet* wrote to ask for his discharge on the ground that "otherwise death would put an end to his troubles." In 1829 the surgeon of the *Alban* deplored the fact that "having no assistance in the sick berth he had to make his own poultices in the galley"; while the surgeon to the *Monarch* reported that during an epidemic of typhus his Admiral, "being prejudiced in favour of James's Powder, had it administered to all cases, with the result of four or five deaths per diem." The medicine of the past always seems funny to the medicine of the present. The existence of a section of the Royal Society of Medicine, where medical officers of the Services can exchange experiences with their brethren and civilian colleagues, may deprive the historian 100 years hence of good stories, but it will form one more link in the chain of progressive science.

Annotations.

"Ne quid nimis."

THE FUTURE OF THE BIOCHEMIST IN MEDICINE.

IT is of some interest to notice in the gradual progress of medical science during the past 80 or 100 years how the clinician, the morbid anatomist, the experimental pathologist, and the bacteriologist have in turn dominated medical research. To-day the biochemist holds the field, and it is noteworthy that the impetus to this form of biological investigation and its practical application have come very largely through the bacteriologist and his interest in serological problems. The pages of THE LANCET this week show how prominent this aspect of disease has become, since we publish no less than four papers in which such investigations play a prominent part. The field of research opened to the biochemist in medicine is an enormous one, and it is to be hoped that this may attract men with a deep knowledge of pure organic chemistry to the study of medicine. The need for the expert biochemist in medical schools and in pathological and clinical laboratories is a very real one, and it is doubtful whether the supply is equal to the demand. That biochemistry must be destined to play an important rôle in the investigation of many of the problems of disease is obvious, and more than occasionally, both in diagnosis and treatment, the indications of biochemistry will become the deciding guide. The various agglutination reactions, the developments of vaccine therapy, and the newer forms of chemo-therapy, are all probably but the beginnings of great advances, and these the biochemist, working in conjunction with the bacteriologist, the pharmacologist, and the physician, will certainly help to advance and probably to simplify. It is striking how, in the march of science, the abstruse and apparently transcendental of one period may develop into the commonplace of a later one. Biochemistry is so fascinating and so apparently limitless in its possibilities that we may expect it to attract an increasing number of students. But profound study of chemistry and its application to medicine will not be a remunerative career unless this highly skilled and important branch of medical research and teaching is paid on a scale more commensurate with its importance and its difficulty.

LUNACY AS A STORY THEME.

ONE of the greatest difficulties in dealing with the insane arises from the ignorance which exists throughout the community as to the conditions under which such cases are cared for. This ignorance allows of the growth of foolish prejudices which are fostered and exploited by writers who, probably with no more recondite motive than the provision of amusement for their readers, perpetuate traditions which are responsible for most of the suspicion with which mental hospitals are regarded by the general public. Half a page of a recent number of the *Sphere* is devoted to a short story entitled "Lunacy," in which the transfer of a patient from one institution to another is described. The story does not, apparently, pretend to accuracy, though even if it had been a simple statement of fact it would have been misleading in its implications. In this instance the picture drawn is not even true to nature, and its tendencies are entirely mischievous. The lunatic comes under notice while en route from "a comfortable and exclusive private home" to "a large public asylum." He is in the charge of a "coarse, florid, bloated" man who, at his request, accompanies him into an hotel and there promptly gets drunk. At this stage the "asylum car" appears on the scene and the lunatic helps the attendant into it and goes with him to the asylum gate, where another attendant accepts the drunken man as the patient, hustles him within, and shuts out the lunatic, who vanishes "pathetically into the night." This yarn may be productive of a certain hilarity among those who know anything of lunacy practice in this country, but absurdities of this kind are accepted with avidity by some minds as accurate descriptions of the way in which the insane are treated. As a result, on the one hand foolish fears are entertained, and on the other a class of men—asylum attendants—who, as a rule, are as sober and trustworthy as any other workers, is gravely discredited.

FLORENCE NIGHTINGALE MEDAL.

AT an international conference of Red Cross Societies held at Washington in 1912 it was decided to establish a medal both as a memorial to Miss Florence Nightingale and to give international recognition to outstanding work by trained nurses in all parts of the world. The medal, which will be issued early next year by the International Red Cross Committee at Geneva, is in silver and enamel. consisting of a portrait of Florence Nightingale, "The Lady with the Lamp," with the words "Ad memoriam, Florence Nightingale, 1820–1910." On the reverse, surrounding a space reserved for the name of the recipient, is the inscription: "Pro vera misericordia et cara humanitate perennis decor universalis." The medal is attached to a white and red ribbon on which is displayed a laurel wreath in green enamel surrounding a red cross on a white ground. The distribution of the medal is confined to fully trained nurses, who must hold a full nursing certificate from a recognised training school—a "training school" being a hospital possessing at least 100 beds, and presided over by a resident medical officer. A committee was appointed by the International Red Cross Committee in Geneva to make the necessary arrangements. It was originally decided that not more than six of these medals should be distributed, either annually or in alternate years, to the six most deserving trained nurses, to be selected by the international committee from recommendations submitted by the various national Red Cross Societies, accompanied by particulars showing the grounds on which each recommendation is made. Owing to the outbreak of the war in 1914 the first awards of this medal were postponed, and the International Committee have now informed the British Red Cross Society that it is intended to award 50 of these medals in January, 1920, and has requested the society to submit their recommendations before the end of the year 1919. To enable the society to comply with this request it is necessary to ask that the names of trained nurses who have, especially during the war, proved themselves to be exceptionally deserving of recognition may be brought to the notice of the British Red Cross Society. Full particulars of the services on which the recommendations are made, and the names of the officials who can personally vouch for the accuracy of the information given, should be forwarded as early as possible, and in no case later than Nov. 30th, for consideration and selection. Recommendations should be sent (marked on the outside "Nightingale Medal") to the Secretary, British Red Cross Society, 83, Pall Mall, London, S.W. 1.

THE INVESTIGATION OF ATMOSPHERIC POLLUTION.

THE real service in the interests of the public health and of economy which the Advisory Committee on Atmospheric Pollution are doing under the ægis of the Meteorological Office is well brought out in their Fifth Annual Report, which we publish this week as a supplement. The period covered is the year commencing April, 1918. We share the hope of the Committee that the keeping unsullied of the air we have to breathe will be regarded by the Ministry of Health as in their province of duties, and it is obvious that to measure the purity of the air the data which this Committee have brought together will be of the utmost value. Apart from the routine work of analysis, which the investigation involves at some 25 stations throughout England and Scotland, important research work supplementary to the observations is being carried out at headquarters.

The present report, like the previous one, bears evidence of this. Fresh branches of inquiry are being thrown out by the Chemical Subcommittee, of which the director of THE LANCET laboratories is a member. A scheme has been drawn up for scientific research in directions which considerably extend the scope of the investigation of atmospheric pollution. Steps have been taken, for instance, to evolve a workable method for the measurement of the acidity of the air, bearing in mind the importance of differentiating between the acidity due to free gas and that attached to suspended particles. It appears that there may be occasions when the air gives alkaline indications, and we can well believe this when we remember that ammonia with other bases is a product of incomplete coal combustion. Ammonium salts—the chloride, for example, which so often occurs as a fume in the chemical laboratory—prove to be more destructive of metallic fittings than free acids; and it is conceivable that ammonium sulphate is more active in degrading building fabrics than sulphur dioxide, for the reason that a double decomposition is then at play which proceeds more readily than an attack by an acid group without a base. Interesting again is the attempt to establish a relation between bacterial and smoke contents of the air, while the pollution by motor traffic, which is rapidly succeeding that of horse traffic, claims attention. Further investigation is to be directed to the microscopical examination of the impurities suspended in the air, with a view to measuring the size of the particles and the distance from their source to which different-sized particles are carried. Another interesting line of research is promised in determining the selective action of rain or snow in bringing down certain constituents of suspended impurity in preference to others. The estimation of the obscuration of light by suspended impurity, which also is in contemplation, should afford instructive results in showing the loss to the community of the sun's health-giving radiations.

The monthly observations at the stations during the year April, 1918—March, 1919, recorded consecutively in our columns, show with all necessary detail the interesting fluctuations, seasonal and topographical, which occur both in the kind and the amount of impurities in the rain and brought down by it. A comparison in respect of deposit of the figures for the two years 1917–18 and 1918–19 shows a diminution in the summer and an increase in the winter during the second period. The rationing of fuel has most probably influenced the results in some directions. There is, for instance, a considerable diminution in the tarry constituents of the deposit which, likely enough, is due to improvements in combustion, the increased use of smokeless fuels—such as gas, coke, and anthracite—and to an economised fuel consumption, especially in domestic fires, which pour out tar into the air. Similarly, the contamination by sulphur products is reduced, which would naturally follow a lower consumption of coal. The enforced economy of coal, in fact, may be expected to effect a corresponding fall in the gaseous and suspended impurities in the air derived from its combustion, perfect or imperfect. This relationship will probably be developed later, as the returns, so far, do not cover a full year of the coal rationing order, which came into being on Oct. 1st, 1918. The war has, of course, reduced the full complement of returns, owing chiefly to a depleted staff of analytical authorities, but there is good prospect of getting the laboratory into full work, and again the Committee confidently expect that further observing stations will shortly be set up. These developments are very satisfactory to the hygienist, for the work of the Committee must have a close bearing on the health and wellbeing of the community. The purity of the air we breathe shares in importance the purity of the food we eat and that of the water we drink, and, despite the negligible worth of self-praise, we are glad to remind our readers of our association with the movement from its start.

GONORRHŒAL OTITIS IN INFANTS.

LITTLE attention has hitherto been paid to the occurrence of gonococci in the purulent discharge of suppurative otitis media in early infancy. In a review on the bacteriology of acute otitis media Kümmel mentions only two cases, published by Krönig and Deutschmann respectively. Reinhard has also recorded a case in an infant aged 14 days. In all these cases the children had developed the otitis during or shortly after a typical ophthalmia neonatorum. Putzig,[1] from whose paper the foregoing information is obtained, has recently reported a case in which the otitis developed almost two months after the cure of the ophthalmia, so that it can hardly be supposed that the gonococci, as in the other cases on record, had passed through the nasal duct into the throat and so into the ear. It was more probable that the otitis was due to the mother, who still had a specific discharge. As the otorrhœa proved to be very obstinate, the possibility of gonococcal infection suggested itself, and on bacteriological examination typical gonococci were found in the ear discharge. Treatment with 1 per cent. protargol was instituted and rapid recovery took place. The case illustrates the necessity of making a bacteriological examination in all cases of obstinate otorrhœa in infants, especially in those who have previously suffered from ophthalmia; for, where indicated, specific treatment with protargol followed by potassium permanganate leads to cure in a few days.

---

[1] Deutsche Medizinische Wochenschrift, 1919, 1165.

A PATHOLOGICAL RESEARCH FELLOWSHIP.

AT a time when hospital finance is becoming more and more difficult it is pleasing to note that the value of organised clinical research is recognised by a few generous souls. St. Bartholomew's Hospital Medical School has become the recipient of a sum of money sufficient to endow a research into "the Pathology and Treatment of Lymphadenoma." This is due to the munificence of Mrs. L. B. Rose, of Bedford, who has so arranged that sufficient funds are available for the research to be carried on for a period of ten years if necessary. Working expenses are also provided for, and the sum given is sufficient to support a second researcher if the board of electors to the fellowship deem it desirable. The gift should have attraction for workers from all parts of the country, for it has been decided by the hospital authorities to throw open the Rose Research Fellowship for competition by any who may desire to apply. Lymphadenoma is still a disease of which little is known, either on the pathological or therapeutic side. The available material is scanty, and although it is expected that the research will for the most part be carried on at St. Bartholomew's Hospital, powers are given to the electors from time to time to permit a part of it being performed elsewhere. It will be seen that the fellowship is generously conceived, and its holder will be a fortunate person.

NORMAL LABOUR ON THE CINEMA.

Dr. Drummond Robinson has spent time, trouble, and money on the obstetrical films recently shown at the Royal Society of Medicine, but we do not share the apologetic attitude adopted by those members of the society who criticised them in detail. The principle of teaching by cinematograph, where practicable, has long been accepted, and it is in the details of its application to any subject that an individual film must stand or fall, especially if it is offered for sale to teaching institutions. In Dr. Robinson's films the diagrammatic line drawings in sagittal section were similar to those seen in many text-books. Had they been sufficiently numerous to give an impression of continuous movement when released at a fast pace, they might have been helpful, though drawings of such complicated movements in two dimensions only are always difficult to interpret. The baby moved down in a series of jerks comparable to those made by the minute hands of certain large clocks worked by electricity; no one attitude merged into the next even rapidly enough to cause the disagreeable flicker associated with a slow film. Moreover, doubtless through slight differences in successive drawings of the vertebral column, too much apparent movement of the bony structures took place, including even alternate narrowing and widening of the spinal canal. The use of a stamp for the fixed portions of the vertebral column would have averted this curious illusion and saved time in drawing. Dr. Robinson excused the jerky movements on the score of the enormous expense involved in the drawings, but for experimental and demonstration, if not for selling purposes, it would have proved more effective to concentrate on either vertex or breech and show the same number of drawings spread over one presentation only. The pictures of actual labour on the living subject were also disappointing, though the birth area certainly filled the picture, and the movements of the emerging child were shown as clearly as possible. Since in the vertex case no attempt was made to guard the perineum—doubtless so as not to obscure the view of the child's movements—we may conclude that the object was the demonstration of the physiology as opposed to the management of labour; such movements, however, as are visible to an observer facing the perineum form too small a part of the whole complicated process to be of any help to a student. As to the possible value of these films in teaching the management of labour, the most important duty of the obstetrician in a normal case is to guard the perineum, and the spectacle of an unaided delivery with a torn perineum is of negative educational value. It will not tend to improve the practice of the student, only too prone to regard a tear merely as an opportunity for practice in putting in stitches, if this accident is deliberately allowed to occur in what should be a model film. In any case, the doctrine that a person should be allowed to conduct labour without having watched actual delivery and having received practical instruction in technique at the bedside would surely be indefensible; films of the natural subject could in no way replace such instruction. The omission of the customary warm flannel round the buttocks of the breech baby, and the demonstration of pictures of a case insufficiently prepared, seem to show that the preparation of a really satisfactory obstetric film is very difficult. Dr. Robinson should have discarded all unsatisfactory films and have delayed release until he could show a model one, if he wished to convince his audience that his subject is suitable for cinematograph teaching. Such films might be useful in the future for training midwives in this country or in India, especially if less prominence were given to the actual delivery in comparison with the preparations therefor. They should comprise pictures of antenatal clinics, the taking of measurements, and testing of urines; hygienic under-garments for pregnant women should be shown, and pictures of the fittings of a lying-in hospital. Midwives and students should be seen washing up, putting on sterile gowns and gloves, others making and arranging the bed, and movable tables with accessories should be demonstrated; other pictures might show the adaptation of a small cottage to the purpose of a lying-in room. Certain details in Dr. Robinson's film, such as the cleaning of the baby's eyes, the jaw and shoulder traction method of extracting a breech baby, and subsequent resuscitation from asphyxia, were excellently shown. Had the pictures been offered only as a demonstration of possibilities, and criticism invited, we should have congratulated all concerned on the enterprise, and trusted that with the coöperation of fellow obstetricians Dr. Robinson would be able in the future to turn out some really first-rate films. It is only because they are offered for sale to teaching institutions as a more or less finished article that we feel bound to say that the attempt to demonstrate both the physiology and the management of labour in the same films was not a real success.

NEW INSTITUTE FOR PARASITOLOGICAL RESEARCH AT CAMBRIDGE.

THE Senate of Cambridge University have recently accepted with gratitude a generous benefaction from Mr. and Mrs. P. A. Molteno. Mr. Molteno is a member of a family well known in the Cape Colony for its interest in, and support of, the advances of science, and he is himself a member of Trinity College. Mr. and Mrs. Molteno have presented the sum of £20,000 for the erection and £10,000 for the maintenance of an institute for research on parasitology, under the initial direction of Professor George H. T. Nuttall, F.R.S. Tentative plans for the building have been submitted to, and approved by, the donors, who express the hope that it will be found possible to carry them out in their present form. In the letter making the offer Mr. Molteno refers in flattering terms to the work already done in parasitology by Professor Nuttall while working under the most disadvantageous conditions, and to the enormous value of the results already achieved in the prevention and control of diseases transmitted by parasites. He regards further research in this direction as indispensable if Africa is to be made habitable for white men and for animals of European stock, and it will also help to protect human and animal life from disease throughout the world. The gift is a specially happy one at a time when the need for national economy threatens to limit the allotment of Government grants for the purpose of research.

ADDITIONS TO THE WELLCOME HISTORICAL MEDICAL MUSEUM.

THE historical medical museum in Wigmore-street, initiated by Mr. Henry S. Wellcome, has now become a well-known and permanent institution. Almost everything bearing on the history of medicine is represented, and great credit is due to the curator, Mr. C. J. S. Thompson, for the judgment displayed in the selection of articles showing the evolution and development of medicine and surgery, and in their arrangement. The museum is valuable and instructive from the artistic as well as the historical standpoint. Within the past few months important accessions have been made to the collection. Carved figures known as kareaus or spirit scarers from the Nicobar Islands, in the Bay of Bengal, are represented by some excellent specimens. An extensive collection of medical folklore charms found in London has been added, many of the specimens being Jewish charms. Here we noted several bead necklaces for warding off colds and bronchitis, and unexpectedly reproducing the pathology of some modern quackery. A cast of the statue of Æsculapius, from the Hope collection at Deepdene, generally known as the Hope Æsculapius, is now in the Wellcome Museum. It is of heroic size, 6 feet 4 inches in height, and represents the tutelary deity of physicians in an erect posture, cloaked, leaning on a long staff around which a serpent is coiled. Against the left foot is what Michaelis terms the casket, but which looks more like a diptychon. The folds on the left arm are particularly worthy of praise, in the opinion of sculptors. The statue was taken from Hadrian's villa, near Tivoli. A small-sized marble Æsculapius excavated at Carthage has also been acquired, as well as a Roman dancing-girl in bronze. The interesting feature of this statuette is that she wears what presumably from its shape and general appearance is an abdominal girdle or belt. A terra-cotta statuette of a blind man comes from Cyprus, 300 A.D.—the interest of this figure is mainly in the reading tablet with incised letters upon which the hands are placed, for no doubt the blind man is reading by the sense of touch. Any collector of pretty things, medical man or no, will be charmed with an especially beautiful Jacobean medicine chest. This chest is most ingeniously contrived to economise space, and the cabinet work affords convincing evidence that in those days, *circa* 1690, work was not scamped. One of the finds of the museum is the first official pharmacopœia—Nuovo Receptario Composito, date 1498, compiled by the physicians of the College of Medicine of Florence. The collection of clinical thermometers made by Sir Hermann Weber has been presented to the museum by his son, Dr. F. Parkes Weber. The collection is complete from the time that the clinical thermometer was first introduced into Great Britain up to the present day. The late Sir Lauder Brunton, in a Presidential address to the Medical Society of London, narrated that when he was a medical student at Edinburgh the use of the clinical thermometer had just been familiarised in the country by Sir William Aitken, later the well-known professor of pathology at Netley. Sir Lauder Brunton describes amusingly[1] his passage as a clerk through the clinical wards armed with two of these thermometers. One was bent and the other was straight, both were between 1 foot and 18 inches long. They were contained in what resembled a modern gun-case, and each observation required about ten minutes. A striking oil-painting of William Harvey is a copy of the painting by C. Janssen in the board room of Canterbury Hospital; we noticed also a portrait of Dr. Lettsom and family by I. Zoffany; the Culpeper microscope, complete in every detail; a Saint Cosmo and Saint Damian reliquary, being a cup carved from agate, used for taking medicinal drafts—physicians lent such cups to their patients. A bed-table of seventeenth century, with all modern improvements; a portable bath-tub for a lady of the time of Louis XIV., made of wood with a removable metal casing; and an Italian medicine chest of exquisite workmanship, show how old much of our modernity is. It will be seen that the recent additions to the Wellcome Historical Museum maintain the character of the institution as educative as well as artistic.

THE statute to make Greek an optional subject at Responsions was reintroduced on Tuesday last at a meeting of Congregation of Oxford University. The preamble was approved.

THE next session of the General Council of Medical Education and Registration will commence at 2 P.M. on Tuesday, Nov. 25th, when Sir Donald MacAlister will take the chair and give the presidential address.

---

[1] THE LANCET, Oct. 14th, 1905, p. 1087.

INDUSTRIAL MEDICINE IN THE UNITED STATES.[1]

THE July and August numbers of this new journal, the first two numbers of which we reviewed in September (p. 587), contain articles dealing with both the preventive and curative sides of industrial medicine. The writers in every case are Americans, and the absence so far of any contributions from British authors might lead us to think we were, in this country, not abreast of the times, did not Dr. G. M. Price's article on factory inspection in the States lift the veil from a standard of work to which we have never fallen on this side of the water. Factory inspection with us has always been a highly specialised profession, carried on by whole-time experts of recognised social status and possessed of scientific knowledge, whose skilled work is fully reported upon annually. In the States, "with every political upheaval and with a change in administration there is a change in the head, chief, or commissioner of the department." And Dr. Price writes:—

> "In Pennsylvania I found that many of the factory inspectors were conducting private business enterprises while holding commissions in the department. One is alleged to have sold fire insurance; another kept a saloon; still another was in the coal business. In another state, where the chief factory inspector divides his time between conducting a livery stable he owns and the business of caring for some 30,000 factory wage-earners, I found him contributing a remarkably concise annual report consisting of exactly 14 words. It reads, under date of July 1st, 1911, as follows: 'I have visited the same factories as last year and find conditions the same.'"

Reading this article we have no need to blush for our country.

Nursing in Industry.

In Mary Beard's story of nursing in industry we read of a recent and rapid introduction of nurses into American factories not unlike what is taking place in this country; the enterprise of individual employers seems in this matter to be far ahead of official requirements. The author tells of the work done and of the influence exerted by the nurses, and puts in a plea for coördination of all classes of public health nursing, a move which with us must receive an impetus from the training of health visitors just set on foot by the Ministry of Health, though unfortunately the Ministry has omitted from the training any reference to industrial work. This class of nurse is rapidly increasing with us, and the moment was opportune to have recommended that some part of our course should be devoted to the specialised work of industrial requirements. An article on mortality in unhealthy trades, from the pen of A. D. Reiley, is actuarial in scope and too short to compass in any adequate manner the subject with which it deals. Some of the difficulties, of which labour turn-over is an important one, standing in the way of any correct estimate of the actual ravages of industrial disease, are, however, pointed out.

Dust Inhalation and Tuberculosis.

The most important paper in these two numbers is one by Dr. H. R. M. Landis on the manifestations of dust inhalation. After an historical introduction, the author proceeds to deal with his subject, grouping it according to the organic or inorganic origin of the dusts inhaled. We wish he had chosen similarity of clinical or pathological manifestations instead, and had left the origins of the dusts to arrange themselves accordingly; this grouping is the natural one from a medical point of view, and, as Dr. E. L. Collis has shown in his Milroy lectures (with which, by the way, Dr. Landis does not appear to be familiar), the dusts then group themselves simply. At times the writer advances views which hardly tally with known facts; thus he writes:—

> "My own belief is that the higher incidence of tuberculosis among those exposed to inorganic dust is due to the fact that dust acts as a convenient carrier of tubercle bacilli. In other words, it is not the preliminary injury which the dust is responsible for that predisposes the individual to tuberculosis, but the readiness with which tubercle bacilli may be carried into the respiratory tract by a dust-laden atmosphere."

This theory does not account (to give only one instance out of many possible ones) for the tuberculous death-rate of granite dressers—who are greatly exposed to dust, working, as many of them do, in closed sheds and using pneumatic tools—being lower than that of sandstone masons—who, working with hammer and chisels in open lean-to sheds, are less exposed to dust; but sandstone is nearly pure silica, while granite only contains 30 per cent. Tuberculosis implanted on silicosis has clinical manifestations and an underlying pathology which clearly distinguishes it from tuberculosis (possibly dust-borne in origin) not associated with silicotic fibrosis. We are surprised to find a clinician of Dr. Landis's standing not accentuating more clearly these two clinical types of pulmonary tuberculosis, especially when referring to the occurrence of phthisis among textile operatives, tobacco factory-workers, and garment-makers. We regret, also, to find the statement made that: "The sharper and more angular the dust particles, the greater will be the amount of mechanical injury, and hence the greater the inflammatory reaction." Assuredly minute particles, mostly below 1μ in diameter, moving slowly in the moist interior of an alveolus, can have no power to cause mechanical injury; were the matter in doubt the comparative absence of fibrosis in those exposed to the inhalation of fine emery and glass dusts, hard, angular, and spicular as they are, would lay it at rest. Silica dust is dangerous, not on account of its hardness and shape, but of its chemical composition. The gross and minute anatomy of silicosis is well described; indeed, Dr. Landis seems to confine himself to describing this form of pneumonoconiosis when discussing the pathology, symptoms, and physical signs due to inhaling inorganic dust, and not to recognise the existence of other pneumonoconioses due to the inhalation of other inorganic dusts than silica. The diagnostic value of radiology is stated; but the author is silent over the disturbing influence, which inhalation of dust of heavy materials, such as iron, lead, or gold, all opaque to X rays, may have upon the inferences to be drawn from the shadows disclosed. A review, contributed by Dr. H. F. Smyth, on methods of determining the dust-content of air, is well placed next to the above-noted article. This review is an excellent survey of present knowledge on the subject, and brings together information not previously collated. Dr. Smyth expresses a preference for Palmer's method of drawing dust-laden air through a fine water-spray, though he also commends Muir and Johnson's sugar-filter method, and Duckering's cotton-wool filter. All interested in the subject of dust estimation will thank the author for this careful paper.

Industrial Surgery.

Three articles are devoted to surgical questions. One, by Dr. R. B. Osgood, is on the use of radiography in disclosing otherwise unsuspected bone lesions in the lumbar, sacral, and iliac regions in cases of so-called "back strains." Such cases in industry have a medico-legal aspect, but Dr. Osgood points out that knowledge to-day on the bony variations which exist within the normal is too jejune for radiography to afford, even in expert hands, an answer in every case as to whether a definite lesion is present or whether the pain is functional. The article, which is well and clearly illustrated, provokes awkward thoughts as to the correctness in the past of many a lightly-made diagnosis of lumbago and the like. The writer holds that "the diagnosis of hysterical spine should rarely be made; that the diagnosis of railroad spine means nothing; that the diagnosis of functional spine is usually a confession of our ignorance of the true cause of the trouble." Dr. J. J. Moorhead has something to say of how lessons learnt in the war will be of use in industrial surgery. He points out the value of "mechanical sterilisation" or "débridement" when badly crushed tissues have to be treated in preference to chemical sterilisation; the improved treatment which has been learnt of fractures; the importance of early mobilisation for joint injuries; and the advances made in dealing with surgery of the thorax. Dr. C. A. Lauffer discusses hernia in industry, and dwells upon the impossibility of diagnosing the presence of an empty hernial sac. He points out that in a true traumatic hernia "the peritoneum is torn; there is no sac, the viscera come out through a fresh tear in the peritoneum," and that the condition can only be diagnosed from incarceration in a pre-existing sac at operation. He recommends removal of all hernial sacs at the expense of the employer as "calculated to restore faithful employees to industry and, at the same time, as a patriotic duty by which industrial workers are restored to their greatest efficiency."

---

[1] Journal of Industrial Hygiene. Nos. 3 and 4, July and August, 1919. New York: The Macmillan Co. Price 3s. 6d. or 21s. annually.

Chronic Manganese Poisoning.

Not the least interesting contribution is one by Dr. D. L. Edsall, Dr. F. P. Wilbur, and Dr. C. D. Drinker on chronic manganese poisoning. The condition, which has not, so far as we know, been described in this country, arises from prolonged inhalation of dust of manganese dioxide, and the cases in America and on the Continent have occurred among men manipulating manganese ores. The symptoms, which all concern the central nervous system, have some semblance to those of multiple sclerosis, but once the occupation is known a differential diagnosis is comparatively easy. The condition is one of such interest that the syndrome given by the authors is worth quoting:—

> "1. A history of work in manganese dust for at least three months. 2. Languor and sleepiness. 3. Stolid, mask-like facies. 4. Low monotonous voice; economical speech. 5. Muscular twitching, varying in degree from a fine tremor of the hands to gross rhythmical movements of the arms, legs, trunk, and head. 6. Cramps in the calves and a complaint of stiffness in the muscles of the legs, the cramps usually coming on at night and being worse after a day of exertion. 7. Slight increase in tendon reflexes. 8. Ankle and patellar clonus .... 9. Retropulsion and propulsion. 10. A peculiar slapping gait .... 11. Occasionally uncontrollable laughter; less frequently crying. 12. Uniformly absent are any disturbances of deep or superficial sensation, eye changes, rectal, genito-urinary, or gastro-intestinal disturbances, reactions of degeneration, blood, urine, and spinal fluid alterations. It is significant that, unlike lead, manganese produces no life-shortening degenerations. Seriously poisoned men are long-lived cripples. The metal apparently makes a very definite attack upon some non-vital portion of the neuro-muscular system, destroys it thoroughly if time for action is permitted, and leaves the victim quite well in every other respect."

Similarities can be traced between these symptoms and those of arsenic poisoning (as seen in the contaminated beer cases which occurred in England, in Manchester, Salford, and a large area round these towns, nearly 20 years ago),[2] and of chronic lead poisoning; while the portal of entry, the inhalation of dust, is the same as that of industrial lead poisoning. Ores of manganese are handled in this country, and the metal is used in the metallurgical industries. We cannot help thinking that if cases are looked for they will be found; and for this reason we give prominence to our notice of the paper.

Poisons of the Aromatic Series.

The last article, one on poisons of the aromatic series, by Dr. Alice Hamilton, deals with benzene and its nitro- and amido-derivatives. The subject is an important one; but the arrangement of the article is lacking in plan, and we are carried from one compound to another without any grouping by chemical structure or symptomatology. Finally, the article seems like the play of *Hamlet* without the Prince of Denmark when it concludes without reference to poisoning by trinitrotoluene (T.N.T.). The train of symptoms caused by this high explosive were so carefully worked out in war-time that we think adequate consideration of the effects produced by other compounds built on the benzene ring cannot be instituted without comparison with those worked out for T.N.T.

---

[2] THE LANCET, 1900, ii., 1590.

MEDICAL MAYORS.—Among the names of medical men recently elected to the position of chief magistrate are those of Dr. F. M. Blumer (Stafford), Dr. H. A. Latimer (Tunbridge Wells), Dr. A. J. Rice-Oxley (Kensington), and Dr. P. A. Roden (Droitwich).

THE CIVIL USE OF RED CROSS AMBULANCES.—Of the 296 ambulances allotted by the Red Cross Society and the Order of St. John to county directors for the service of the general public, 171 have already been handed over. Reports show that during three months' service the number of cases carried per ambulance averaged 26. The Ministry of Pensions is availing itself of the provisions afforded by these ambulances, and the Treasury has sanctioned payment for the use of the cars for pension cases on the scale laid down in the scheme of the Home Service Ambulance Committee.

BACILLARY DYSENTERY IN MACEDONIA.

MUCH information, the fruit of real research, is contained in the valuable contribution entitled "Studies of Bacillary Dysentery Occurring in the British Forces in Macedonia," which has now been published, under the editorship of Dr. L. S. Dudgeon, consulting bacteriologist to the British Salonika Force, by the Medical Research Committee. On the elucidation of many of the various problems presented by the difficulties and complexities of endemic and epidemic dysentery in a subtropical region during three years of war the editor of these studies and his fellow contributors are to be warmly congratulated; their labours have been achieved by coördinated team work in various laboratories of the Salonika area, and carried out under conditions which only organisation emanating from a central laboratory could have successfully overcome.

Among the points made the object of research and investigation, certain stand out pre-eminently for their practical bearing and interest. The plea for the closer and more intelligent coördination between the wards and laboratory is one well worthy of emphasis. The want of such makes itself felt as much among our home hospitals during peace as in the field hospitals in time of war. For without this much needed close contact and understanding between clinician and pathologist the value of laboratory effort and research may too often be lost sight of or even ignored.

Effect of Delayed Examination on Bacteriological Results.

Attention is drawn particularly to the importance of specimens of dysenteric stools reaching the laboratory with as little delay as possible; on this the success of bacteriological examination largely depends. The point is made clear by a careful analysis of results obtained in several laboratories in the Salonika command, which shows that the number of positive dysentery findings varied according to the time which had elapsed between the taking of the specimen and its arrival at the laboratory. Another important factor demonstrated is the harmful action of fæcal material on the cultivation of the dysentery group of organisms, as opposed to the successful findings in cases where the stools consisted of pure blood and mucus.

The Chemical Reaction of Dysenteric Stools.

Delayed examination, particularly in the presence of fæcal material, was found to result in a diminution of the normal alkalinity of the stools and, with the increasingly acid reaction, in an inhibition of the growth of dysentery bacilli. The influence of acids and alkalis is explained by experiments which showed the deleterious effect of lactic acid on the viability of *B. Shiga*, *B. Flexner*, *and B. Morgan* (1), and further, that this effect could be overcome and counteracted by the addition of normal caustic soda. Recognition of the importance of the changes in reaction of the stools from alkaline to acid, and the influence of these changes on successful cultivation of dysentery organisms, led to the adoption of measures to preserve the alkalinity of specimens, when, owing to the length of time in transit, circumstances prevented bacteriological examination from being made for several hours. An equal quantity of 3 per cent. of normal sodium hydroxide was added and intimately mixed with each specimen immediately after collection.

Cultural Tests applied to the Dysentery Group.

The result of hæmocultures during the acute stages of bacillary dysentery were recorded in 145 cases, but all proved sterile save in two instances which yielded growth of Flexner-Y bacillus.

The technique followed and various culture media and methods employed in the course of the laboratory examinations made are detailed in the opening section of the report. 140 strains of the Flexner group were submitted to prolonged cultural tests and found to possess characteristics which were classed as primary or constant and secondary or inconstant. Owing to the instability of the secondary characteristics, and confusion in classification resulting from them, the use of lactose, glucose, and mannite only were relied upon for primary differentiation of the Flexner group, and final classification was attempted by means of serological reactions; but the variations of the members of this group in their response to serological tests rendered ultimate definition impossible. Selected strains agglutinated with their autogenous antisera, but, when cross agglutinated, divergent reactions occurred, and similarly wide differences in agglutinability were experienced when these strains were tested against the antisera prepared at the R.A.M. College and Lister Institute. Certain strains proved entirely inagglutinable except with their autogenous antisera. Mention is made of the isolation of inagglutinable strains of Flexner bacilli from typical blood and mucus stools in a number of cases and of their occurring in almost pure culture in some instances. Little doubt is attached to these strains being capable of causing acute dysentery, and it is reasonable to agree with the suggestion that they "may be aberrant forms of the true mannite-fermenting group of dysentery bacilli." Absorption tests confirmed the divergence shown by the agglutination reactions.

As the result of investigation into the properties of the Flexner organisms the subdivision of the group by cultural examination is deprecated, but the future development of serological tests promises eventually an accurate classification of the group. (Such promise is in some measure fulfilled by the recommendations of the Special War Office Committee on Dysentery and the subdivision of the Flexner group into five types, designated V, W, X, Y, and Z.) The correct classification of the inagglutinable type and its relationship with the true organisms call for close observation of the cultural, serological, and toxic properties.

The Shiga Group.

In dealing with the characters of the true Shiga bacillus the report finds no occasion for special comment, but devotes considerable attention to the so-called *para-Shiga bacillus* isolated from a certain number of typical blood and mucus stools. Though occasionally forming indol, this variant otherwise resembles the Shiga bacillus culturally, but serologically was found to be distinct from it in both agglutination and absorption tests. This organism was described originally by Schmitz, and subsequently designated *B. ambiguus* by Andrewes. A subdivision of the para group is made into para-Shiga + and para-Shiga −, according to the power of forming indol or not. That the prefix para is an unsatisfactory one is fully recognised in the report, but in view of the striking differentiation provided by agglutination and absorption tests between the true Shiga bacillus, para + and para − organisms, it is claimed that these prefixes are justified until a more suitable title is forthcoming.

B. Morgan.

The account of the behaviour of the Morgan group, though limited to 14 strains of Morgan's bacillus No. 1, is welcome in view of the free occurrence of the bacillus in cultivation from blood and mucus stools during certain periods of the dysentery seasons in Macedonia. Its frequency, indeed, was so striking that the failure to assign it a place among the recognised dysenteric organisms, and to attach a definite reason for its incidence, is disappointing. The strains investigated all yielded acid and gas in small quantity in glucose, but caused no change in lactose, saccharose, dulcitol, and mannite; were Gram-negative, and motile in varying degree. In 11 of the 14 strains hæmolytic properties were observed in the special tests applied.

Two of the strains were inoculated into rabbits and produced immunisation. The resulting antisera were tested against all the members of this group, but agglutination was only forthcoming in the case of the antiserum and autogenous bacillus. Though numerous other strains of *B. Morgan* (1) were tested with these two antisera, all yielded negative results, and it was evident that for serological tests of Morgan bacillus these antisera were useless. The results of absorption tests coincided exactly with those of the agglutination experiments, absorption only occurring when antigen and autogenous antiserum were employed. The formalin death points of these organisms were noted, and in contrast with the true Shiga bacillus, which is killed by 0·1 per cent. formalin, the para-Shiga group was found to be less vulnerable; but the Morgan bacillus No. 1 was still more resistant, requiring a strength of 0·14 per cent. before being killed.

The Acid Agglutination Test.

This test, consisting of the addition of varying amounts of normal sodium hydrate and acetic acid to emulsions of bacilli, recommended by Michaelis as a ready method of differentiating the dysentery group from other organisms by its constant failure to agglutinate, was fully investigated with Shiga, Flexner, and para-Shiga bacilli. The observer's results confirmed those of Captain E. G. D. Murray, R.A.M.C., to which they refer, that Michaelis's acid agglutination reaction cannot be relied upon for the identification of dysentery bacilli.

Arthritis as a Complication of Dysentery.

Arthritis involving one or more of the large joints was met with in 25 cases, in ten of which the joint fluid was examined bacteriologically. In only one case the Shiga bacillus was isolated, and in the others the fluid, which contained abundant pus cells, proved sterile, although the Shiga bacillus was the cause of the intestinal infection in seven of the ten, and although the complication occurred during the acute stage of the disease in every case. Agglutination tests were carried out with the joint fluids against antigens of *B. Shiga*, *B. Flexner*, and *B. "Y."* In one case the fluid yielded positive agglutination with Shiga up to 1/150 dilution, and in another with Flexner up to 1/300, and in a proved case of Shiga dysentery the joint fluid yielded a high Shiga agglutinin content. Injection of the joint exudates into joint cavities and peritoneum of rabbits produced no ill-effects and failed to excite dysentery agglutinins in the serum of the inoculated rabbits.

Dysentery Agglutinins in Human Sera.

Observations on the effect of storage at laboratory temperature over a period of seven days showed that in the majority of instances the sera were not affected, whether in contact with the blood clot or free from red cells. The influence of heat at 55° C. produced a reduction of the agglutinin content of dysenteric sera. This action was usually complete in 15 to 30 minutes and affected the titres of different antigens in a similar manner.

An important comparison of agglutination records made at 37° C. and 55° C. emphasises that immersion of the agglutination tubes in water at 55° C. is more advantageous than warm air at 37° C., and that the incubation period of five hours is better than three hours. The most satisfactory results in determining agglutination reactions are therefore obtained by partial immersion of the tubes in water at 55° C. with a time-limit of five hours, readings being taken after half an hour at room temperature. A series of investigations were carried out with the object of ascertaining the agglutinin content of the blood in cases of acute bacillary dysentery and at what period of the disease the agglutinins occur. Care was taken not to lose sight of the possible influence of previous mild attacks of diarrhœa, from which, indeed, after several months' residence in Macedonia, but few were totally exempt; the consequent likelihood of pre-existing agglutinins in cases later suffering from the acute form of the disease was noted.

Shiga Infection.

Out of a total of 177 patients from whom *B. Shiga* was cultivated during the acute stages of infection the sera of no fewer than 77 failed to react with Shiga antigen in a dilution of 1 in 25. The sera from the 177 cases of acute Shiga dysentery were also tested for Flexner agglutinins, with the striking result that 112 reacted with a Flexner antigen, known as the Gallipoli strain, in dilutions above 1 in 100; but with two other Flexner strains no reaction occurred except in low dilutions. These results, as pointed out, do not conform with the so-called "Martini Lentz" law—that patients infected with the Flexner bacillus develop Flexner but not Shiga agglutinins, the converse being also believed to hold good—and afford proof that the law is based on insufficient data. That the majority of Shiga cases were doubly infected by Shiga and Flexner bacilli cannot be entertained in explanation of the presence of Flexner agglutinins, for the Flexner organism was consistently absent by cultural tests.

The conclusions drawn from the observations made are that a reaction with dilution 1 in 25 is strongly suggestive, and one with 1 in 40 is positive indication of a Shiga infection, also that Shiga cases may show a high Flexner agglutinin content, and that cases of para-Shiga dysentery do not give a Shiga agglutinin reaction.

Flexner Infections.

The results of agglutinin reactions obtained in cases of acute Flexner dysentery provide a striking contrast when compared with those in Shiga dysentery. For it was found that out of 211 Flexner cases only 3 agglutinated a Shiga antigen in dilutions of 1 in 25. In 104 of these 211 cases a reaction was obtained with the Flexner Gallipoli antigen in dilutions of over 1 in 100, but with other Flexner strains 45 of these sera did not react, 31 reacted in dilutions of 1 in 25 and 1 in 50, and 28 between 1 in 50 and 1 in 100. Hence, if the agglutination test is to be utilised as a laboratory method for diagnosing Flexner dysentery, the importance of employing a sensitive Flexner antigen must be emphasised. In the event of cultural tests not being possible or failing to show the presence of a member of the dysenteric group in cases diagnosed clinically as dysentery, it is urged that application of the agglutination test to a patient's serum may provide valuable and reliable evidence of Shiga infection. But, on account of the high Flexner agglutinin content which may occur with a Shiga infection, the same value cannot be attached to the test when applied to cases of Flexner dysentery. In these cases a positive diagnosis must be guided by a reaction with not less than 1 in 150 dilution and by the absence of a Shiga reaction, the tests being preferably made with multiple antigens and repeated at a week's interval. By repetition of the test at intervals of a week it was observed that a rising or falling Shiga reaction could be taken as evidence of Shiga infection, but much less diagnostic importance is to be attached to a similar change in Flexner reactions.

Duration of Agglutinating Properties in the Blood of Dysentery Cases.

An estimate as to the duration of the presence of agglutinins in the blood, after convalescence is established, presents a problem beset with complications, owing to the possibility of recurrence of attacks of dysentery and diarrhœa, which may be due to a lighting up of the original infection, a re-infection with the same organism, or a fresh infection by another member of the dysenteric group. Where, however, a recurrence has not occurred, it is judged that those patients who are found to have a low agglutinin content for Shiga or Flexner rapidly lose this during convalescence. Out of a total of 325 "convalescent" cases investigated, 87 only gave evidence of infection, 19 yielding positive and 17 probable Shiga, and 53 positive Flexner reactions. Of the 34 Shiga cases, 24 were found to have an associated Flexner reaction with a minimum dilution of 1 in 150.

Opposition to the suggestion that these concomitant Flexner reactions are the result of concurrent infections by the Flexner bacillus is based on the following grounds: (1) The frequency with which associated Flexner reactions are found in Shiga cases is out of all proportion to bacteriological evidence; (2) the absence of Shiga agglutinins in proved Flexner cases; (3) absorption tests which were applied in the Shiga bacilli to Shiga sera, known to possess Flexner agglutinins, remove both the Shiga and the bulk of the Flexner agglutinins. Whereas confidence is expressed as to the diagnostic values of the Shiga reaction, with Flexner reactions, on the other hand, no attempt is made to disguise the difficulties presented in forming an opinion without a complete inquiry into the cases, for the very reason that a transient unreported diarrhœa may be due to the Flexner bacillus. Moreover, even in the absence of any history of diarrhœa or dysentery, Flexner reactions, of 1 in 150 dilution and higher, have been found; these are evidence possibly of mild infection without symptoms of any intestinal lesion, analogous, as is pointed out, to the finding of malarial parasites or cysts of *E. histolytica* where there is no history indicating either malarial fever or amœbic dysentery.

The suggested standard for human serum of evidence of Flexner infection—viz., a reaction with not less than 1 in 150 dilution—is recognised as an arbitrary one, but emphasis is laid on the importance of ascertaining at the same time whether Shiga agglutinins are present or not before passing a verdict in favour of the Flexner bacillus as the real cause.

Importance of Absorption Tests.

The application of absorption tests to sera from cases of bacillary dysentery by saturation with standard cultures of *B. Shiga* and two strains from *B. Flexner* is regarded of the greatest value in providing information as to the responsible organisms in cases where the bacteriological results and serological reactions do not agree. In all Shiga cases there was found to be complete absorption of the specific agglutinin; in some Shiga cases saturation with the two Flexner strains caused a partial reduction of the Shiga agglutinins, in others the Shiga agglutinin value was unaffected by the Flexner strains.

In Flexner cases it was discovered that, though saturation in the Shiga bacilli might reduce the titre of a Flexner serum, the agglutinin contents of the sera were completely reduced by the Gallipoli Flexner strain, and distinctly but partially so by the other Flexner-"Y" cultures.

Animal Inoculation.

A certain number of animal experiments were carried out to ascertain the effect of intravenous inoculation of mixed dysentery vaccines on the agglutinin content of rabbits' sera. For this purpose one vaccine containing four Flexner strains, another, including four Flexner strains and *B. Shiga*, were used for the immunisation of the rabbits. The sera obtained from the immunised animals were submitted to agglutination and absorption tests, and the varying degrees of response at different intervals are recorded in detail.

Convalescent and "Carrier" Cases.

An interesting review and careful analysis is made of convalescent cases of dysentery transferred to a convalescent camp, particularly with reference to the liability to recurrence. Examination showed that a large number of such cases had defective teeth, which were regarded as likely to retard the course of convalescence and to give rise to subsequent gastric and intestinal derangement unless remedied. During a period of 15 months 195 relapses occurred among a total of over 8000 cases which had passed through the convalescent camps.

The histories of 194 selected cases revealed that 145 had suffered from three or more attacks of dysentery, and, as all still passed mucus, they were regarded as chronic dysentery. The importance of the presence of mucus in the stools of patients with a previous history of dysentery, is specially emphasised as a sign of continued infectivity. Carriers among convalescent dysentery patients were estimated to number about 6 per cent., reduced three months after onset to 1·5 per cent. It is urged that the risk of carriers being discharged from hospital would be considerably reduced if the significance of the presence of mucus in the stools were better appreciated.

In dealing with carrier or relapsing cases a combination of bacteriological investigations and microscopical examination of the stools is regarded as essential, particularly in view of the possible coincidence of infection by Flexner or Shiga organisms, with free amœbæ or cysts of *E. histolytica.*

Serum Therapy.

The justice of the criticism expressed that the treatment of bacillary dysentery by serum therapy is not "thoroughly satisfactory" cannot be denied. The experience which lends ground to such criticism is directed particularly to the necessity demanded for the use of the large and repeated doses of serum, and to the undoubted fact that antidysenteric sera compare unfavourably in therapeutic value with antidiphtheritic serum—"quite apart from the differences in pathology of the two diseases"—"because the methods in vogue for the preparation of antidysenteric sera are not as satisfactory." This points to the possibility that the antiserum which has been prepared from a mixture of the Shiga bacillus and one or more Flexner strains may not be strictly specific for the actual member of the dysenteric group responsible for the infection—the antiserum, moreover, being "chiefly antitoxic for the treatment of the profound toxæmia that may occur in the disease."

It is regarded as a practical impossibility to examine bacteriologically all cases of dysentery occurring among troops on active service. Delay previous to bacteriological examination of dysenteric stools will almost certainly lead to negative results. Granted, however, the *most favourable conditions*, it is claimed that "a competent bacteriologist can determine whether an infection is due to the Shiga or Flexner bacillus in 12 to 16 hours."

From experience of the disease in Gallipoli and Macedonia, the vast majority of the severe cases of bacillary dysentery are regarded as attributable to the Shiga bacillus; results also showed that the bulk of the mild forms were due to Flexner infection. As the life of a dysentery patient may depend on the earliest possible administration of antiserum, it is suggested that, if every case requiring serum therapy received the mixed antiserum at the onset, and all proved Shiga cases, the severe cases as well as the others might be given anti-Shiga serum, when better results would be obtained. Flexner cases also could, if necessary, be treated with the appropriate antiserum.[1] Particular stress is laid on the necessity for every effort to produce an efficient and standardised anti-Shiga serum which could be administered on the same lines as antidiphtheritic serum, thus avoiding excessive dosage with horse serum, in place of relying on "antiserum which may or may not possess an efficient neutralising action on the Shiga toxin."

Contamination of Water by Dysenteric Organisms.

Experiments on the vitality of the Shiga bacillus in sterilised, crude river and aqueduct waters led to the following important conclusions being drawn: That the Shiga bacillus can be recovered from stored sterile water for a considerable period and will live and multiply in stored water, especially if kept at low or medium temperature, retaining both its cultural and agglutinative characteristics. The false sense of security, imparted by the belief that water once sterilised or chlorinated will remain so indefinitely, is exposed by the experiments which resulted in the recovery of *B. Shiga* from water so treated but subsequently infected. Hence, owing to inefficient protection from such sources of contamination as dust, flies, &c., water, relied upon as fit for consumption, may prove a source of real danger.

Flies and Dysentery.

The final section of a valuable and illuminating report is occupied by a detailed account of the rôle of the fly as a carrier of bacillary dysentery. This paper, supplied by Captain J. F. Taylor, R.A.M.C., embodies observations and charts giving the incidence of flies compared with incidence of bacillary dysentery arising in the same area, showing a close correlation between the two. Accounts of experiments and particulars of bacteriological examinations in 50 batches of flies, prove that the fly is capable of carrying both Flexner and Shiga bacilli as well as fæcal organisms. The flies' fæces provided the most favourable source for the isolation of dysentery bacilli at and after 24 hours from the time the flies were fed on infectious material. It was also found that, after contact with food contaminated with dysentery bacilli, flies were capable of carrying and disseminating the organisms for at least 24 hours, and were also proved to be carriers when living under natural conditions.

The opportunity of reading in detail this comprehensive study of bacillary dysentery should be taken by all those of our readers who have reason to be interested.

CONTROL OF VENEREAL DISEASES.

The Association between Alcoholic and Sexual Abuses.

AN American mission for the suppression of alcoholic beverages, lately become topical under the name of "pussyfoot," is, as is well known, in this country at present. Those comprising it are reported in the press as giving the main reason of the whole movement to be the scandalous state of the American liquor saloon. This is hardly justification for foreign propaganda, while very little detail of the alleged turpitude has been vouchsafed by the mission. Information which seems to bear on that point, however, comes to hand in a short series of articles* contributed before America's entrance into the war, but only now published. According to these, what has caused most scandal is the close relation evinced between alcohol and sexual irregularity. It is widely known, says the author, that the intimate bond between prostitution and the interests of the wine and beer trade has very rightly brought the latter into discredit. Saloons are often the homes of prostitution, while the Chicago Commission on Vice estimated the takings for alcoholic drinks at disorderly houses, brothels, flats, &c., in the year 1910 at over seven million dollars. Certainly some of the liquor trade societies have honourably endeavoured to dissociate themselves from this traffic. For example, the united breweries of Chicago, the Illinois Liquor Dealers' Association, and the Wholesale Liquor Dealers' Association have pronounced against the sale of their goods in connexion with the ends of prostitution. But there are many dealers who do not share this attitude. An hotel in the large city from which the author writes, belonging to a multimillionaire, a former Senator, had so bad a reputation that no respectable person was seen there, at any rate in the evening. The manager of it regarded things as being unexceptionable if decorum were outraged no more seriously than by sexual intercourse taking place in the lifts. When in 1914 the State referendum was held very many moderate drinkers voted "dry" merely in order to secure a cleaner moral atmosphere. This factor, much more than the female vote, contributed to its victory by an 8000 majority. The sale of alcohol on pleasure steamers, some of which carry as many as 5000 passengers, also goes hand-in-hand with sexual debauchery. The report already mentioned is cited as giving many cases where persons of opposite sex were found lying drunk together in the cabin bunks. The New York police succeeded in closing a number of "cider cellars" in the east end of that city, but some still remain. The waitresses here were prostitutes for the customers. Dance halls, too, frequented by loose women, made a prominent feature of selling alcohol. Again, at the houses of assignation found at a distance from large cities, often arranged so as to look like farmhouses, and reached by motor-car—the Vice Commission of Massachusetts is quoted as mentioning a whole fleet of automobiles visiting such places—in these the sale of alcoholic drinks assumes large proportions. An aggravating circumstance, in almost all the above instances, is the freedom with which those who are hardly, if any, more than children seem to get access to these places for vicious purposes. Such a circumstance would undoubtedly act strongly in producing a state of public opinion such as, to make total universal prohibition possible, must actually exist; and the feeling in this direction has been contributed to by the publications of the bureaus of social hygiene established by the Rockefellers and others. We cannot follow the author into his examination of other causes of sexual laxity and of political and police corruption; but if his statements are confirmed, it seems evident that the morals of America in a desperate state required a desperate remedy, which total prohibition might turn out to be. Other communities not in the like case may not feel called upon to adopt so violent a measure.

The Venereal Clinic in Liverpool.

The scheme for the free treatment of venereal diseases, which was inaugurated in 1917 under the Regulations of the Local Government Board, has proved a great success in Liverpool, and the majority of the clinics are working well and attracting large numbers of patients. We learn this from the last annual report to his authority of Dr. E. W. Hope, the medical officer of health. The suppression of quackery under the Venereal Diseases Act, 1917, has proved of value in assisting the development of these treatment centres. The great defect of the present system, however, is that no compulsion can be exercised on patients to complete their cure, and large numbers of syphilitic and gonorrhœal cases give up treatment when the local manifestations of the disease have subsided and they are in comparative comfort. Many objections have been raised against including these diseases amongst the list which is notifiable, and certainly some of these deserve consideration. There is a growing feeling, however, that something must be done to compel attention on the part of the sufferer to his complaint and his danger to others, and that restrictions are necessary upon the diseased person whose habits of life are such as to disseminate venereal diseases. Dr. Hope has put forward certain suggestions on the subject which have been fully endorsed by the Liverpool Health Committee. Briefly, his object is to secure compulsory continuation treatment for sufferers from venereal diseases. It would be the duty, under his scheme, of every person who knows or has reasonable grounds to believe that he is suffering from venereal disease to consult a medical practitioner and to conform to the requirements of medical treatment. The recommendations provide for the patient's incognito being secured as long as he follows the directions of his medical adviser until the disease is pronounced as cured. Should the patient fail to place himself under or to continue medical treatment, it would be the duty of the medical officer of health to take legal proceedings against the delinquent.

---

[1] The adoption of a similar line of treatment is also advocated in the pamphlet on Bacillary Dysentery issued by the War Office Special Committee early in 1919.

* K. H. Henning: Prostitution und verwandte Erscheinungen in den Vereinigten Staaten von Nord Amerika—Zeitschrift für Sexualwissenschaft, June, July, August, and September, 1919.

The Statistical Method in Relation to Venereal Prophylaxis.

A number of statistics have recently been advanced dealing with the merits of prophylactic and early disinfectant treatment in the prevention of venereal disease. In one such statement, where preventive methods were advocated, the ratio of infection per 1000 men was given as a certain figure; whilst in another instance, where such measures had not been taken, the ratio of infection per 1000 men was represented by another figure. Deductions were then made as to the efficiency of the measures advocated. This method of reasoning is open to fallacy. What we want to know is not the ratio of infection per 1000 men who had or had not been instructed to take certain preventive measures, but the number of infections which took place in 1000 men exposed to infection who did actually adopt preventive measures on the one hand, or did not do so on the other. To obtain these figures may not be easy, but if obtained they would preclude the drawing of deductions from fallacious data.

The Anti-venereal Campaign in Ulster.

A meeting summoned by the executive of the Ulster branch of the National Council for Combating Venereal Diseases was held in the City Hall, Belfast, on Oct. 31st (the Lord Mayor presiding) to hear an address from Mr. E. B. Turner, chairman of the medical committee of the National Council, on the official lines of the National Council's programme—that is, educative, social, and moral. Professor J. A. Lindsay referred to the efficient scheme of the corporation for the treatment of the disease. Mr. Turner having been thanked for his address, Colonel A. Fullerton, in moving a vote of thanks to the Lord Mayor for presiding, referred to his experience at the front, and advocated strongly the sympathetic treatment of affected persons.

A Cinema Film.

A film entitled "The End of the Road," well known in America, has recently been privately presented on two occasions for inspection by those interested in the medical and sociological aspects of venereal disease on the one hand and by the cinema profession on the other. The producers are to be congratulated on the technical skill which marks their venture. It remains to consider to what extent the film is satisfactory from the educational aspect.

The story implicates the life-history of two children, Vera and Mary. Both ask their mothers the inevitable question as to the genesis of babies. Vera's mother puts off her daughter with one of the conventional fables, whereas Mary is given a true explanation, expressed in an idealistic manner. The careers of the two children are then illustrated. Vera eventually contracts an illicit relationship and Mary takes up the profession of sick nursing. In the course of her work the latter comes across her old friend Vera, now forsaken and infected with syphilis. In order to persuade her to undergo the necessary treatment Vera is taken through the wards of a lock hospital by Mary and a Dr. Bell (who wishes to marry Mary), where she is shown patients suffering from syphilis in peculiarly loathsome forms, the result of neglect in the earlier stages. In addition to this main theme there are subsidiary ones, as, for instance, the representation of a married man whose child is blind, and whose infected wife has to undergo an abdominal operation, vividly portrayed on the film.

Is such a representation in its present form calculated to serve any fundamentally good purpose? We feel that far too much stress is laid upon the factor of fear in the prevention of promiscuous intercourse, and far too little upon idealism as a deterrent. The picture is out of proportion, inasmuch as the destructive effects of disease are shown in a far more vivid and terrible manner in the case of woman than of man. The introduction into the film of a woman in the pre-operative stage, and the representation of an abdominal operation upon her, will be felt by many to infringe the canons of good taste. But it is not a matter of good taste so much as of good results. Possibly those responsible for recommending the production do not realise the effect which will be produced by the horrible upon the lay mind. If this film is released in its present form it will be seen by women and by children over the age of 14. The impressions of fear and disgust which may be permanently imprinted on their minds may outweigh the possibility for doing good, which undoubtedly would exist were the representation to be purified by the removal of these irrelevant blotches. That many spectators may come away with a loathsome fear at their hearts is certain, but that any will leave with any strengthening of that factor of idealism which is normally present in everyone is much less sure. Those who are engaged, and most worthily engaged, in the campaign against venereal disease should, we think, take great care not to lose their sense of proportion. Can they not see what the effect is likely to be when the public is suddenly confronted with the grosser aspects and results of disease?

One further point of detail. We take it that the inculcation of caution in dealing with syphilitic cases should be one of the functions of any such film as we are considering. Is this result achieved when the public see a representation of a medical man taking a spatula out of his pocket, examine therewith (without any sterilisation) the throat of a syphilitic patient, and then (again without cleansing) returning the instrument to his pocket?

We should like to revisit this film after it has undergone a healthy process of expurgation and thus rendered more effectual for its excellent purpose.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The Housing Problem in Belfast

THE housing problem in Belfast is surrounded with many difficulties. The corporation, believing that 5000 houses are needed immediately, find that prices have so increased that a style of house such as the Local Government Board prescribe cannot now be built for the money, that the working-classes will not pay a sufficient rent, and that, as a result if such a scheme is taken in hand, the rates of the city will be increased by £100,000 a year. What is known in Belfast as a "kitchen house"—that is, one in which the kitchen is the living and cooking room, with two or three bedrooms and a small scullery and no bath—could in pre-war times have been built for £140; now the same house will cost £510, while the dwelling suggested by the Local Government Board would cost much more. The corporation contend that the cost of the suggested official scheme renders it prohibitive. The health reformers and the various women's organisations reply that in view of improving the city's health (and in this present epidemic there have been nearly a thousand cases of scarlet fever) cost must not be considered; they urge the erection of a much higher type of house, and condemn utterly the "kitchen" form of house, which they regard as obsolete and as a hotbed for breeding disease, while they point to the health statistics of last year in Belfast, with its higher general death-rate and increased tuberculosis death-rate, and high infantile mortality. The working classes seem to be divided, some being content, as at present, with the "kitchen" type of house, others wishing for a much better kind, but all are agreed to pay no more rent than in pre-war times. The question is at bottom a financial one, and can easily be settled if all parties—the State, the capitalist, the employee, and the ratepayer—are prepared each to contribute a fair and equitable financial share in its solution. A mistake in the erection, say, of a poor type of house, would be fatal and, would in the end, through the continued prevalence of disease, cost the city far more than boldly facing the question at present. At a meeting of the Housing Committee of the City Corporation of Belfast, held on Nov. 10th, a resolution was passed asking the Local Government Board to make modifications in their official house plans, by which the cost of the house could be reduced. It appears that the Local Government Board's suggested type of house would to-day (Nov. 10th) cost £950, and the price is steadily rising.

The Scarlet Fever Epidemic.

The present scarlet fever outbreak is the most widespread and most extensive that has ever prevailed in Belfast, there having been up to the present 930 cases admitted to the two fever hospitals. Two weeks ago the admissions were in one week 199; the figure has fallen in the last two weeks —i.e., up to Nov. 7th—to about 140 in each week. If to the total numbers in hospital those being treated at home be added certainly not less than 1000 people in Belfast have, since the epidemic began in August, been attacked with scarlet fever. Fortunately, the death-rate is not high—about 5 per cent.—and every week now a large number will be discharged. The greatest care is being taken in the two hospitals (the municipal one at Purdysburn, and the Union Workhouse Fever Hospital) to deal with such an unprecedentedly large number of patients, and it is unfortunate that two of the younger resident medical staff have taken the disease while at duty.

CANADA.

(FROM OUR OWN CORRESPONDENT.)

Canadian Military Patients in England.

SPEAKING in the House of Commons, Ottawa, the other day, the Minister of Militia said that the total number of Canada's forces demobilised by Sept. 30th, 1919, had reached to 338,823. The total number of hospital patients still in England on Sept. 19th was 126. There are still 6598 patients in the military hospitals in Canada. The Minister also made the important announcement that not a single casualty had been sustained by the Canadian forces at sea, and that only three men had been killed on Canadian railways during the period of the war.

New Tuberculosis Sanatoriums.

The Canadian Association for the Prevention of Tuberculosis held its nineteenth annual meeting at Ottawa, Canada, on Oct. 9th and 10th last, when the secretary, Dr. George D. Porter, reported that during the past official hospital year a number of institutions had been added to existing institutions in Canada for tuberculosis work. He instanced the new Laval Hospital at St. Foye, Quebec, costing $250,000; the Rotary Institute for diseases of the chest, opened in Vancouver, B.C.; a large provincial institution in Alberta; a new hospital for curable cases in Montreal; new babies' wards at the I.O.D.E. Preventorium in Toronto and Saskatchewan. Great advances had also been made in the Soldier's Civil Re-establishment in conjunction with the University of Toronto Research Department for carrying out of serological tests on both military and civilian cases. Many delegates were present from every province of the Dominion of Canada.

Military Mental Cases in Canada.

Major E. H. Young, in charge of the hospital for insane soldiers at Coburg, Ontario, Canada, the only hospital of this sort in the Dominion, gave a résumé of the work and equipment of the institution at the annual meeting of the Canadian Medical Association. Major Young stated that the hospital had 425 beds, and that it received most of its cases from other military hospitals in the Dominion. Overseas the cases were received by the medical officers and skilled N.C.O.'s detailed from the Coburg institution, and thus have been taken charge of right at embarkation. On reaching Coburg they are assigned to a suitable ward, the admission being completed expeditiously and without formality. There are seven medical officers at the Coburg institution, and in June last the number of patients was 236. No patient is discharged until the opinion of the medical staff is secured. In all, 800 cases have appeared before this board, and 400 have been sent back to civil life. Twelve hundred cases have altogether been admitted and cared for, and no serious accident has marred the history of the institution under a system of non-restraint. If the C.A.M.C. can care for this class of patient so successfully, then in the larger general hospitals of Canada there should be psychopathic wards where similar work could be carried on.

A Dominion Council on Public Health.

Canada has established a Ministry of Health at Ottawa; and for the present it is under the charge of a responsible Minister of the Crown—the Hon. Newton Wesley Rowell. Dr. John Amyot, formerly professor of hygiene and preventive medicine in the University of Toronto, who was sanitary officer with the Canadian overseas forces for several years, has been appointed Deputy Minister. By the Act establishing the Department of Public Health a Dominion Council was established for public health as an advisory body for the department. This met in its first annual convention early in October. It consists of the chairman and chief executive officer of each provincial board of health, together with two representatives of women's activities and a representative each of agriculture, and academic, military, and labour interests. Among the chief subjects discussed at this conference were: Control of the venereal diseases, in reference particularly to the Dominion grant towards this object; measures against influenza; industrial hygiene; rural hygiene; habit drugs.

An Advisory Health Department on Patent Drugs.

To comply with the requirements of the new amendments to the Federal Proprietary and Patent Medicine Act the Deputy Minister of Health at Ottawa has been successful in having an Order in Council passed appointing the following as an advisory committee to the department: Dr. A. D. Balckade, professor of pharmacology in McGill University; Dr. Robert D. Rudolf, professor of therapeutics in the University of Toronto; Dr. A. McGill, chief analyst for the Federal Government; Dr. E. W. J. E. Lecours, professor of Laval School of Pharmacy, Montreal; Dr. Charles F. Heebner, Dean of the College of Pharmacy, Toronto.

Financial Support for the Control of Venereal Diseases.

That the Federal Government of Canada is taking a keen interest in combating the spread of venereal diseases in Canada is shown by the fact that they have apportioned $200,000 for distribution to the various provincial boards of health. $10,000 of this sum will go to the National Council for the Suppression of Venereal Diseases; $10,000 for the Dominion Department of Health; the balance of $180,000 will be distributed amongst the provinces in ratio of population, provided the various provincial governments are willing to contribute equal amounts for the same purpose. Under this scheme it is intended to establish laboratories where diagnosis might be made, these to be open to the whole medical profession for free use. Public clinics will also be established under the scheme, and the campaign will be carried into all general hospitals and institutions receiving cases.

Toronto, Oct. 15th.

SWITZERLAND.

(FROM OUR OWN CORRESPONDENT.)

The Position of the General Practitioner.

THE position of the general medical practitioner in Switzerland is becoming more and more unsatisfactory from decade to decade. In the first instance, the great increase in the number of benevolent societies (Krankenkassen) caused a considerable reduction in medical incomes. Happily, owing to the strenuous efforts of the medical profession, the German practice of appointing Kassenärzte with a fixed rate of income and an unlimited number of patients was avoided, and therewith the absurdity of a consultation at 20 and a visit at 50 pfennigs. In Switzerland the benevolent societies remunerate medical visits at a minimum of fr.2 and consultations at fr.1.50, with fixed extra charges for surgical and other specialist services. Every practitioner with the Swiss federal diploma has a right to apply to have his name put on the list of these practitioners after one year's practice. The appointment as factory doctors paid at a fixed rate has remained almost entirely limited to certain country districts. In consequence of severe and general criticism, the mätter is now under the consideration of the General Medical Council.

Six months ago medical fees, which differ from canton to canton, were raised 30 per cent., and a further rise of at least 20 per cent. is foreseen owing to the great increase in the cost of living, variously estimated at 80 to 120 per cent., as compared with the year 1914.

Competition by women practitioners, who are almost exclusively of Swiss nationality, is playing an increasing rôle. Out of 119 general practitioners in Zurich (population 212,000) in 1918 17 were women. In special departments, too, rivalry is increasing. In Zurich out of a grand total of 223 names in the medical directory 114, or one-half, are those of specialists. A large proportion of these also engage in general practice, and as their fees for consultation vary from fr.5 to fr.10, the financial position of the practitioner, who is only legally entitled to charge fr.3–5, suffers accordingly. Efforts, the issue of which is doubtful, are being made to enforce distinct examinations for specialists and to prohibit them from engaging in general practice.

Last, not least, the out-patient departments in the large hospital towns have proved detrimental to the financial interests of the profession, as not only can patients, without any control of their income, consult the department free of charge, but the municipal authorities have subsidised practitioners to attend so-called indigent persons, many of whom could quite well join a provident society. It is estimated that in a town such as Zurich one-fifth to one-fourth of the population is treated free of charge and receives drugs supplied by the State.

The General Medical Council of Switzerland has its work cut out to deal in a satisfactory way with these difficult problems, some of which, indeed, cannot be solved, as they are an index of the democratic and socialistic wave which is sweeping over Europe.

Zurich, Nov. 1st.

Public Health.

ANNUAL REPORTS OF MEDICAL OFFICERS OF HEALTH.

City of Liverpool.

Dr. E. W. Hope's annual report for the year 1918 contains much interesting material relating to health conditions in the city. The birth-rate, which has been gradually declining for the past 25 years, fell rapidly from 30·0 in 1914 to 21·9 in 1918. This sudden fall may be attributed to war conditions, and it is rather a melancholy fact that nearly 15,000 fewer infants were born during the years of war than would have been the case had the 1914 rate been maintained. The year 1918 will always be memorable to those interested in epidemiology on account of the pandemic of influenza. Like most other districts, Liverpool was visited by the severest outbreak of the disease ever known in the city. Neither age, sex, social position, nor physical fitness afforded protection against attack. The initial indication of any unusual mortality from respiratory diseases was the occurrence, in the first half of the year, of an unusual number of cases of pneumonia with high fatality amongst coloured seamen in certain boarding houses in the south end of the city. Between January and June there were no fewer than 81 such cases, with 22 deaths. The deaths were not certified by the medical men in attendance as due to influenza, but in the light of subsequent events it would seem probable that at least a proportion of them were occasioned by that disease. It is also noteworthy that it was in the south end of the city that outbreaks among school children first necessitated school closure in June.

There were four epidemic waves of influenza in Liverpool. In May the first definite, though small, wave occurred, a few deaths from the disease being accompanied by a distinct rise in the number of deaths ascribed to pneumonia and broncho-pneumonia, and by a rise in the death-rate from respiratory diseases generally as well as in that from all causes. During this month a considerable number of persons suffering from influenza were landed at the port of Liverpool, and there was, of course, an outbreak of the disease in Spain. The second wave occurred during July at a time when influenza was prevalent in many parts of Europe and North America. In August and September the number of deaths from influenza fell, but rose to a third maximum in the week ended Oct. 26th, when 204 deaths from influenza were recorded and 170 from pneumonia and broncho-pneumonia. The respiratory death-rate was 14·5, and the total death-rate reached 41·8 during this week. It is interesting to note that an influenzal wave was occurring simultaneously in London, Paris, and New York during the period of the third wave in Liverpool. The fourth wave in Liverpool reached its maximum in the week ended Feb. 22nd, when the respiratory death-rate was 16·0 and the total death-rate 42·5. Each succeeding wave was separated by a longer interval from the preceding one, but it was also more severe. The interval between the first and second maxima was nine weeks, that between the second and third was 14 weeks, and that between the third and fourth was 17 weeks.

There were 1388 deaths certified as due to influenza during 1918, giving a rate of 1·77 per 1000 of the total population. It is impossible to give accurately the full total number of deaths caused by the disease, as the name influenza only appears in a proportion of the certificates relating to deaths in the cause of which influenza was probably a factor. Comparing the number of deaths from respiratory diseases in 1917 and 1918, the excess in the latter year, amounting to 2376 deaths, may fairly be attributed to influenza. Yet even this high figure probably falls short of the total number, because it is probable that in many instances sufferers from other diseases succumbed to an added attack of influenza too obscured and ill-defined to be regarded as the actual or primary cause of death.

A considerable number of pregnant women died from influenza. During the period Oct. 12th to Dec. 31st 95 such deaths came under observation, and the circumstances associated with each were carefully investigated. It would appear that during this period the death of the mother caused the death of the unborn infant in 63 instances, and of the children born alive 24 were premature. When the six months period October, 1917, to March, 1918, is compared with the corresponding period of 1918 and 1919 it is found that there is an increase in still-births of 60 during the latter period, causing a rise in the relative proportion of still to live births of from 3·5 to 4·3 per cent.

As to the means by which the disease was introduced into Liverpool it should be noted, in the first instance, that there was a gradual rise in the number of deaths from influenza during 1914, 1915, and 1916, showing that the disease was present in the city and was increasing in severity. There is evidence to show that influenza was reintroduced in a severe form early in the year 1918 by means of shipping, and the number of cases of pneumonia among coloured seamen has already been referred to. Subsequently very large numbers of cases of the disease occurred on transports bringing American and other troops. Whilst the soldiers were removed to military hospitals when acutely ill, there can be little doubt that convalescent cases, though possibly still infectious, mingled with the general population. Moreover, the crews of these transports and other vessels were also affected, and with the great pressure on the hospitals of the city, and the use of two of the largest fever hospitals for military purposes, the utmost difficulty was experienced in obtaining hospital accommodation, even for those severely ill. This undoubtedly led to repeated reintroductions of the infection.

County Borough of Salford.

Dr. C. H. Tattersall's annual report for 1918 also contains account of the influenza epidemic. There were two epidemic waves in the borough during the year. The first, or shorter wave, commenced about the middle of June and lasted till the end of July. The second and more prolonged wave commenced about the middle of October and had practically died away by the end of December. It may be convenient to review the circumstances associated with the two waves separately. In connexion with the first, study of the influenza mortality curve shows a rise from zero to 11 deaths for the week ended June 29th. By the following week-end no fewer than 51 additional deaths had been recorded. This second week proved to be the most fatal, and for the next three weeks there was a continued fall in the number of deaths, the totals being 41, 26, and 3 for the third, fourth, and fifth weeks respectively. There was a slight recrudescence in the sixth week, 7 deaths being then recorded, after which the wave practically came to an end. The heaviest mortality occurred in the age-group 45–55 years, there having been 30 deaths recorded in this age-period. Next in order came the groups 35–45 years and 25–35 years, there having been 28 deaths in each of these; thus the disease took the heaviest toll amongst persons between the ages of 25 and 55 —namely, those in the prime of life.

Healthiness or otherwise of occupation had apparently little influence upon the influenza death-rate. Out of 67 male deaths occurring in the first wave, labourers head the list with 17 deaths, seamen coming next with 10 deaths. Of 74 female deaths 50 occurred amongst those engaged in domestic duties. The chief complications occurring in the 141 fatal cases were: pneumonia in 63 per cent., bronchitis in 10 per cent., gastro-enteritis in 3 per cent., and meningitis in 0·7 per cent. The second wave was more prolonged and attained greater severity than the earlier one. The death-curve rose steeply from the end of October, and attained a maximum of 88 deaths during the week ended Nov. 23rd; thence the curve fell regularly and somewhat precipitately until the week ended Dec. 28th, when only 4 influenza deaths were recorded. The age-group 25–35 years was most affected. Ninety-six deaths occurred in this group. Next came the 15–25 years age-group with 72 deaths, whilst 52 deaths occurred in the age-period 35–45 years and 45 deaths in group 45–55 years. Thus, as compared with the first wave, the younger section of the population suffered more severely.

Of the 173 male deaths, the largest number (44) occurred amongst infants and school children, labourers coming next with 19 deaths. Out of 242 female deaths, 118 occurred amongst those engaged in domestic duties, and 59 amongst infants and school children. As in the first wave there was no evidence as to the predisposing effect of so-called unhealthy occupations. The relatively large proportion of deaths amongst seamen (10 out of 67 male deaths in the first wave and 10 out of 173 male deaths in the second wave) might suggest a special susceptibility of Lascars to the infection. This susceptibility may be either inherent in the race, or acquired through insufficiency of nitrogenous elements in the diet.

The chief complications in the 415 fatal cases in the second wave were: pneumonia in 72 per cent., bronchitis in 10 per cent., gastro-enteritis in 0·2 per cent., and meningitis in 2 per cent.

URBAN VITAL STATISTICS.

(Week ended Nov. 8th, 1919.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at 16,500,000 persons, the annual rate of mortality, which had been 12·5, 13·7, and 12·9 in the three preceding weeks, rose to 13·4 per 1000. In London, with a population slightly exceeding 4,000,000 persons, the annual death-rate was 15·1, or 0·8 per 1000 above that recorded in the previous week, while among the remaining towns the rates ranged from 4·9 in Merthyr Tydfil, 5·5 in Enfield, and 6·0 in Smethwick, to 18·1 in Bury, 18·5 in Bournemouth, and 21·0 in Sunderland and in Gateshead. The principal epidemic diseases caused 229 deaths, which corresponded to an annual rate of 0·7 per 1000, and comprised 78 from infantile diarrhœa, 55 from diphtheria, 54 from measles, 21 from scarlet fever, 19 from whooping-cough, and 2 from enteric fever. Measles caused a death-rate of 1·5 in South Shields, 1·8 in Rochdale and in Gateshead, and 2·2 in Barnsley and in Sunderland; and diphtheria of 1·3 in Walthamstow and in Bolton, 1·6 in Rotherham, and 1·9 in Northampton. The deaths from influenza numbered 56, against 71 in each of the two preceding weeks, and included 18 in London, 4 in Sheffield, and 3 each in Bristol and Bradford. There were 2540 cases of scarlet fever and 1433 of diphtheria under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, against 2351 and 1428 respectively at the end of the previous week. The causes of 46 deaths in the 96 towns were uncertified, and included 5 each in Birmingham and Preston, and 4 each in London and Gateshead.

Scotch Towns.—In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2,500,000 persons, the annual rate of mortality, which had been 12·3, 11·1, and 12·4 in the three preceding weeks, further rose to 13·1 per 1000. The 261 deaths in Glasgow corresponded to an annual rate of 12·2 per 1000, and included 8 from infantile diarrhœa, 5 from measles, and 3 each from scarlet fever and diphtheria. The 85 deaths in Edinburgh were equal to a rate of 13·2 per 1000, and included 2 each from measles, scarlet fever, and diphtheria.

Irish Towns.—The 99 deaths in Dublin corresponded to an annual rate of 12·7, or 5·1 per 1000 below that recorded in the previous week, and included 2 each from measles and infantile diarrhœa, and 1 from diphtheria. The 159 deaths in Belfast were equal to a rate of 20·7 per 1000, and included 10 from scarlet fever, 4 from measles, and 3 from infantile diarrhœa.

THE PEOPLE'S LEAGUE OF HEALTH.—The fifth meeting of the Medical Council was held at the Savoy Hotel on Thursday evening, Nov. 6th, when Dr. A. E. Giles called particular attention to the crying need of the country for maternity homes, Miss Olga Nethersole, the honorary organiser of the league, vouched for the sympathy of the Queen in this matter, and the feeling of the meeting was that the founding of such homes would form an excellent war memorial.

Mr. E. B. Turner, the chairman of the National Council for the Combating of Venereal Disease, said that a whirlwind was necessary to shake the public apathy, and Dr. E. H. M. Stancomb, in confirming this opinion, added that it was amazing that people would pay Charlie Chaplin £300,000 to make themselves laugh and hesitate to put up any money to keep themselves healthy.

The council has decided to issue in collective form papers by specialists on the need of education for the raising of the standard of health of the nation.

Correspondence.

"Audi alteram partem."

THE BRITISH FEDERATION OF MEDICAL AND ALLIED SOCIETIES.

LATE "MEDICAL PARLIAMENTARY COMMITTEE."

To the Editor of THE LANCET.

SIR,—Permanent offices have now been secured for the Federation, where inquiries from those interested will be welcomed at any time. The following terms of subscription for associations, societies, or other bodies desiring to appoint representatives on the Council have now been adopted, after the issue of provisional terms and after ascertaining the views of the various societies, &c., provisionally constituting the Federation:—

Members of society, &c.	Entrance fee.	Annual subscription.
5,000 or over	5 guineas.	10 guineas.
3,000 ,, ,,	4 ,,	9 ,,
1,000 ,, ,,	3 ,,	8 ,,
500 ,, ,,	2 ,,	7 ,,
100 ,, ,,	1 ,,	5 ,,

As the constitutions of some societies preclude the use of their funds for subscriptions to such organisations as this, it is suggested that individual members of such societies who sympathise with the aims of the Federation might be invited to make up the required subscription by private contributions.

In view of the desire to make the representation as wide as possible, any society or body, whether medical or lay, concerned in public health matters which finds the above terms beyond its means is invited to make an alternative offer. Higher subscriptions than those stated will, of course, be equally acceptable.

Policy of the Federation.

Seeing that no organisation exists within the medical profession which can truly be considered to represent that profession *as a whole*, and that no organisation exists which embraces the medical, dental, nursing, and pharmaceutical professions, it follows that medicine itself, and those allied with it in guiding public opinion on health matters, have no common channel of utterance, and are ununited to meet the evident dangers inseparable from the reconstruction of the health services of the country. If we as a profession are too apathetic to insist on our right to participate in framing the laws which will regulate our future labours we shall have no reason for complaining later that those laws have been drawn up contrary to our interests and the interests of our patients. The Federation is in antagonism with no existing organisation, but it realises that medicine cannot attain the power to control its own destiny by the agency alone of any of them. It seeks no executive power over those societies or other bodies which constitute it, and does not concern itself with the internal affairs or policies of those societies.

The initial difficulties inseparable from such a movement have now been overcome, and already a large measure of support has been secured. The widely representative executive, elected from and by the constituent societies, is keenly alive to the emergency of the moment, and it only remains for *all* sections to coöperate in obtaining for medicine and its ancillaries that unity without which we are but as chaff before the wind.—We are, Sir, yours faithfully,

CHARLES BUTTAR,
Hon. Secretary;
N. HOWARD MUMMERY,
Organising Secretary.

5, Vere-street, Cavendish-square,
London, W. 1, Nov. 10th, 1919.

A PERSONAL EXPLANATION.

To the Editor of THE LANCET.

SIR,—I have been extremely distressed to see, in the course of a report of an address that I gave, some sentences that are most insulting to the R.A.M.C. The address was not read but spoken from pencil notes, and it is not easy to recollect accurately, and impossible to verify, what I then said. My point was, and I believe it to be true, that official administration will not improve medical practice. The conditions at the Flanders front in the early months of the war occurred to me as an instance. The Regulars were practically all employed in administration, and the treatment of the patients was in the hands of temporary officers who, having but just joined the R.A.M.C. from civil life, were not at first at home in the novel and difficult conditions of war. They needed guidance, and it was not any official action but the teaching and efforts of the consulting surgeons, who were at that time civilians—for the one Regular consultant was appointed much later—which rapidly raised the practice of these young officers to a level which has, I believe, never previously been attained in war. Nor did the official authorities realise without the advice of the consulting surgeons the importance of the rôle which the clearing stations were to play. Of the second class of surgeons at the front, the surgical specialists, only, I think, two, and of the medical specialists not one, for the reason given above, could be drawn from the Regulars. It was, therefore, fortunate that civilians were available to conduct the treatment of the army. I further repeated, on the same line of argument, a statement often made by public servants themselves, and recent instances will occur to every one, that in Government service innovation is not viewed with favour, whereas in medicine it is essential that new methods should be constantly tried. I drew the conclusion that an atmosphere of official control is bad for a scientific profession. I said all that, and am prepared to say it again, but you will observe that although the report gives much the same words, the impression conveyed is very different.

I have no doubt that I am myself greatly to blame for not making my meaning clear. But when I consented to allow a short account of my address to be given to you I did not anticipate that what has the air of a verbatim report would be sent you, and still less that you would print it without my knowledge and without my correction. Had I seen it, it is hardly necessary to say that the whole paragraph would have been erased, not only because it is insulting to the Corps as a whole and to many of my personal friends, including the Regular consultant who was my own colleague, but also because it neither represents my meaning at the time, nor my settled opinion of the Corps. If anyone cares to know what that is they will find it in a book I have just published, where beside many scattered passages there is a special chapter on the subject. The opinions may be disputed, but I hope that at least they are not offensively expressed.

I regret to trouble you with a matter which, though it has given me the deepest distress, is after all of no great importance to anyone but myself.

I am, Sir, yours faithfully,
Nov. 10th, 1919. W. P. HERRINGHAM.

⁂ The wording of the report was brought to the attention of our colleague who wrote it, who has sent us the following: "Lest there should be any misapprehension about Sir Wilmot Herringham's remarks at the meeting of the Norwich Medico-Chirurgical Society, reported in THE LANCET of Nov. 1st, it should be stated that the speaker had clearly no intention of casting any slur on the abilities of the R.A.M.C. Undoubtedly by 'second-class surgeons' and 'absence of physicians' he was understood to mean that with so small a personnel it was impossible to have consulting surgeons of first-class rank on all the special sides, while it was not the skill of the physicians that was absent, but the actual men themselves, the personnel being so very small and the sick so very numerous. In these circumstances the additional help given by leading civilian consulting physicians and surgeons was extremely valuable."—ED. L.

FRIENDS' EMERGENCY AND WAR VICTIMS' RELIEF COMMITTEE.

To the Editor of THE LANCET.

SIR,—May I call the attention of your readers to the fact that the Friends' Emergency Committee (Foreign Fund) and the Friends' War Victims' Relief Committee have now been united under the name of the Friends' Emergency and War Victims' Relief Committee? This brings the whole of the foreign relief work of the English Society of Friends under one committee and this organisation works in close coöperation with the American Friends' Service Committee—a similar body with even wider functions. The tide of the work flows eastward. In France, where help has been given continuously for five years, the need for emergency work is lessening. In the two devastated cantons near Verdun, in which we were asked by the French Government to work, wooden houses have been built, medical aid has been given, shops have been opened and handed over to a local coöperative society, land has been ploughed, and help too diverse to enumerate has been organised. The 550 workers are already diminishing, and it is anticipated that only a comparatively small band of relief workers will remain through the winter. The permanent reconstruction will, of course, take years to accomplish, and is beyond the power of a voluntary organisation.

Moving eastward one finds ruined children's bodies instead of ruined houses. The tragedy of Vienna is too overwhelming to depict here, but, in brief, the results of years of under nourishment may be seen written on practically every Viennese child, and unless help is given quickly and thoroughly many must be doomed to a crippled invalid life or to death. Food and coal are the most crying needs of this great city, and these needs must be met if disaster is to be averted. Unhappily, the commodities most needed are, under existing conditions, the most difficult to obtain. Our workers are coöperating with a committee on the spot in the distribution of supplies furnished from England, and are also engaged in various schemes for obtaining increased supplies of milk and for making of clothes, in which it is expected that barter will be resorted to owing to the extreme depreciation of the krone. All that has been said about the conditions in Vienna applies with almost equal force to the conditions in Germany, where the Committee is doing what little it can to send relief and to foster a spirit of reconciliation.

In Poland, too, a Unit is at work, the first foreign Unit, it is understood, to take up the much needed work of disinfection against typhus. More than 6000 soldiers, civilians, and children have been disinfected, and their immunity from disease thereby greatly increased—a matter of vital importance—for with the coming of the cold weather there is almost certain to be a recurrence of typhus. In addition to this the Unit is arranging for the distribution of clothes, and is starting workshops in which they will be made, as well as a dispensary for child patients. All this work is badly needed, as the utter rags in which people go a out, and the sad condition of the children show only too clearly.

This, in barest outline, is the work already being carried on by the Relief Committee. Schemes for its extension, if the means are forthcoming, are under consideration. Surely winter can hardly ever have approached with such a black outlook for so many women and children all over Europe. And it is for us who still can eat our good meals by our warm fires to show them that England is a friend to those in trouble. I am, Sir, yours faithfully,

A. RUTH FRY,
91, Bishopsgate, E.C.2, Nov. 4th, 1919. Hon. Secretary.

CONJUGAL TUBERCULOSIS.

To the Editor of THE LANCET.

SIR,—I can quite understand that Dr L. S. Burrell (THE LANCET, Nov. 1st, p. 806) finds it difficult to follow me, because he looks at tuberculosis from the germ point of view and I from the side of environment. The battle between these two issues will have to be fought in the coming days. Meanwhile my contention is that in the majority of cases clinical facts and present-day observations do not warrant us to make any dogmatic statement as to the relation between tuberculosis, tubercle bacilli, and infection, briefly for the following reasons.

(*a*) The discovery of tubercle bacilli does not establish the infectiousness of consumption; it merely explains how infection may, but does not prove how it does, occur.

(*b*) The presence of micro-organisms in connexion with a disease does not necessarily prove they are its cause any more than the presence of eagles near a corpse proves they were the cause of death.

(*c*) Animal experiments with human tubercle bacilli, severe as they are, have not produced the effects and symptoms of natural tuberculosis of the lungs.

(*d*) It is a question if tubercle bacilli can be found in the inspired and expired air in the ordinary surroundings of tuberculous patients. We have tested the air in their rooms and châlets and the results were negative.

(*e*) Among those employed in our sanatorium—medical men, matrons, nurses, attendants, &c., who have daily come into contact with consumptive patients—there is no proof that even a single one has contracted tuberculosis by such a contact. This, added to a similar experience from other sanatoriums and consumption hospitals, like the Brompton, makes out a strong case of negative evidence so as to throw doubt on the contagion theory.

(*f*) There is no evidence, at least in the majority of cases, that living with tuberculous husbands brings about a greater incidence and mortality among their wives, or vice versa. In fact, we have to face this anomaly, that while there is a high death-rate from consumption among Sheffield grinders and tin-miners of Cornwall, there is a correspondingly low death-rate from the same cause among their wives and their children. (Causes of Tuberculosis, Cobbett.)

(*g*) Coming to some positive facts and observations, recent advances made in biology, physiological, and pathological chemistry, epidemiology, climatology, social economics, &c., have thrown considerable light on tuberculous problems, so as to shift the angle of vision from bacteriology to biochemistry, from microbe to metabolism, from the seed to the soil conditions in man.

(*h*) It is well known that tuberculosis is mostly found among those living in terrible social conditions, such as poverty, bad housing, slums, overcrowding, physical and mental strain, &c. This same fact was emphasised by the late war, where increased tuberculosis mortality went hand in hand with famine, want of proper food and rest, fear and anxiety, &c.

(*i*) Cases present themselves with all the symptoms and signs of pulmonary tuberculosis without the presence of tubercle bacilli, so that we shall have to admit that we can have tuberculosis without tubercle bacilli in the same way we can have influenza without Pfeiffer's organism. (One such case was reported by Sir StClair Thomson in *Tubercle*, October, 1919.)

We cannot fall back upon "resistance" to explain the incidence or absence of tuberculosis, as we do not know what it means. Whatever it is it does not mean physical fitness, for hundreds of men died of influenza who were physically fit and robust and hundreds survived who were tuberculous or unfit. The parrot-cry of "infection," "contagion," "resistance," at anything and everything connected with tuberculosis rather betrays our ignorance than advances our knowledge. The infection theory of tuberculosis will have to be revised by the light of modern thought which diverts attention from external causes to man himself, to his mode of living, his food and digestion, his surroundings, to the physiological and chemical changes that take place in his body by bad social conditions, impaired metabolism and malnutrition, which create a soil favourable to the growth of micro-organisms which, through present in and around us, have no power to do harm except through bad environment. Medical problems of tuberculosis are really social problems. This is why one emphasises social questions in connexion with the disease. Syphilis and scarlet fever do not come under the same category as tuberculosis, because they are not associated with poverty, overcrowding, malnutrition, nor are they treated or cured by improved feeding, &c. The medical profession is apt to cling to old traditions and shibboleths which did duty in the past as if they contained the whole truth. It must discern and move with the signs of the times and open its windows wide to the light which the modern sciences are throwing upon the present-day problems of social and economic life and adjust its ideas of diseased conditions accordingly.

I am, Sir, yours faithfully,

Mendip Hills Sanatorium, Nov. 10th, 1919. C. MUTHU.

RADIUM TREATMENT IN IRELAND.

To the Editor of THE LANCET.

SIR,—There appeared in the *Irish Times* of Oct. 30th a full column appealing for funds entitled "St. Bartholomew's Call to Ireland." The following statement which I extract is misleading, unintentionally I feel confident, and I think not just to the Dublin hospitals which are also badly hit by the war. It says:—

> "You in Ireland may regard it as an invasion for this hospital in London to appeal to you, but St. Bartholomew's does not regard it as strange when people travel from Ireland to 'Bartholomew's.' For instance, a man was sent by his doctor in Ireland to St. Bartholomew's, his fingers were contracted, stiffened, and as useless as wooden pegs. Radium treatment at 'Bartholomew's' (not available in Ireland) restored the full use of his hand."

I first used radium in Dr. Steevens's Hospital in 1904 and published,[1] I believe, the first recorded case of treatment by radium of fingers which were contracted, stiffened, and even more useless than wooden pegs, as they kept the patient awake with pain at night. The treatment was most successful; I saw the patient, after five years, a few days ago.

We are fortunate in Ireland to be able to obtain from the Royal Dublin Society Radium Institute radium emanation for the treatment of patients in hospitals and elsewhere. I may add that the radium treatment of stiff hands due to war injuries has been authorised by the War Office on account of my work at Dr. Steevens's Hospital, and at Blackrock, Alder Hey, and Shepherd's Bush Special Military Surgical Hospitals.[2] In addition to some 250 hospital cases treated for malignant disease at Dr. Steevens's Hospital, I have treated with eminently satisfactory results 453 patients (stiff joints, adherent and painful scars, &c.), 349 of them in Ireland. Incidentally, it appears to me obvious from the result obtained at St. Bartholomew's Hospital and my own experience that radium should be much more extensively employed for the benefit of those wounded in the war than it has been heretofore. I feel that these facts have only to be pointed out to the authorities of St. Bartholomew's to obtain justice for our Irish hospitals.

I am, Sir, yours faithfully,

Dublin, Nov. 3rd, 1919. WALTER C. STEVENSON.

PICRIC BRASS IN THE TREATMENT OF LUPUS.

To the Editor of THE LANCET.

SIR,—Dr. Henry Ellis in to-day's issue of THE LANCET deals with a difficulty probably experienced by all who have tried his original brass treatment. Having treated six cases of lupus by this method I gladly bear witness to the specific action of brass in inducing caseation of lupus nodules. Indeed, improvement is so apparent that patients without exception welcome the discomfort of subsequent applications of the paste; and in lupus non-exudens I find that three applications of brass under plaster may be required before caseation occurs. In one of my cases of lupus exudens the entire face was studded with suppurating crusts, and there was ectropion of both lower eyelids.

After the initial and very obvious improvements the results hitherto, in my experience, are less constant. Brass does not appear to affect those areas of induration, to which Dr. Ellis refers as "pseudo-healthy tissue." Now, if picro-sulphanilic acid, having reached these areas, should destroy the tubercle bacillus whilst sparing tissue cells, the problem of contact in the chemico-therapeutics of lupus will, indeed, be solved; but, even so, it remains to be seen whether the degree, as distinct from the area, of cicatrisation marking the track of the disease will be lessened. Unfortunately for our patients there is no healing by first intention in any variety of tuberculosis.

Should picro-sulphanilic acid fail to dispel induration in the rete, I would suggest trying tuberculin treatment in conjunction with brass paste or with "bro," despite the fact that tuberculin alone has proved disappointing in the treatment of lupus. My suggestion is based on the assumption that having destroyed the larger plasma-impervious nodules it is also possible to raise the bactericidal power of the lymph by which all cellular tissues of the body are surrounded. I am, Sir, yours faithfully,

HALLIDAY SUTHERLAND.

New Cavendish-street, W., Nov. 8th, 1919.

CHLOROMA SIMULATING MASTOID DISEASE.

To the Editor of THE LANCET.

SIR,—In your issue of Nov. 8th you publish an interesting note on this subject and I should be obliged if I might comment shortly thereon. The author, Dr. E. Catherine Lewis, very distinctly states that there were no "masses" and no infiltration in the liver. In a series of 1500 cases of leukæmia I have only once before found this stated. It would therefore be very interesting to know how many pieces of liver were sectioned and whether there was any trace at all of round-celled infiltration. The spleen is referred to as being of a "dirty yellowish-brown" on section, while the glands in several regions were enlarged. Yet these "appeared normal" on section. There are in the literature certain cases in which the glands have been declared normal, but this also is a rare finding and, in view of the confusing nature of gland histology, one would like fuller information before adding another to these.

---

[1] Brit. Med. Jour., July 4th, 1914.

[2] Vide THE LANCET, March 23rd, 1918; Medical Press and Circular, Jan. 8th, 1919; Archives of Radiology and Electrotherapy, April, 1919.

Dr. Lewis has found some 65 recorded cases and she would certainly have to work hard to find so many. But there are, as a matter of fact, more than that. In the series above referred to there were about 100 cases of chloroma and several have been published since. There is also a case in the literature[1] which resembled that of Dr. Lewis in that acute mastoid disease was an early complication. I have not the reference at hand, but I believe the patient was a young man in poor circumstances who was brought to hospital and operated upon forthwith. Operation disclosed masses of a greenish colour pervading the mastoid. Up to this time no blood examination had been made and the nature of the disease was quite unsuspected.

That such occurrences are not more frequent is probably due to the fact that the growths of chloroma are not in the least liable to become septic unless brought into direct association with an old septic focus or an abraded surface. Neither of these occurs very frequently in the ear or, perhaps, one should say the chance of a case of ear disease developing so rare a condition as chloroma is very small. In the case of Dr. Lewis, as in many others of a similar kind from the pathological point of view, I think that the blood findings would now be held to betoken an acute myeloid leukæmia. The large lymphocyte is a somewhat discredited cell, and the name no longer applies to all large mononuclear cells which lack definite granules.—I am, Sir, yours faithfully,

Sevenoaks, Kent, Nov. 10th, 1919. GORDON WARD.

"SOME CONSIDERATIONS OF PREVENTABLE DISEASE": A CORRECTION.

To the Editor of THE LANCET.

SIR,—In the excellent abstract of the presidential address delivered before the Society of Tropical Medicine and Hygiene, which was published in THE LANCET last week, two corrections must be made in my figures. In the section describing the progress of sanitary organisation in India the following figures are given :—"The effect of these and subsequent health measures has been to reduce the death-rate of ...... Indian troops from 20 to 6·78 and of prisoners from 82·7 to 30·8 per 1000." The figures 6·78 should read *4·39*, while 30·8 should read *19·17*.

I am, Sir, yours faithfully,

Nov. 10th, 1919. W. J. SIMPSON.

THE NORTH-EAST LONDON POST-GRADUATE COLLEGE.

To the Editor of THE LANCET.

SIR,—In his address entitled "Some Remarks on Medical Education," published in your issue of Nov. 8th, and referring to the provision in London of post-graduate instruction, Sir George Makins alludes to the work attempted in this direction by the West London and the Seamen's Hospitals, mentioning the circumstance that the teaching in these institutions has been exclusively devoted to medical practitioners. He, however, did not mention another institution which has done similar work during the last 17 years—the North-East London Post-Graduate College attached to the Prince of Wales's General Hospital. Its teaching staff, fearing that this oversight might lead to some misapprehension as to its present position, requested me to write to Sir George Makins pointing out the omission, and he has been kind enough to reply expressing his regret that he did not mention our school at the meeting in Manchester.

It is true that since the beginning of the war formal lectures and special classes have been largely in abeyance, as at the other post-graduate schools, but clinical teaching has been continuously carried on, and although no set syllabus will be issued before Christmas, it is intended that the full activities of the school shall be resumed early in January next, and that they shall, so far as possible, be made to fit in with the larger scheme of post-graduate education now being developed.

I am, Sir, yours faithfully,
ARTHUR J WHITING,
Nov. 10th, 1919. Dean, N.E. London Post-Graduate College.

*** Sir George Makins's addition, including the North-East London Post-Graduate College, did not reach us in time for publication.—ED L.

A LIVING FOREIGN BODY IN THE LARYNX.

To the Editor of THE LANCET.

SIR,—The case referred to in the Annotations in THE LANCET of Nov. 8th (p. 841) reminds me of a remarkable case which came under my care in Palestine about 11 years ago. Cases of leech in the naso-pharynx and in the region of the vocal cords are by no means uncommon in the Near East. Not infrequently I have been called upon to remove the parasite from just below the vocal cords, the ease with which this little operation was performed depending greatly on the intelligence of the patient.

The case to which I particularly wish to refer was that of a girl, aged about 12. She came up with the usual symptoms of irritating cough, accompanied by hæmoptysis. The condition had lasted some weeks, so that the child was somewhat exhausted and anæmic ; there was also marked breathlessness. On examining the chest the bases of the lungs, as high as the middle of the scapulæ, were found to be absolutely dull and showing the usual signs of consolidation. With the aid of the laryngoscope I had no difficulty in locating the leech, which was situated well below the cricoid cartilage. After several vain attempts to remove the "living foreign body" with laryngeal forceps, I decided that the only hope of saving the child was by means of tracheotomy. Here, however, I was met by a difficulty—viz., a general anæsthetic was quite out of the question, owing to the condition of the lungs. I decided, therefore, to operate under local anæsthesia. Fortunately, the girl was exceptionally intelligent, so that I was able to explain the absolute necessity of what I proposed to do.

I used a solution of cocaine and adrenalin and the operation—the usual "high" one—was soon completed. On opening the trachea, the tail of the leech presented, waving about in an agitated manner—the creature was evidently astonished at being approached from so unusual a direction. It was quickly seized and extracted and proved to be about 2½ inches long. The little patient remained in a critical condition for some days, but ultimately made an excellent recovery. She continued to cough up blood or a rusty expectoration for over a fortnight, during which time the lung consolidation gradually cleared up.

This case is certainly unique in my experience. The successful issue was undoubtedly due in no small measure to the remarkable intelligence and docility of the patient, who seemed to realise that her life depended on her complete submission.—I am, Sir, yours faithfully,

WALTER H. ANDERSON.

Lower Bebington, Cheshire, Nov. 7th, 1919.

THE CONTROL OF VENEREAL DISEASES.

To the Editor of THE LANCET.

SIR,—Mr. H. W. Bayly's letter in your last issue is important, as it brings matters to a climax in the open. With regard to the first part, dealing with Colonel L. W. Harrison's opinions and figures, I have nothing to say ; that gentleman is quite able to explain his change of opinion and defend his statistics should he choose to do so. As to the second part, he makes it abundantly clear that I was quite wrong when I suggested that there was really very little difference between the policy of the National Council for Combating Venereal Diseases and that of his committee. In stating this I relied on the published statement signed by the members of that committee that they were not pledged to the idea of packets. Mr. Bayly, as secretary, writing for his committee, states the opposite. In this case the two policies are indeed as widely separated as the poles.

I am, Sir, yours faithfully,
E. B. TURNER,
Chairman, Medical Committee, National Council for Combating Venereal Diseases.
81, Avenue-chambers, Southampton-row, London, W.C., Nov. 11th, 1919.

A DISCLAIMER.

To the Editor of THE LANCET.

SIR,—Will you kindly allow me to say that I am in no way related to the Dr. Pring whose name has recently appeared in connexion with certain proceedings in the Divorce Court.

I am, Sir, yours faithfully,
C. H. PRING.

Ivor House, Trafalgar-road, Camberwell, Nov. 10th, 1919.

---

[1] Koerner: Zeitsch. f. Ohrenheilk., Wiesb., 1896, xxix., p. 92; and Arch. of Otol., New York, 1897, xxvi., p. 289.

Parliamentary Intelligence.

HOUSE OF COMMONS.

TUESDAY, NOV. 4TH.

Pay of Nurses in Mesopotamia.

Colonel YATE asked the Financial Secretary to the War Office whether he was aware that, owing to the rise in the exchange, the members of military nursing services in Mesopotamia were now being mulcted of a large portion of their pay, so much so that sisters of the Imperial Military Nursing Service were now only receiving 154 rupees instead of 231 rupees, and staff nurses only 137 rupees instead of 206 rupees per mensem; and considering that the local cost of living was just as high as before, would he direct that the nursing staff were to be paid at the fixed rate of 1*s.* 4*d.* to the rupee, the same as the non-commissioned officers and men.—Mr. FORSTER replied in a written answer: My honourable and gallant friend is misinformed. Instructions were issued some time ago that the nursing service in Mesopotamia should receive, at the 1*s.* 4*d.* rupee, 10 per cent. of their pay with the whole of their board, washing, and field allowance, as from April 1st, 1919. This amount is ample to cover their necessary expenditure in Mesopotamia.

Pensions Appeal Tribunals.

Mr. MOSLEY asked the Minister of Pensions whether he could state the date of the appointment of the officials in the Tribunals Department of the Ministry; and what duties they had performed since that date.—Sir J. CRAIG (Parliamentary Secretary to the Ministry of Pensions) replied in a written answer: Appointments to the tribunals have been made at various dates to meet the continuous expansion of this work. The first Pensions Appeal Tribunal was constituted in July, 1917. Additional tribunals have been set up from time to time, the total number at Oct. 31st, 1919, being 15. The President of the tribunals has the assistance of a secretary and a small clerical staff. Each tribunal consists of a vice-president and a naval and military member, an official acting as medical assessor, secretary, and clerical assistant to the secretary, who have performed their respective duties since the dates of their appointment. The tribunals have heard and given final decision in nearly 15,000 cases.

Treatment of Syphilis.

Mr. R. YOUNG asked the Minister of Health whether, in view of the fact that treatment for syphilis by means of arsenical drugs approved by his department was now virtually compulsory, he would recommend compensation being given to the dependents in cases where a fatal result might reasonably be attributed to the treatment; and, if not, whether he would consider the desirability of repealing the provisions of the Venereal Diseases Act, 1917, which penalised the treatment of these diseases by others than registered practitioners.—Dr. ADDISON replied in a written answer: There is no such compulsion as is stated in the first part of the question; the remainder of the question, therefore, does not arise.

Export of Morphia.

Sir J. AGG-GARDNER asked the Under Secretary for Foreign Affairs whether H.M. Government accepted licences issued by the Japanese authorities at Dairen and the Kwangtung leased territory as sanctioning the export of morphia thence from Great Britain; whether such morphia was restricted in its use to medical purposes only; what amount of morphia manufactured in Great Britain had been exported to Japan under licence during the past two years; and whether in determining the amount of such exportation for medical purposes the amount of morphia transmitted by post was taken into consideration.—Mr BRIDGEMAN (Parliamentary Secretary to the Board of Trade) replied in a written answer: Under an arrangement made in 1917 a licence for the exportation of morphia to Japan or to the Kwangtung leased territory, whether by parcel post or otherwise, is granted only on the production of a certificate from the competent Japanese authorities to the effect that the parcel in question will be used for medical purposes only. No licences for export to the Kwangtung leased territory have been issued under this arrangement. The total quantity of morphia licensed for export to Japan in 1918 was 36,480 oz., and during the first eight months of the present year 5026 oz. It is not possible to state how much of the quantity licensed was actually exported during the period in question, as no figures are available with regard to the quantity of morphia exported by post.

WEDNESDAY, NOV. 5TH.

Leave for Indian Nurses.

Colonel YATE asked the Secretary for India whether the bonus granted by Army Order 300 of August 18th, 1919, to members of Queen Alexandra Imperial Nursing Service and other nurses on British rates of pay had been extended to the Queen Alexandra Military Nursing Service for India and other ladies nursing in Indian military hospitals on rupee rates of pay; and whether a sufficient number of temporary nurses had been recruited in service in India to permit of the relief of those regulars of the Indian Nursing Service who had been working in India and Mesopotamia continuously throughout the war, and owing to military requirements had been unable to obtain their long overdue furlough, and had lately been told that no hope could be held out that they could have furlough in the near future.—Mr. MONTAGU replied: The answer to the first part of my honourable and gallant friend's question is in the affirmative. The recent appointment of some 250 temporary nurses should be sufficient to enable the Indian Government to give relief to the permanent staff in the matter of leave.

Wounded Officers under Treatment.

Mr. ALFRED SHORT asked the Secretary for War whether he was aware that wounded officers still receiving treatment at the officers' hospital, Headington, Oxford, had been discharged from the army and were now in receipt of pension only, whilst others had been under hospital treatment for considerable periods and were still in receipt of full army pay; and whether he would have inquiry made into this matter, and direct that the officers in the above-mentioned hospital should receive the same treatment as all other wounded officers and men.—Mr. FORSTER replied: It is quite possible without any breach of regulations that an officer may be in an army hospital after he has been retired from the army, and I have no reason to suppose that the officers at Headington have been irregularly treated; but if my honourable friend will give me particulars of the cases he has in mind I will have inquiry made.

Qualifications of Dentists.

Mr. GODFREY LOCKER-LAMPSON asked the Prime Minister whether it was intended to introduce a Bill to give effect to the report of the committee appointed to inquire into the extent and gravity of the evils of dental practice by persons not qualified under the Dentists Act.—Sir TUDOR WALTERS (Paymaster General) replied: Yes, Sir; but the issues involved are complex and numerous, and must be considered in relation to other necessary elements in the development of health services for the community, so that I cannot yet make any statement as to the precise lines on which such legislation will be proposed.

Training Centres for Disabled Men.

Mr. HALLAS asked the Pensions Minister whether he was aware that the use of two hostels situated near the works of the Austin Motor Company, Birmingham, as centres for the curative training and treatment of disabled ex-Service men was preventing their use as lodgings for 1500 men and boys who would be employed at the works named, and was therefore both promoting unemployment and aggravating the housing difficulty; whether he was aware that there were several large void Government hutments in Sutton Park which would, from the point of view of access and surroundings, be more convenient as training centres than the hostels named; and whether, in the light of these facts, he would reconsider his decision.—Sir J. CRAIG replied in a written answer: My right honourable friend has received representations from the Ministry of Labour as to the desire of the Austin Motor Company to obtain the hostels in question. Representations have also been made direct to this Department by the company, and it was only after full consideration of these representations, and consultations with the Ministry of Health as to housing needs, that the decision was taken to utilise the hostels for the purposes of a convalescent centre for the concurrent treatment and training of discharged disabled men. The demand for such facilities is urgent. An alternative proposal to take hutments in Sutton Park for the purpose of a centre has been considered, but this scheme was rejected in favour of the hostel scheme on account of the much greater cost involved in adapting the premises and the delay that would have been occasioned.

THURSDAY, NOV. 6TH.

Disability Awards in Terms of Money.

Captain LOSEBY asked the Pensions Minister if he had yet been able to put into operation the recommendations of the Select Committee on Pensions that soldiers appearing before medical boards should be informed immediately after examination of the degree of disability translated into terms of money at which they had been assessed.—Sir L. WORTHINGTON-EVANS replied: As soon as the Medical Appeal Boards are in operation in the regions the pensioner will be told the degree of disability found by the Board which examines him.

Captain COOTE: Can the right honourable gentleman say when these boards are likely to be established?—Sir L. WORTHINGTON-EVANS: They are very nearly complete. In most regions they are in operation.

The Standardising of Artificial Limbs.

Major Cohen asked the Pensions Minister whether the report of the Bacon Committee, which inquired into the question of the standardising of artificial limbs, had yet been considered; and, if so, whether these recommendations were being adopted.—Sir L. Worthington-Evans replied: The answer to the first part of the question is in the affirmative. With regard to the latter part I am adopting the report in its entirety, except that I disagree with the recommendation that in every case the man should have a permanent peg leg in addition to the mechanical limb which is to be provided in duplicate.

Permanent Disability Appeals.

Captain Loseby asked the Pensions Minister if he had yet been able to grant the right of appeal on account of pensions permanently assessed and awarded to disabled soldiers; and if he would inform the House of any plan that he had in contemplation in the matter.—Sir L. Worthington-Evans replied: Medical appeal boards of the Ministry have now been set up to which all men can appeal who are dissatisfied with the degree at which their disability is assessed. But I cannot make any announcement on the question of granting a statutory right of appeal on assessment in cases of permanent award.

Reduction of Medical Awards.

Captain Loseby asked the Pensions Minister if he had yet been able to put into operation the recommendation of the Select Committee on Pensions that pensions awarded by the medical boards to disabled soldiers should not be liable to reduction by any administrative act but only by decision of a further competent board.—Sir L. Worthington-Evans: The answer is in the affirmative. As each region is set up arrangements are made to ensure that the findings of the medical boards of the Ministry shall not be amended without the agreement of the board which examined the man or of a board which will re-examine him.

Arrears of Pensions Appeals.

Captain Loseby asked the Pensions Minister if he could inform the House to what extent pensions appeal boards were still in arrear with their cases; and what steps were now taken to assist disabled men during the period that the appeal was pending.—Sir L. Worthington-Evans: I assume that the honourable and gallant Member refers to the Pensions Appeal Tribunals which have been reconstituted as from Nov. 1st, under the jurisdiction of the Lord Chancellor, in accordance with the provisions of the War Pensions (Administrative Provisions) Act, 1919. A great improvement has recently been made. The cases in hand in May last numbered 16,000, in August the number was reduced to 11 000, and to-day to 6000, including cases in the hands of local committees and those adjourned at the request of the appellant. Local committees are authorised, in cases where the medical referee is of opinion that the appeal should succeed, to make recoverable advances up to the probable rate of pension. I am, however, considering simplifying the preliminary procedure in these appeal cases, and so lessening the period of waiting and making the present extensive provision of recoverable advances unnecessary.

Mr. Houston: Can the right honourable gentleman tell me whether the decision of the Appeal Board is final, or whether, when fresh circumstances are brought to light, it can be reconsidered?—Sir L. Worthington-Evans: The decision of the appeal tribunals is final, but it has been my practice, when they were under my control, that if really new evidence was subsequently discovered, to communicate the fact to the president of the tribunal, leaving it to him at his discretion to order a new trial if he thought proper. Otherwise their action is final.

Prisoner Certified Insane.

Lieutenant-Commander Kenworthy asked the Secretary for the Home Department whether he was aware that Gunner John Brown, No. 1511, formerly of the 36th battery of the Royal Field Artillery, was certified as insane at Wandsworth Prison on Oct. 28th, 1917, and was sent to Berkshire County Asylum, from which he was discharged as sane on Feb. 14th, 1918; whether he was aware that at no time did the medical officer of that asylum regard Gunner Brown as insane; whether he could state by whose orders he was medically examined in October, 1917, and by whom he was certified insane: and whether he could state by whose orders Gunner Brown was detained in Berkshire County Asylum.—Mr. Shortt replied in a written answer: Gunner John Gore Brown was certified insane on Oct. 22nd, 1917, while serving a sentence of 18 months' imprisonment for housebreaking in H.M. Prison, Wandsworth, and was removed to Berkshire County Asylum. The certificate was given by two magistrates, members of the Prison Visiting Committee, and two medical men, and the order for transfer to an asylum was made by my predecessor under the Criminal Lunatics Act, 1884. I have no information as to the opinion formed by the medical officer of the asylum, but Brown, who ceased to be a criminal lunatic on the expiration of his sentence on Nov. 26th, 1917, appears to have been detained as a lunatic for a further period of two and a half months before he could be discharged as sane.

Nurses' Registration.

Dr. Addison (Minister of Health) presented the Nurses' Registration (No. 2) Bill "to provide for the registration of nurses." The measure was read a first time, and ordered for second reading on Monday, Nov. 10th.

Medical News.

University of Glasgow.—The following degrees were conferred on Nov. 8th:—

Doctor of Medicine (M.D.).—Henry Graeme Anderson (with commendation), Hector Mackay Calder, George Fletcher (with commendation), Crawford Lundie, Donald M'Intyre, Andrew Bruce MacLean, George Macleod (with high commendation), Norman Alexander Macleod, Samuel Johnstone Moore, Berkeley Hope Robertson, and Alfred Cecil Sharp.

Royal Society of Arts.—On Wednesday afternoon next, at 4.30, the opening address of the 166th session of the society will be delivered by Sir Henry Trueman Wood, vice-president and chairman of the council. The subject is "Science and Industry."

Medico-Legal Society.—A meeting of this society will be held at 11, Chandos-street, Cavendish-square, W., on Thursday, Nov. 27th, at 8.30 P.M., when Dr. R. Henslowe Wellington, the President, will give an inaugural address, after which a paper will be read by Dr. A. P. Gibbons on "Suggested Reforms in the Workmen's Compensation Act."

Aberdeen University Club, London.—The sixty-second half-yearly dinner of the club will be held at the Criterion Restaurant, Piccadilly-circus, W., on Thursday next, Nov. 20th, at 7.30 P.M., Professor Ashley Watson Mackintosh in the chair. The annual general meeting will be held previous to the dinner at 6 30 P.M. Dr. W. A. Milligan, 11, Upper Brook-street, W. 1, is acting as honorary secretary to the function, and the names of intended guests should be intimated to him immediately. The price of dinner tickets, exclusive of wine, is 12*s*. 6*d*.

Medico-Psychological Association of Great Britain and Ireland.—The next quarterly meeting of this association will take place on Tuesday, Nov. 25th, at 11, Chandos-street, Cavendish-square, London, W., under the presidency of Dr. Bedford Pierce, at 2.45 P.M. Dr. Charles Hubert Bond, Commissioner of the Board of Control, will read a paper entitled, "The Need for Schools of Psychiatry," and Major W. S. J. Shaw, superintendent, North Veravola, Poona, India, will read a paper entitled, "The Treatment and Administration of Mental Diseases in India."

The Children's Jewel Fund.—This fund, initiated on Jan. 1st, 1918, with the object of providing financial support for the establishment of welfare centres for ante-natal and post-natal care, as well as day nurseries for children whose mothers are compelled to earn their living, has now allocated £22,273 18*s*. in 126 grants for the establishment of new centres or for the development of new work in connexion with existing centres, such as dental clinics, ante-natal clinics, observation wards for ailing babies, massage clinics, &c. Only 50 applications have been refused in accordance with certain definite conditions defined by the committee. Now that the importance of welfare work is generally recognised, and local authorities are being urged to establish municipal centres and to develop child-welfare work in its various branches, the administrative committee of the Children's Jewel Fund has decided to concentrate its efforts in a permanent memorial, and to establish a large model centre for ante-natal and post-natal care in a suitable London district. This centre will be known as the Children's Jewel Fund Centre, and it is hoped that all who have supported the appeal during the war will give their interest and help to this particular centre, which is designed to be a model of its kind. After providing for contingent expenses in connexion with this proposal, there will still be a small balance to be allocated for other centres, if they apply before Dec. 1st. The committee desires to make it known that all such applications should be sent in by that date, after which no further applications will be entertained, and the fund, in so far as the general grants are concerned, will be closed.

A post-graduate course will be held at the Victoria Hospital for Children, Tite-street, Chelsea, London, S.W., by members of the staff during the fortnight, Nov. 24th to Dec. 5th. Details are given in our advertisement columns.

THE old students' dinner of the London Hospital Medical College, postponed on account of the railway strike, has now been cancelled.

Dr. William Arthur Valentine, of Appledore, Devon, has had the Order of the Redeemer Chevalier conferred upon him by His Majesty the King of the Hellenes.

THE Committee of the Cossham Memorial Hospital, Kingswood, Bristol, has decided to set apart 40 beds for medical and surgical cases of war pensioners.

ST. THOMAS'S HOSPITAL.—The University entrance scholarship for 1919–20, of the value of £50, has been awarded to Mr. G. D. C. Tracey, of Emmanuel College, Cambridge.

A CORNISH CENTENARIAN.—Mr. Robert Lanyon, of Trewolla Farm, Gerran, celebrated the anniversary of his 100th birthday on Nov. 2nd.

Mr. Cairns Forsyth, surgeon to the French Hospital, London, has been awarded the Cross of Chevalier of the Legion of Honour for services rendered to France as médecin chef of a mobile English hospital attached to the Armies of the Argonne and Verdun during the war.

THE MANOR HOUSE HOSPITAL.—This institution, which is under the ægis of the Industrial Orthopædic Society (lately the Allied Hospitals Benevolent Society) has laid down a hospital "constitution" under which the medical staff have been enjoined to act. Owing to the terms of this "constitution" the following members of the medical staff have resigned: Mr. B. Whitchurch Howell, Dr. Stanley Melville, Mr. G. Murray Levick, Surgeon-Commander, R.N., and Mr. W. P. Tindal-Atkinson.

DEATH OF DR. W. BANKS.—William Banks, M.B. Lond., M.R.C.S., of Falmouth, died suddenly on Nov. 4th whilst on his way to visit a patient. He had met with a severe carriage accident about ten years ago and this impaired his health. He was in his sixty-fifth year, had practised in Falmouth since 1885, and was honorary surgeon to the Falmouth Hospital and to the Royal Cornwall Sailors' Home. Dr. Banks took a great interest in municipal matters, and was Mayor of Falmouth for three years. In 1903 he was entertained to a public banquet in recognition of his services to the town. He will be greatly missed in Falmouth, where he was held in the highest esteem, and much sympathy is there felt for his widow and two sons.

NEW MEDICAL OFFICER OF HEALTH FOR GLOUCESTER.—At a meeting of the Gloucester City Council held recently Dr. J. R. Bibby was unanimously appointed medical officer of health for the city, the post having been rendered vacant by the death of Mr. W. M. Hope. Dr. Bibby has been a member of the city council for 13 years and as chairman of the Health Committee for 12 years, as a member of the Insurance Committee and Joint Committee for the treatment of tuberculosis and mental defectives, as well as chairman of the Panel and Local Medical Committee, he has had a wide and practical experience in public health matters. He has seen some four and a half years of active service with the Royal Army Medical Corps, where he attained the rank of lieutenant-colonel. A pleasing feature of his appointment as medical officer was the unanimity of opinion which prevailed in the council that he was the right man for the post.

DONATIONS AND BEQUESTS.—By the will of the late Mr. James Morton the testator has bequeathed, on the death of his wife, £5000 each to Dr. Barnardo's Homes and Sir John Kirk's Mission, John-street, London, W.C., £1000 each to the Belgrave Hospital for Children, Clapham-road, the Victoria Hospital for Children, Chelsea, the Queen's Hospital for Children, Hackney-road, the Hospital for Sick Children, Great Ormond-street, W.C., the National Orthopædic Hospital, Great Portland-street, 12 other hospitals in London, the Society for the Prevention of Cruelty to Children, the National Refuges for Homeless and Destitute Children. Other charities also benefit considerably under the will.—The executors of the will of Mr. Thomas George Langham have given £20,000 to the Leicester Royal Infirmary with a view to perpetuating Mr. Langham's name and memory. The executors suggest that the money should be employed in the building of an orthopædic in-patients' department and an isolation hospital.—The late Miss Elizabeth Richardson, of Heywood, Lancashire, has bequeathed by will £1000 each to the Manchester Royal Infirmary, Dispensary, and Lunatic Asylum; £500 to the Bury Infirmary; and £100 to Henshaw's Blind Asylum, Manchester.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg.-Cmdr. A. G. Eastment to be placed on Retired List at own request.

Surg.-Cmdr. M. J. Smith placed on the Retired List with rank of Surgeon-Captain.

R. J. Inman to be Surgeon-Lieutenant.

ARMY MEDICAL SERVICE.

Col. W. W. O. Beveridge to be Director of Hygiene at the War Office, and to be temporary Brigadier-General whilst so employed.

Temp. Col. A. G. Phear relinquishes his commission, and retains the rank of Colonel.

ROYAL ARMY MEDICAL COLLEGE.

Lieut.-Col. P. S. Lelean, R.A.M.C., to be a Professor.

ROYAL ARMY MEDICAL CORPS.

Temp. Col. H. Burrows (Capt., R.A.M.C., T.F.) relinquishes his temporary commission on re-posting.

Lieut.-Col. J. E. Brogden (half-pay list) retires on retired pay on account of ill-health.

Lieut.-Col. W. H. Wilson Elliot, retired Indian Medical Service, to be temporary Lieutenant-Colonel.

Lieut.-Col. and Bt. Col. G. J. A. Ormsby relinquishes the acting rank of Colonel.

The undermentioned Lieutenant-Colonels relinquish the temporary rank of Colonel: J. H. Campbell, A. W. N. Bowen, L. Humphry (Bt. Col.), H. S. Roch, B. F. Wingate, B. B. Burke, J. Powell (Bt. Col.), D. O. Hyde.

Lieutenant-Colonels relinquishing the acting rank of Colonel: H. Hewetson, C. J. O'Gorman, G. M. Goldsmith, W. R. Blackwell (Bt. Col.), A. E. Hamerton, W. R. P. Goodwin (Bt. Col.), W. L. Steele, H. R Bateman.

Major and Bt. Lieut.-Col. E. Ryan relinquishes the temporary rank of Lieutenant-Colonel.

Temporary Captains (acting Majors) to be acting Lieutenant-Colonels whilst specially employed: F. R. Fraser, F. D. Saner.

Capt. F. J. Stuart to be Major.

Temp. Major E. B. Pooley, T.D. (Major, 4th R. Lan. R., T.F.) relinquishes his temporary commission on re-posting.

The undermentioned relinquish the acting rank of Major: Capt. W. B. Allen, V.C., Temp. Capts. J. B. Lester (on ceasing to be specially employed), R. Charles, G. Richardson.

Temp. Capt. B. Malaher to be Captain.

E. P. Peake, late Captain, Can. A.M.C., to be temporary Captain.

Capt. A. L Foster to be acting Major whilst specially employed.

Capt. K. P. MacKenzie is seconded for service with the Egyptian Army.

Capt. H. W. Browne, from T.F., to be Captain.

Lieutenants (temporary Captains) to be Captains: W. H. Ferguson J. A. Crawford, P. R. O'R. Phillips.

J. F. Cooper (late temporary Honorary Captain) to be Honorary Captain.

Temp. Capt. T. S. Law to be Lieutenant and to be temporary Captain

Capt. D. C. Bowie (from Special Reserve) to be Lieutenant and to be temporary Captain.

J. A. A. P. Scott to be temporary Lieutenant.

Officers relinquishing their commissions: Temporary Lieutenant Colonels retaining the rank of Lieutenant-Colonel: S. L. Jones, H. G Ashwell, J. V. Blachford; Temp. Majors (Bt. Lieut.-Col.) S. Fleming (retains the Brevet rank of Lieutenant-Colonel), A. E. Morrison (retains the rank of Major), J. R. P. Phillips (retains the rank of Major); Temp. Capt. (acting Lieut.-Col.) C. J. West (granted the rank of Lieutenant-Colonel); Temporary Captain granted the rank of Major: D. M. Hunter, A. Fullerton, D. J Glen, (Acting Major) J. Taylor, W. S. S. Berry, R. Semple; Temp Capts. (retaining the rank of Captain) H. Appleton, F. J. A. Keane J. A. Quin, C. R. Edwards, H. A. de Morgan, J. B. McFarland J. D. Robertson, D. McDougall, C. J. Marshall, P. D. Scott, J. M Forsyth, P. W. Maclagan, N. S. Neill, P. Rose, J. A. O'Dea, A. W. Frew S. Littlewood, J. Lyons, G. Pirie, D. W. Ritchie, W. Hughes, N. M Boyce, R. K. G Graves, S. Melville, A. C. Dickson, B. Wood-White J. Stevenson; Temp. Hon. Capts. (retaining the honorary rank of Captain) J. F. Harvey, J. L. Dickie; Temp. Lieut. O. K. Lang (retain the rank of Lieutenant); Temp. Hon. Lieut. S. J. Cattley (retains the honorary rank of Lieutenant).

TERRITORIAL FORCE.

Lieut.-Col. (Bt. Col.) G. S. Woodhead, Sanitary Service, relinquishe his commission on account of ill-health and retains his rank.

Lieut.-Col. H. Jones relinquishes his commission on account of ill health and retains the rank of Lieutenant-Colonel.

Captains (acting Majors) relinquishing the acting rank of Major o ceasing to be specially employed: A. K. Maclachlan, J. Muir, G. Martin, G. L. Findlay, R. M. Vick.

1st London Sanitary Company: Lieut. W. G. Gibbs to be Captain.

ROYAL AIR FORCE.

Medical Branch.—Flight Lieutenants to be Squadron Leaders W. A. S. Duck, A. E. Panter, A. R. Sharrod.

The undermentioned are transferred to the unemployed list: Capts W. B. Loveless, L. B. Stringer, R. J. Hearn, J. I. Russell, C. Peacock 2nd Lieut. L. W. Jones.

Dental Branch—2nd Lieut. (acting Capt.) G. W. Allen to be 2nd Lieut. (from T.) and retains his acting rank whilst so employed.

INDIAN MEDICAL SERVICE.

Captains to be Majors: W. E. R. Williams, Sorabji Jamas Bhathena.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

Acheson, D. R., M.B., has been appointed District Medical Officer by the Thornbury Board of Guardians.

Beaumont, G. E., D.M. Oxon., M.R C.P., D.P.H., Assistant Physician, Hospital for Consumption and Diseases of the Chest, Brompton.

Bibby, James Richard, M.B., C.M. Edin., Medical Officer of Health for Gloucester.

Hardyman, G., M.B., F.R.C.S. Edin., Honorary Consulting Surgeon to the Royal Mineral Water Hospital, Bath.

Hugo, H. F. L., M.C., M.B., B.S. Lond., Medical Officer of the Cheriton Bishop District, by the Crediton (Devon) Board of Guardians.

Langram, W., L.R.C.P., L.M. Edin., L.R.C.S. & L.A.H. Irel., Medical Officer for the Dalwood and Stockland District, by the Honiton (Devon) Board of Guardians.

Phillips, H. R., M.D. Edin., Anæsthetist, Hospital for Sick Children, Great Ormond-street.

Roper, A. C., F.R.C.S., L.R.C.P. Edin., M.R.C.S., Honorary Consulting Surgeon and Honorary Governor to the West of England Eye Infirmary, Exeter.

Shirvell, E. A., L.R.C.P., M.R.C.S., Medical Officer of Health for Padstow (Cornwall).

Certifying Surgeons under the Factory and Workshop Acts: **Aveling**, L. B., M.R.C.S., L.R.C.P. Lond. (Royton); **Murray**, P., M.D. Edin. (Leven); **Anderson**, R., M.D. Glasg. (Erdington); **Widdas**, H., M.B., B.S. Durh. (Shildon).

Vacancies.

For further information refer to the advertisement columns.

Antrim County Council.—Asst. Tuberc. M.O. £400.

Bath, Royal United Hospital.—H.S. £150.

Bermondsey Infirmary, Lower-road, Rotherhithe, S.E.—First and Secoud Asst. M.O.'s. £350 and £300.

Birmingham and Midland Eye Hospital, Church-street, Birmingham.—Asst. S. £100.

Blackburn and East Lancashire Royal Infirmary.—Junior H.S. £250.

Blackburn Union.—Res. M.O. £400.

Bradford Children's Hospital.—H.S. £180.

Brighton, County Borough.—Asst. M.O. £450.

Bristol Royal Infirmary.—Clin. Pathologist. £500.

Burton-on-Trent Infirmary.—H.S. £200.

Cardiff, Glamorgan County Council.—County M.O. £1000.

Cardiff, University College of South Wales and Monmouthshire.—Lect. in Physiol. Chem. and Asst. Lect. and Demon. in Physiol. £250.

Carlisle, Cumberland County Council.—Three Asst. County M.O.'s. £450.

Central London Ophthalmic Hospital, Judd-street, W.C.—Asst. S.

Chester, Cheshire County Council.—Dist. Tuberc. O. £450.

Chester City and County.—Asst. M.O.H. £400.

Chester Royal Infirmary.—H.P. £150.

City of London Union Institution and Infirmary, 42, Clifden-road, Clapton, E.—Asst. M.O. £250.

Croydon Mental Hospital, Upper Warlingham, Surrey.—Sec. Asst. M.O. £500.

Dorchester, Dorset County Council.—Asst. County M.O. £400.

Dudley County Borough Education Committee.—Asst. School M.O. and M.O.H. £500.

Dumfries, Crichton Royal.—Asst. P. £350.

Durham County Council.—Female Asst. Sch. M.O. £600. Senior Dent. O. £600.

Eastbourne, Princess Alice Hospital.—Res. M.O. £175.

Elizabeth Garrett Anderson Hospital, Euston-road, N.W.—Female H.P., Obstet. Asst., and Two H.S.'s. £50. Pathologist and Asst. Path. £235 and £100. Hon. Anæs. £10 10s. Hon. Asst. Obstet.

Evelina Hospital for Children, Southwark, S.E.—H.P. £160.

Gloucester County Asylums.—Jun. Asst. M.O. £300.

Gloucestershire Royal Infirmary and Eye Institution.—Asst. S.

Great Northern Central Hospital, Holloway, N.—Res. M.O.

Grosvenor Hospital for Women, Vincent-square, Westminster, S.W.—Asst. Gynæc.

Halifax Royal Infirmary.—H.S.

Hereford County and City Mental Hospital.—Sen. Asst. M.O. £400.

Holborn Union Infirmary, Archway-road, N.—First and Second Asst. M.O.'s. £300 and £250.

Hospital for Consumption and Diseases of the Chest, Brompton, S.W.—Anæsthetist.

Huddersfield Royal Infirmary.—Sen. H.S. and Asst. S. £200 and £150 respectively.

Johannesburg, South African School of Mines and Technology.—Prof. of Veterinary Anat. £800.

Lightburn Joint Hospital, Shettleston, near Glasgow.—Res. Phys. Supt. £350.

Liverpool Eye and Ear Infirmary, Myrtle-street.—Hon. Asst. S. and Hon. Path.

London County Council.—Fifth Asst. M.O.'s for London County Mental Hospitals. £300.

Manchester Royal Eye Hospital.—Jun. H.S. £120.

Manchester Royal Infirmary.—H.S.'s. £25 and £50.

Mesopotamia, Civil Medical Service.—Lady Doctors, Civil S.'s, Ophthal. S., Path., Dental S., M.O.H., and Director Central Laboratory. Rs. 650/- to Rs. 1800/- a month.

Miller General Hospital for South-East London, Greenwich-road, London, S.E.—Res. M.O. and Hon. Anæs.

Ministry of Pensions, London Region.—Med. Referees.

Newcastle-on-Tyne, Royal Victoria Infirmary.—Hon. Asst. S.

Northallerton, North Riding of Yorkshire County Council Education Committee.—Asst. Sch. M.O.'s £500.

Northampton, Northamptonshire County Council Education Committee.—School Dentist. £400.

Norwich, Norfolk and Norwich Hospital.—H.S. and Cas. O. £200.

Nottingham General Hospital.—H.S. £150.

Paddington Green Children's Hospital, London, W.—Radiographer.

Preston, High Carley Sanatorium, near Ulverston.—Asst. Tuberc. M.O. £400.

Preston, Lancs, County Asylum, Whittingham.—Locum Tenens. £7 7s. per week.

Public Dispensary, 122, Drury-lane, W.C.—Res. M.O. £105.

Queen's Hospital for Children, Hackney-road, Bethnal Green, E.—Asst. P.

Reading, Berkshire Education Committee.—Asst. Sch. Med. Insp. £400.

Rhondda Urban District Council.—Asst. Sch. M.O. and M.O.H. £500.

Rochdale Infirmary and Dispensary.—Junior H.S. £125.

Royal College of Surgeons of England.—Election to Court of Examiners.

Royal Eye Hospital, St. George's Circus, Southwark, S.E.—Jun. H.S., 50 gns.; and Clin. Assts.

Royal Free Hospital and London School of Medicine for Women.—Pathologist and Direct. of Path. Studies. £700.

Royal Waterloo Hospital for Children and Women, S.E.—Hon. P.

St. Bartholomew's Hospital.—Rose Research Fellowship. £600.

St. George's Hospital, S.W.—Res. Anæs. £100.

St. Marylebone Infirmary.—Con. P., S., Gynæc., Oph. S., Neurol., Dermat., Bact. and Advising Sanitary O., £100; P. to X Ray Dept., £150; Dent. S., £50.

St. Peter's Hospital for Stone, &c., Henrietta-street, Covent Garden, W.C.—Jun. H.S. £75.

Salford Royal Hospital.—Cas. H.S. £100.

Sheffield Education Committee.—Asst. School M.O. £450.

Sheffield, East-End Branch of the Children's Hospital.—H.S. £150.

Sheffield Royal Hospital.—Res. Asst. Cas. O. £120.

Sheffield Royal Infirmary.—H.S. £150.

Singapore, Straits Settlements, Health Department.—Asst. Health O. $4800-$5400.

Southend-on-Sea County Borough.—Deputy M.O.H. and Asst. Sch. M.O. £500

Southwark Borough.—Female Asst. M.O.H. £400.

University of London.—Chair of Physiology. £800.

Ventnor, Isle of Wight, Royal National Hospital for Consumption and Diseases of the Chest.—Asst. Res. M.O. £200.

Wakefield, West Riding Asylum.—Junior Asst. M.O. £400.

Walsall General Hospital.—Female Jun. H.S. and Anæs. £175.

Wandsworth Union, St. John's Hill, Wandsworth, S.W.—Dist. M.O. £100.

Wells Asylum, Somerset.—Asst. M.O. £300.

West End Hospital for Nervous Diseases, St. Katharine's Lodge, Regent's Park.—H.P. £150.

THE Secretary of State for the Home Department gives notice of a vacancy for a Medical Referee under the Workmen's Compensation Act, 1906, for the Barrow-in-Furness, &c., County Courts, Circuit No. 3. Applications should be addressed to the Private Secretary, Home Office, not later than Nov. 29th. The Home Secretary also gives notice of a vacancy for a Medical Referee under the Workmen's Compensation Act for Ashbourne, Bakewell, Belper and Ilkeston, Derby and Long Eaton, Wirksworth and Matlock, and Burton-on-Trent County Courts, Circuit No. 19. Applications as above not later than Dec. 3rd.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Downton, Kingston-on-Thames, Otley, Porthcawl, and Saintfield.

Births, Marriages, and Deaths.

BIRTHS.

Anderson.—On Nov. 8th, at Buckingham-terrace, Glasgow, the wife of Dr. J. Mackenzie Anderson, of a daughter.

Ensor.—On Nov. 10th, at a Nursing Home, the wife of Colonel H. Ensor, C.M.G., D.S.O., R.A.M.C., Hythe, Kent, of a son.

Hardy.—On Nov. 6th, at 43, Beaufort-road, Edgbaston, Birmingham, to Dr. and Mrs. T. L. Hardy—a daughter.

Inch.—On Nov. 4th, in Edinburgh, the wife of Dr. T. Douglas Inch (late Major, R.A.M.C.), of a son.

Roberts.—On Nov. 8th, at Shawford, Hants, the wife of G. Marsden Roberts, M.R.C.S., L.R.C.P., of a son.

Ward.—On Nov. 9th, at Enborne Grange, Newbury, the wife of George E. S. Ward, M.D., M.R.C.P., of 16, Queen Anne-street, W. 1., of a daughter.

MARRIAGES.

Maynard—Tully.—On Nov. 5th, at St. Philip's, Kensington, Edwin Maynard, M.D., F.R.C.S., of Oxford-terrace, Hyde Park, W., to Nancy Frances Tully.

DEATHS.

Baird.—On Nov. 9th, at his residence, Adelaide, Sandymount Castle, Sandymount, Dublin, George Henderson Baird, M.D., Captain, R.A.M.C.

Campbell.—On Sept. 25th, at Swiss View, Yercaud, Madras Presidency, India, George Gunning Campbell, M.R.C.S., L.R.C.P., in his 43rd year.

Lewis.—On Nov. 9th, at 6, The Crescent, Cromer, Thomas Preston Lewis, M.D., late of Brixton-hill, London, aged 66.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Medical Diary for the ensuing Week

SOCIETIES.

ROYAL SOCIETY, Burlington House, London, W.

THURSDAY Nov. 20th. Papers:—Mr. W. J. Johnston: A Linear Associative Algebra suitable for Electro magnetic Relations and the Theory of Relativity (communicated by Sir Joseph Larmor, M.P.).—Sir Joseph Larmor, M.P: Note on Mr W. J. Johnston's Calculus for Generalised Relativity.—Mr. G. E. Bairsto: On the Variation with Frequency of the Conductivity and Dielectric Constant of Dielectrics for High Frequency Oscillations (communicated by Prof. J. A. Fleming).—Mr. F. J. W. Whipple: Equal Parallel Cylindrical Conductors in Electrical Problems (communicated by Dr. C. Chree).—Mr. G. A. Schott: The Scattering of X and Y Rays by Rings of Electrons. A Crucial Test of the Electron Ring Theory of Atoms (communicated by Sir Joseph Larmor, M.P.).

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

Tuesday, Nov. 18th.

GENERAL MEETING OF FELLOWS: at 5 P.M.

Ballot for Election to the Fellowship. (Names already circulated.)

MEETINGS OF SECTIONS.

Tuesday, Nov. 18th.

THERAPEUTICS AND PHARMACOLOGY (Hon. Secretaries—Philip Hamill, Douglas Cow): at 4.30 P.M.

Discussion:

On "The Treatment and Management of Diseases due to Deficiencies in Diet," to be opened by Dr. F. G. Hopkins

The following will also take part:—Dr. F. D. Boyd, Dr. Marion Delf, Dr. A. Hardeu, Miss Hume, Dr. W. H. Willcox, and Dr. S. S. Zilva.

PATHOLOGY (Hon. Secretaries—J. A. Murray, Cecil Price-Jones): at 8.30 P.M.

Laboratory Meeting at the Lister Institute for Preventive Medicine, Chelsea Gardens, S.W. 1.

Wednesday, Nov. 19th.

HISTORY OF MEDICINE (Hon. Secretaries Arnold Chaplin, F. G. Crookshank): at 5 P.M.

Papers:

Dr. Archibald Leitch: Farquhar Leiche, Medicus Regis

Dr. Charles Singer: The Earliest Medical Text by an English Hand.

Thursday, Nov. 20th.

DERMATOLOGY (Hon. Secretary—Henry MacCormac): at 4.30 P.M.

Cases:

Dr Bunch: Case of Linear Morphœa.

Dr. MacLeod: (1) Melanotic Lesion on Sole of Foot; (2) Case for Diagnosis.

Dr. Barber: (1) Case for Diagnosis—Blastomycosis (?); (2) Erythrodermie Congenitale ichtyosiforme.

Other cases will be shown.

Friday Nov 21st.

OTOLOGY (Hon. Secretaries—H. Buckland Jones, Lionel Colledge): at 5 P.M.

Presidential Address:

Mr. Herbert Tilley: A Plea for the Better Education of the Medical Student in Oto-Rhino-Laryngology.

Cases and Specimens will be shown by Dr H. J. Banks-Davis, Mr. Arthur H. Cheatle, Dr. Dan McKenzie, Mr. Mollison, and others at 4.30 P.M.

ELECTRO-THERAPEUTICS (Hon. Secretaries—Walter J. Turrell, Stanley Melville): at 8.30 P.M.

Short Papers with Demonstrations:

Dr. G. B. Batten: Apparatus for obtaining Morton Wave Current and Static Modalities from a Coil.

Major G. Cooper, R.A.M.C.: The Artificial Stimulation of Muscle, with Demonstration of a New Form of Faradic Coil.

ROYAL METEOROLOGICAL SOCIETY, 70, Victoria-street, S.W.

WEDNESDAY, Nov. 19th.—5 P.M., Paper:—Lieut. C. W. B. Normand: The Effect of High Temperature, Humidity and Wind on the Human Body.

HARVEIAN SOCIETY OF LONDON, at the Medical Society's Rooms, 11, Chandos-street, Cavendish-square, W.

THURSDAY, Nov. 20th.—8.30 P.M., Address:—Dr. Hill: Prevalent Misconceptions, often Mischievous, concerning the Œsophagus and its Diseases.

SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 11, Chandos-street, Cavendish-square, W.

FRIDAY, Nov. 21st.—8.30 P.M., Paper:—Major E. E. Austen, D.S.O.: Anti-mosquito Measures in Palestine during the Campaigns of 1917 1918.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, W.C. 1.

MEDICAL SCHOOL.

MONDAY, Nov. 17th.—2-3.30 P.M., Out-patient Clinic: Dr. Collier. 3.30 P.M., Lecture:—Dr. Farquhar Buzzard: Intracranial Tumours.

TUESDAY, Nov. 18th.—2-3.30 P.M. Out-patient Clinic: Dr. Grainger-Stewart. 3.30 P.M., Ward Cases: Dr. James Taylor.

WEDNESDAY, Nov 19th.—2 P.M., Lecture:—Mr. Armour: Surgery of the Spinal Cord. 3.30 P.M., Lecture:—Dr. Collier: Cerebellar Ataxia

THURSDAY, Nov 20th.—2-3.30 P.M., Out-patient Clinic: Dr. Farquhar Buzzard. 3.30 P.M., Lecture:—Dr. Farquhar Buzzard: Intracranial Tumours.

FRIDAY, Nov. 21st.—2-3.30 P.M., Out-patient Clinic: Dr. Gordon Holmes. 3.30 P.M., Ward Cases: Dr. Tooth.

Fee for Post-Graduate Course £5 5s. C. M. Hinds Howell, Dean.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE CLINIC.

TUESDAY, Nov. 18th.—Lecture:—Dr. Clegg: Glaucoma.

ROYAL INSTITUTE OF PUBLIC HEALTH, in the Lecture Hall of the Institute, 37, Russell-square, W.C.

Course of Lectures on Housing Problems and Town Planning in Relation to Public Health.

WEDNESDAY, Nov 19th.—4 P.M., Lecture IV.:—Mrs. S. A. Barnett, C.B.E.: Public and Individual Housing Ideals.

Course of Instruction for Candidates as Tuberculosis Officers, General Practitioners and others. Bacteriological Demonstrations will be given in the Laboratories of the Institute, and visits arranged to Sanatoriums, Tuberculosis Dispensaries &c.

THURSDAY, Nov. 20th.—5 P.M., Lecture VII:—Mr. P. C. Varrier-Jones: Tuberculosis Colonies and their Management.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.

WEDNESDAY, Nov. 19th.—4.30 P.M., Lecture:—Dr. Jex-Blake Bronchiectasis.

NATIONAL HOSPITAL FOR DISEASES OF THE HEART POST-GRADUATE COURSE, Westmoreland-street, W.

MONDAY, Nov. 17th.—11 A.M., Out Patients: Dr. Goodall. 2 P.M., In-patients: Dr. Moon.

TUESDAY.—2 P.M., Out-Patients: Dr. R. Wells. 2.30 P.M., In-patients: Dr. Gibbes.

WEDNESDAY.—2 P.M., Out-patients: Dr. Moon. 5.30 P.M., Lecture:—Dr. Price: Auricular Flutter and Paroxysmal Tachycardia.

THURSDAY. 10 A.M., In patients: Dr. Hamill. 2 P.M., Out-patients: Dr. Price.

FRIDAY.—2 P.M., Out patients: Dr. Gibbes. 2 30 P.M., In-patients: Dr Wells.

SATURDAY.—10 A.M., Out-patients: Dr Hamill.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, 49, Leicester-square, W.C.

THURSDAY, Nov. 20th.—5 P.M., Chesterfield Lecture:—Dr. M. Dockrell: The Diagnosis and Treatment of the Late Eruptions of Syphilis.

BOOKS, ETC., RECEIVED.

ALLEN, GEORGE, AND UNWIN London.
Defective Housing and the Growth of Children. By J. L. Dick, M.D. Pp. 94.

EVELEIGH NASH COMPANY, London.
Hearts of Women. By Morley Roberts. Pp. 269. 7s.

FROWDE, H., AND HODDER AND STOUGHTON, London.
A Manual of Physics. By J. A. Crowther, Sc.D. Pp. 537. 16s

HEFFER W., AND SONS, Cambridge.
Way of Healing. By Estelle Blyth. Pp. 136.

HEINEMANN, WILLIAM, London.
Anæsthesia in Dental Surgery. By T. D. Luke, M.D., and J. S. Ross, M.B. 4th ed. Pp. 255. 8s. 6d.

INSTITUT D'ESTUDIS CATALANS, Barcelona.
Treballs de la Societat de Biologia. 1918. Edited by A. Pi Suner. Pp. 352.

SOCIETY FOR PROMOTING CHRISTIAN KNOWLEDGE, London.
A Corner Stone of Reconstruction. A Book on Working for Social Purity among Men. By Four Chaplains to the Forces. Pp. 156. 3s. 6d.

UNIVERSITY OF CHICAGO PRESS.
Everyday Greek. By Prof. H. A. Hoffman. Pp. 105. $1.25.

URBAN UND SCHWARZENBERG, Berlin und Wien.
Kompendium der topischen Gehirn- und Rückenmarksdiagnostik. Kurzgefasste Anleitung zur klinischen Lokalisation der Erkrankungen und Verletzungen der Nervenzentren. Von Robert Bing, a.o. Professor an der Universität Basel. Vierte, neu durchgesehene Auflage. M. 16; geb. M. 20
Die Experimentelle Bakteriologie und die Infektionskrankheiten. By Dr. W. Kolle and Dr. H. Hetsch. Pp. 660. M. 35
Medizinische Terminologie. By Von W. Guttmann. 10th and 11th ed. Pp. 654.

YEAR BOOK PUBLISHERS, Chicago.
Practical Medicine Series. 1919. Vol. II.: General Surgery. Edited by A. J. Ochsner, M.D. Pp. 624.

Communications, Letters, &c., to the Editor have been received from—

B.—Prof. J. M. Beattie, Liverpool; Mr. W. R. Bristow, Lond.; Mrs. C. Brereton, Lond.; Dr. H. Barber, Derby; Mr. W. G. Ball, Lond.; Prof. E. G. Browne, Cambridge; Dr. R. Batten, Lond.

C.—Dr. J. W. Carr, Lond.; Dr. H. C. Cameron, Lond.; Dr. J. T. Clarke, Ipoh, Perak; Dr. E. R. C. Clarkson, Lond.; Dr. J. D. Comrie, Edinburgh.

D.—Dr. F. Dévé, Rouen; Dr. L. M. Davies, Aberystwyth; Dr. A. S. Dutton, Oxford.

E.—Mr. W. H. Evans, Lond.; Dr. H. A. Ellis, Middlesbrough.

F.—Factories, Chief Inspector of, Lond.; Dr. J. G. Forbes, Redhill; Fuel Research, Director of, Lond.; Dr. J. M. Fortescue-Brickdale, Lond.; Dr. H. Fraser, Brighton.

G.—Major L. H. Guest, M.C., Lond.; General Medical Council, Lond., Registrar of.

H.—Mr. J. H. Heighton, Lond.; Dr. C. W. Hutt.

K.—Prof. A. Keith, Lond.; Dr. C. Kidd, Bromsgrove; Dr. E. H. Kettle, Lond.; Prof. H. Kenwood, C.M.G., Lond.; Dr. L. Kidd, Enniskillen.

L.—Mr. M. P. R. Lingham, Mari-Indus; Dr. G. C. Low, Lond.; Surg.-Commdr. Ll. Lindop, R.N.

M.—Dr. D. MacLeod, Evesham; Medical Defence Union, Lond.; Mr. J. E. R. McDonagh, Lond.; Dr. R. W. Mackenna, Liverpool; Dr. H. L. Murray, Liverpool; Ministry of Pensions, Lond.; Dr. J. B. McDougall, Manchester; Mr. J. Morrell, Shelton.

P.—Mr. N. Patterson, Lond.

R.—Dr. W. C. Rivers, Worsboro Dale; Royal College of Physicians of Ireland, Dublin, Registrar of; Research Department, Lond., Sec. of.

S.—Prof. W. J. R. Simpson, C.M.G., Lond.; Dr. R. Sevestre, Liverpool; Dr. H. Spencer, Lond.

T.—Dr. D. Turner, Edinburgh; Dr. A. H. Thompson, Lond.; Dr. F. E. Tylecote, Manchester.

W.—Mr. H. L. Whale, Lond.; Col. A. Webb, C.B., C.M.G., A.M.S.; Dr. D. White, Harrow-on-the-Hill.

Communications relating to editorial business should be addressed exclusively to the Editor of THE LANCET, 423, Strand, London, W.C. 2.

Notes, Short Comments, and Answers to Correspondents.

PUBLIC HEALTH AND HOSPITAL WORK IN INDIA IN 1918.

THE large amount of self-government now possessed by the native population of India, especially in the towns and cities, gives interest to the reports of local authorities on the state of the public health and on the sanitary progress that is being made at the present time. The manner in which local affairs are managed may give an indication of the measure of success likely to be attained subsequently in wider fields of administration. It must, of course, always be borne in mind that "India" is not one country, but a subcontinent, and that the region so designated has no unity of race, language, religion, customs, or climate, though it is governed by one central authority.

Bihar and Orissa.

In the report on the working of municipalities in Bihar and Orissa (1917–18), the Lieutenant-Governor, referring to conservancy matters, "notices with pleasure the greater activity in this important branch of administration which was displayed by many of the municipalities in the province." In Patna, however, the capital, the local government gave liberal assistance, but the refusal of the Commissioners to raise sufficient taxation to provide for the recurring costs threatens to render the scheme nugatory. Municipalities also "show very little enthusiasm in watching and controlling the details of work which contribute to the good or ill success of the administration." In Patna district, however, where plague was more widely spread and more virulent than in the previous year, and where cholera also was prevalent, "especially prompt and efficient measures" were taken to check the spread of the epidemic.

Assam.

Assam is the only province that records a higher birth-rate (34·98 per 1000) than that of the previous year (31·35), and of the quinquennium, 1912–16 (32·46), thus indicating an unusually prosperous condition of the public health before the pandemic of influenza. The total death-rate was 46·10, largely exceeding that of the preceding year (27·09), and that of the quinquennium, 1912–16 (27·36). The increased mortality is considered to have been due to influenza, to which 106,452 deaths are attributed (17·04 per 1000); these mostly occurred in the latter part of the year, there having been two invasions, the first a mild one in July and August, the second, of great virulency, in October, November, and December; in one village a mortality of nearly 60 per cent. of the inhabitants resulted from this cause. The tea-garden population suffered severely. The mortality from influenza was about 33 per 1000, chiefly among those of the most active age-groups. Epistaxis was common, and an abdominal type of affection with intractable diarrhœa, resembling cholera. All known methods of prevention and treatment were tried. Segregation of cases, which could be carried out in jails, was of great service, and a "mixed catarrhal vaccine," prepared by Captain R. Knowles, I.M.S., director of the Shillong Pasteur Institute, with the object of immunising against pulmonary complications, was largely used with some measure of success. Captain Knowles devoted the whole of the resources of the Shillong Pasteur Institute to the preparation of this "pneumococcus—influenza—polyvalent" vaccine (P.I.P.), for which demands come from other provinces of India as well as Assam, and was able by strenuous exertions to supply nearly a quarter of a million doses. It is still too early to come to a conclusion as to the value of the vaccine; "the general tenour of the reports goes to show that, when given in a full dose, it produces a temporary, but definite, immunity to pneumonia, septic bronchitis, &c., and that it does what it was hoped it would accomplish—renders influenza in the inoculated an unimportant disease free from complications." The institute also provided 1091 patients with antirabic treatment, of whom 1068 underwent the complete course. Thirteen deaths occurred from hydrophobia, but six only of these cases died later than 15 days after completion of treatment—i.e., there were only six failures out of 1068 cases, or 0·56 per cent. Captain Knowles alludes to the fact that, of these 1068 persons treated less than half (467) came from Assam, the remainder (601) coming from Bengal and (in 14 instances) from Bihar and Orissa. With regard to influenza, Major T. McCombie Young, Sanitary Commissioner, makes the following recommendations as to future action: (1) the prohibition of public gatherings, closure of schools and places of entertainment, and the wearing of masks under certain conditions; (2) to avoid sneezing and coughing in public; (3) vaccine inoculation; (4) efficient organisation to utilise all available resources effectually and speedily when an outbreak is threatened.

Cholera was prevalent in Cachar (3·44 deaths per 1000) and Sylhet (3·67) towards the end of the year; some of these deaths, however, were probably due to gastro-intestinal influenza. There was also a great increase in deaths from "fevers," 26·25 per 1000, compared with 14·91 in 1908–1917. Many of these deaths may have been due to influenza. The anti-malarial operations on the Assam-Bengal Railway at Lunding were considerably interfered with by the influenza visitation. Kala-azar considerably increased in prevalence, and caused greater mortality than in any year since 1911. There were 2003 deaths, compared with 1508 in the year preceding; this increase occurred in every district except Nowgong. Active operations have been carried out in all the infected areas, the results of which are promising. Three cases of imported plague occurred in April; all necessary measures were taken, and happily there was no extension of the disease. The jail mortality in this province was only 21·42 per 1000 (the death-rate for the general population having been, as already mentioned, 46·10 per 1000), a most gratifying result to all concerned. Major Young, who is also Inspector-General of Civil Hospitals, reports a slight increase in mortality in the lunatic asylums of the province, 58·4 compared with 55·6 per 1000 in the previous year, the percentage of admissions in bad health (27·88) having been higher than in 1917, when it was 19·38, connected, no doubt, with the prevalent influenza epidemic.

The United Provinces.

In the United Provinces of Agra and Oudh the birth-rate was 39·89, and the death-rate 82·37 per 1000; the former was much below the quinquennial average (45·05), and the latter enormously higher than the average (33·15). The low birth-rate is not surprising "in view of the extreme unhealthiness of the year, and the prevailing exceptionally bad economic conditions." The increase in the death-rate is stated by Colonel C. Mactaggart, I.M.S., the Sanitary Commissioner, to be "unprecedented in the recorded history of these provinces," owing to cholera, plague, and relapsing fever in the early part of the year, and to a great epidemic of influenza in the autumn. This epidemic prevalence and the high mortality were "undoubtedly, to a very considerable extent at least, the result of war conditions, and especially of high prices and the consequent defective feeding and clothing of a large proportion of the population." The infantile mortality was 303·5 per 1000 births (compared with 255·0 for the decennium, 1901–10). Only once during the past 28 years has this ratio been exceeded (345·1 in 1908), due to excessive prevalence of malaria in that year. One-fifth of this infantile mortality was due to tetanus, which was, however, less than in previous years. Distribution of pamphlets of instruction to mothers and midwives, courses of training for native nurses, and the provision of coöperative dairies for the supply of pure milk are all measures of improvement in active operation.

A severe outbreak of cholera caused 119,746 deaths (2·56 per 1000, compared with 1·23 for the decennium 1908–17). It is considered that the intensely hot weather and failure of the rains, leading to deficiency of water and its contamination, was the chief cause of the prevalence; it was not due to the great fair at Allahabad (*Kumbh Mela*) in the previous year. Permanganate of potash was unfortunately not available as a disinfectant, and bleaching powder was used, which, on account of its instability, is far less efficient. Plague was more prevalent than in recent years, the mortality having been at the rate of 3·73 per 1000, compared with 1·91 for the quinquennium preceding (1913–17). Rat destruction has never given satisfactory results in these provinces, and evacuation of infected dwellings, together with inoculation, are considered to be the only measures of practical value. A change has been made in the administration of the medical school at Agra; the male and female departments have been separated and the designation of the female school altered to "Women's Medical School." There are 62 female students on the roll and in the male medical school 714 students (compared with 618 in 1916–17). A new medical school is intended to be established at Allahabad. Owing to war conditions four large district jails were handed over to the Military Department in 1917, entailing a loss of accommodation for nearly 3000 prisoners. Moreover, there was already a deficiency in this respect; therefore the authorities had to face considerable difficulties in regard to administration. A new jail is urgently required in the neighbourhood of Meerut. Lieutenant-Colonel S. H. Henderson, I.M.S., Inspector-General of Prisons, refers to the great number of youthful offenders under 15 years of age, and considers that some should have been whipped and released. A great deal of work, in the way of making blankets for the Munitions Department, was carried out successfully, almost entirely by hand. The health conditions were not satisfactory, the admissions to hospital having been 675·7 per 1000 (compared with 371·1 in 1917), and the death-rate 46·0 (compared with 13·2 in 1917). This death-rate was the highest recorded or 50 years. More than half the deaths were returned as influenza (723), and of the 94 deaths from pneumonia probably many were due to the former disease. It is considered that this influenza epidemic "will continue to affect the general health of the prison population for a long time to come." In the Muttra jail the death-rate was actually 200·8 per 1000, 42 of the 50 deaths having been due to influenza. This epidemic also led to an increase in pulmonary tuberculosis throughout the province; out-door treatment is practised even in the hottest months of the year, suitable protection from the sun being provided. It is not necessary to emphasise the difficulties in carrying out jail administration under war conditions and in presence of widespread and severe epidemics.

(To be continued.)

SCHOOL MEDICAL INSPECTION: ITS ORIGIN AND GROWTH.

In the first of a series of lectures on the medical inspection of school children arranged by the London County Council at the Oliver Goldsmith School, Peckham-road, Dr. Frederick Langmead, on Nov. 5th, interested a crowded audience with an account of the genesis and growth of the medical inspection of schools, the need for such inspection, and the ways in which teachers can coöperate in making inspection effective.

Like many other things, both good and evil, he said, medical inspection in schools had its birth in Germany; for the movement may be said to have been started by Hermann Cohn, who in 1866 made investigations into the eyesight of over 10,000 children in Breslau. In 1880 Priestley Smith, of Birmingham, studied the question of eyesight in education and two years later Dr. Clement Dukes, of Rugby, wrote a book on the subject of health in the school. The introduction of the doctor into the school started from this time. In 1890 the London School Board first appointed a medical officer for its school area, and in 1893 Bradford followed London's example. In 1903 there was further activity in the matter, when a Royal Commission to investigate physical training was appointed and its report discussed the need for medical inspection both for remedial purposes and also to gauge the national physique and to suggest means for its improvement. In 1904 an Interdepartmental Committee drew attention to the need for physical training and more complete medical inspection in schools, and later an inquiry was made into the arrangements then being made to this end. In 1905 there were 48 areas in which something was being done on the medical side in regard to the inspection of school children, and in 1907 a great move forward was made by the Act, which set out that all local educational authorities should provide for the medical inspection of school children in elementary schools. Medical treatment, however, was not compulsory, though children had to be inspected on their admission to a school and the investigations followed up. In 1914 a third compulsory inspection was added, to take place at the age of 8. Afterwards the Act was extended to continuation and secondary schools, and the provision of treatment was made compulsory.

The Need for Inspection.

To show the magnitude and seriousness of the problem presented by physical defects in school children, both with regard to their educational capacity and their health, Dr. Langmead quoted from Sir George Newman's report of 1916. This report showed that out of about six million children upwards of 10 per cent. were unclean, 10 per cent. were ill-nourished, about three million were in need of dental treatment, and not less than half a million urgently so. Upwards of half a million were so defective in eyesight as to be unable to take reasonable advantage of their lessons. Disease of the ear and throat accounted for another half million, and significant proportions suffered from skin diseases and tuberculous affections, while probably no less than a million of children were so physically or mentally defective or diseased as to be unable to derive reasonable benefit from the facilities for education which the State provided. A surprise examination made by Dr. C. J. Thomas, assisted by Dr. R. H. Norman, last year of 300 London children and 275 country children, representing schools of various types from the very poor to the middle class, showed that in the London group 7 per cent., and in the country 10 per cent., of the children were absent on grounds of more or less chronic ill-health. After deduction of the blind, deaf, and mentally and physically defective in those schools, 21 per cent. were found to be suffering from more or less serious defects which interfered with their school instruction and which would afterwards prevent them from taking their proper places as citizens, and would probably swell the returns of premature mortality. Twelve per cent. were ill-nourished, 19 per cent. unclean in body, and 7·5 per cent. had body vermin. Other diseases also showed a large percentage. The statistics showed that the problem presented by mental and physical defects was no phantom, but one which must be met and fought by every possible means.

Machinery had been provided to deal with this state of things. Detection was followed by treatment which, however, was only slowly accomplishing its work by reason of an enormous amount of prejudice and ignorance. But detection and treatment were not the only means of combating the physical defects of school children: more important than these was prevention. Prevention began before the birth of the child in the proper supervision of the expectant mother and of her employment; it continued during infancy by educating and assisting the mother, and it was intimately connected with sanitation in its widest sense. One way of helping in this direction would be the giving of specific lessons on hygiene in the school classes and another now recommended to teachers in the London County Council schools, was that every opportunity should be given throughout the day's curriculum to point out to the children the path of hygienic rectitude.

Need for Coöperation of the School Teacher.

The school teacher could render valuable service by giving scrupulous attention to hygienic laws, making his class room into a standing object-lesson by taking every opportunity of inculcating hygienic principles and practices; by helping to detect physical defects in order to point them out to the school doctor or nurse; by arranging the desks of the class on hygienic lines with regard to seeing and hearing; by correcting working attitudes (a great source of spinal curvature), and by seeing that the children who wore spectacles did wear them. All these things and many others might be done by the teacher without adding to any extent to his other work, and while of great advantage to the child, would also assist the teacher. The active coöperation of the head teacher was also necessary. No matter how skilfully instruction might be given by the teacher, the child who was suffering from any kind of physical or mental defect would not properly react to that instruction, and it behoved everyone to consider carefully and seriously how the problem could be met and effectively dealt with.

TRAINING FOR DISABLED NURSES.

The Ministry of Labour is granting training allowances to disabled nurses on receipt of a certificate from the pensions medical officer that the candidate is fit for the new occupation. Nurses in receipt of a pension and prevented by disability, incurred on military service, from following their former occupation are eligible. Application should be made to the Controller, Women's Training Branch, Ministry of Labour, St. Ermin's Hotel, Westminster, marked "Disabled nurse."

OLD AGE PENSIONS.

The Departmental Committee on Old Age Pensions have issued Majority and Minority Reports, which differ mainly on the question of means limit and not on the amount of the pension or the age at which it should begin. Both reports recommend an increase in the scale from 7*s.* 6*d.* to 10*s.* a week and the retention of the present age-limit of 70 years. The Committee was unanimous in recommending the abolition of the Poor-law disqualification of applicants for pensions or pensioners, as regards out-door relief; also that pensions should accrue from the Friday following the date of the receipt of the claim; that there should be no disqualification following a term of imprisonment; and that pensions should be made unalienable under the Debtors Acts. There are also certain other unanimous suggestions as to terms of residence and the treatment of aliens.

With regard to the means limit, the Majority Report recommends its entire abolition and the Minority its increase to £63—just double the existing limit. The Minority also suggest certain modifications in the method of calculating means.

THE NATIONAL INSURANCE RETURN.

To the Editor of THE LANCET.

SIR,—I have read with interest the Parliamentary Intelligence in THE LANCET of Nov. 8th, giving a return of receipts and expenditure in round figures under the National Health Insurance Acts in the year 1918 for England and Wales. Among the receipts there is an item, "Interest and sundry receipts, £2,360,000." Supposing that the "sundry receipts" form £360,000 of this, that leaves £2,000,000 received as interest, and, taking it at 5 per cent., that presupposes a capital reserve somewhere of £40,000,000. Also, amongst the "Expenditure" are "Sums invested," £9,847,000. This is supposedly added to the capital reserve, making a total reserve fund perhaps of £50,000,000, but, naturally, in a "Receipts and Expenditure" account capital reserve is not shown. It would be interesting to know what the capital account of the National Health Insurance is. Perhaps my reading is incorrect.

I am, Sir, yours faithfully,

INTERESTED.

Nov. 11th, 1919.

Arris and Gale Lecture

ON

VOLUNTARY MUSCULAR MOVEMENTS IN CASES OF NERVE INJURIES.

Delivered in the Theatre of the Royal College of Surgeons of England on Oct. 17th, 1919,

By FREDERIC WOOD JONES, D.Sc., M.B., B.S., M.R.C.S.,

PROFESSOR OF ANATOMY IN THE UNIVERSITY OF ADELAIDE.

MR. PRESIDENT AND GENTLEMEN,—Of those two great factors of life—sensation and movement—much has been learned from the vast field of clinical material passed under review during the war. Many of our opinions have been revised, some hastily and without sufficient justification, some as the inevitable sequence of gradually accumulated and unassailable observation of clinical facts. Much literature that may be termed war-period literature, while exceedingly stimulating and helpful, must of necessity be classed as ephemeral, since the turning of the kaleidoscope was at times so rapid that the dicta of to-day passed out of currency to-morrow. But now it should be possible to look back and review the experiences of that period of rapidly accumulating data, and assess with some measure of judicial impartiality the changes of thought, both progressive and retrograde, that have been advocated.

Were we to take sensation and movement as two separate themes, and make some attempt at estimating the progress of our knowledge in either subject made during the past five years, we should, I believe, inevitably be compelled to own that our understanding of sensation had made greater advances than had our knowledge of movement.

The story of the European War will almost certainly reveal to future generations that the scientific neurologist gained more real insight into the physiological basis of sensation than did the orthopædic surgeon into the principles of muscular movement. It is, perhaps, more easy for the anatomist to assign the reason for this disparity of progress than it is for the physician or surgeon. In brief, we may say that the scientific neurologist, by reason of his special training, was accustomed to think in terms of the central nervous system, whereas the surgeon naturally thought in terms of the peripheral motor nerves.

The orthopædic surgeon, and his many trained assistants in special departments, may possibly have somewhat overlooked the importance of the cerebral cortex in the technical refinements of operative procedures on peripheral nerves; whereas the scientific neurologist looked first to the cortex in his dealings with those derangements of sensation, dependent upon wounds, which were relegated to his care as a physician.

MUSCLES AS MINISTERS OF MOVEMENT.

Without quoting authorities (and, despite tradition, this will be avoided throughout) we may assert that, as far as the so-called sensory area of the cortex is concerned, the quality of sensation lodged within the grey matter of the post-central gyrus consists in a discriminative appreciation of the spatial relations of a part. As a corollary of this, we may lay it down as a truth that within the so-called motor area of the pre-central gyrus is lodged the voluntary power to initiate an alteration in the position of a part, the spatial relations of which are appreciated in the post-Rolandic area. This power of altering the spatial relations of parts is conferred by the agency of the contractile muscles, and since these muscles react in response to a volition for spatial alteration, we are accustomed to misname them as voluntary muscles. Muscles are the ministers of movement, and some of them take part in voluntary movements, since the spatial relations of the parts upon which they act are appreciated by the cortex; but only to that extent may any muscle properly be termed "voluntary."

Even in the conduct of an ordinary movement, the spatial conditions of which are realised, and the spatial alterations of which are willed, muscles play a far wider rôle than that comprised in a mere active production of the desired alteration. The various ways in which muscle groups react to carry out a volition of spatial alteration of a part are well known. Such knowledge forms no part of the advances made during the war. Rather it may be said that, well-known to John Hunter, to Duchenne, and to a long series of Croonian lecturers, these rôles of muscular activity and laws of muscular movements have been somewhat overlooked in the literature of the actual war period.

FOUR-FOLD MUSCULAR ACTION.

Most muscles may act in four separate capacities. When a muscle group directly effects the movement of volition, as when the flexor carpi ulnaris contracts in response to a desire to flex the wrist or move the hand in an ulnar direction, it acts as a *prime mover.* When a muscle group acts in direct (but in coördinated and harmonious) opposition to the movement of volition, as when the flexor carpi ulnaris acts in response to a desire to extend the wrist or to move the hand in a radial direction, it acts as an *antagonist.* When a muscle group prevents some undesired, but possible, action of the prime mover—as when the flexor carpi ulnaris contracts as the fingers are voluntarily extended, or when the thumb is voluntarily moved as a whole to the radial side—it acts as a *synergic.* When a muscle group acts in order to steady a part from which a prime mover acts—as when the flexor carpi ulnaris contracts to fix the pisiform when the little finger is abducted—it acts as a *fixation* muscle.

In the teaching of anatomy it is possible that too much prominence has been given to the prime moving action of muscles and their functions as antagonists, synergics and fixation muscles have not been sufficiently emphasised. We have grown accustomed to regard the flexor carpi ulnaris as a muscle which, along with others, possesses the power of flexing the hand at the wrist-joint. But to regard a muscle as a valuable organ solely from the point of view of its prime moving possibilities is to overlook a very large sphere of its utility.

A dental surgeon regards an individual tooth as being far more valuable than merely a single member of a series of 32 units. In the same way the surgeon must learn to look upon muscles as structures that subserve far more activities than that single simple rôle which is allotted as their "action" in the text-books of anatomy. Not much regard could be paid to the sanctity of muscle integrity in emergency war surgery, but the ideals and methods of this type of surgery should not prevail in the ordered routine of a home operating theatre. Were surgeons to realise that the damage or destruction of a muscle not only entails the loss of a particular prime mover, but that it deprives several other groups of muscles of an agent (antagonistic, synergic, or fixation) necessary for the proper performance of their varied actions, he would be at great pains to avoid such routes and methods of operative procedure as inflict extensive muscle damage. Every muscle is an entity which displays the loss of its function when damaged in a series of impaired movements and not only in the loss of a definite individual movement. A nerve is a structure which will undergo natural regeneration in the face of the most adverse circumstances; a damaged muscle is a structure capable of a minimal amount of repair only under the most advantageous circumstances. Yet the surgeon who deprecates anything short of the most delicate operative treatment of a nerve, will often display a ruthless indifference to the vulnerability of muscle.

Now obviously in the whole range of muscular activities there is only one rôle (that of the prime mover) which at all fulfils the conception of a voluntary muscle performing the task set by the will. Of the action of the synergics, the antagonists, and the fixation muscles we ourselves know nothing, and by the exercise of our wills we cannot call forth or alter their activities.

PHYSIOLOGICAL EFFECT OF TRANSPLANTING TENDONS.

In performing the numerous operations of tendon transplantation that have been so successfully done during the war, the surgeon has been carrying out an extremely beautiful physiological experiment. Suppose a lesion of the musculo-spiral nerve to be inoperable (in the sense in which this word is used to-day rather than in the early months of the war) and the insertion of certain flexor muscles be so altered that they become anatomical extensors, and so are put into a position in which they could discharge the functions of a paralysed group—What will be the physiological possibilities of movement? Will the transplanted muscles assume a new rôle altogether antagonistic to that which was their natural one? And, if they do obey the will as prime movers, will they subserve the other functions normal to a muscle group taking part in a movement of volition?

Many who have performed these operations have imagined that an elaborate preparation by re-education would be necessary before the muscles could take up their new rôle as prime movers. It has commonly been supposed that a flexor muscle would need some special training before it could play the altogether different part of an extensor. There is no doubt that if the technique of the operation falls short of perfection some difficulty is experienced by the patient in bringing the transplanted muscles into play, but some simple mechanical reason for this difficulty is usually apparent. If the technique of the operation leaves the transplanted muscles in a mechanical position for discharging their new function at once, this function will be readily exercised. The flexor muscles have become the mechanical ministers of the movement of extension, and the cortex desiring the realised spatial alteration connoted by extension will use whatever agents are at hand. The only physiological problem which has to be solved in the central nervous system is the dissociation of the transplanted muscles from the action of the undisturbed members of their group. This apparent difficulty is one which as a rule is readily overcome, and the transplanted flexors act as prime-moving extensors without exciting any antagonistic action in the untransplanted flexors. It may indeed be questioned if the after-treatment of cases of tendon transplantation is best carried out by those sufficiently instructed to appreciate the apparent great disturbance that has taken place in neuromuscular physiology. It is at any rate certain that if both patient and attendant are innocent of any desire to probe into abstruse details of the laws of movement extremely good restoration of function may be obtained.

But though a muscle the tendon of which is transplanted may readily perform its new function as a prime mover, it is very different with those other activities in which it normally takes part. As an instance of this we may take the synergic action of the normal wrist extensors. When the fingers are flexed in the action of grasping it is common knowledge that the wrist extensors undergo a contraction. This extensor action is initiated to prevent flexion of the wrist, which would weaken the power of the finger flexors, and as such is an example of synergic activity. As the action of grasping becomes more vigorously performed the synergics contract more powerfully and an active extension of the wrist is produced, for in the position of wrist extension the finger flexors may act to greater advantage by reason of the added tension given to them by the posture. But a wrist flexor turned into a wrist extensor by the transplantation of its tendon does not act in this way. In a case of perfectly successful tendon transplantation, when the patient can extend the wrist and the digits in a perfectly ordered and powerful manner, his transplanted muscles still fail him as synergics. Under these circumstances flexion of the digits is accompanied by flexion of the wrist, and the greater the effort to grasp the more completely flexed does the wrist become. In this way one may say that such cases always look a little better than they really are when considered as functional results, for the grip with a flexed wrist is never a very strong one.

APPLICATION OF RESULTS OF WAR SURGERY TO THE TEACHING OF ANATOMY.

The readiness with which transplanted muscles are used to carry out movements not normally performed by them affords an excellent example of the utter disregard which cortical volition displays for its agents. It may appear strange that, with the experience gained from these cases impressed upon men's minds, this great fundamental truth of muscular movement was not more appreciated when examinations for motor loss were conducted in order to diagnose the severity of lesions of peripheral nerves. Faulty estimates of the exact damage done to nerves by war injuries were nearly always the outcome of the clinician expecting graver and more widespread loss, both of sensation and of movement, than is met with in actual practice. Probably upon the shoulders of the teaching anatomist must fall the blame for this exaggerated expectation. It has been the custom to teach, as the area of supply of a sensory nerve, that total skin field to which its terminals could be traced by dissection. These large fields, though anatomically correct as areas of distribution, are grossly misleading when we are seeking for areas of loss. We must remember the power of neighbouring nerves to make good the loss by overlap, when we examine for sensory changes in peripheral nerve lesions. It has also been the custom to teach that a definite muscle has a definite action, and that it is a voluntary muscle. Not only have all activities but that of the prime mover been neglected in text-book teaching, but even when dealing with this function alone the knowledge gained by dissecting-room methods has not always proved sound when applied to the living subject. Even with a correct knowledge of the normal action of muscles as prime movers, the clinician may be led astray completely when seeking for evidences of loss of movement. We must remember the power of other muscles to make good the loss by acting as agents of a cortical volition. As a result of current methods of anatomical teaching many nerve injuries have been diagnosed as being far more trivial than they actually were, because the motor loss appeared to be so astonishingly slight. It is at times difficult to believe that a nerve—the median, for example—has been completely divided when the very slight loss of movement would appear to indicate no more than trivial damage. Again, the failure to appreciate principles of voluntary movements has frequently led to very false estimates of recovery when the case is presented to the examiner after some previous treatment has been carried out.

EXPLANATION OF FALSE PROGNOSES BY THEORY OF ANOMALOUS NERVE-SUPPLY.

It is by no means impossible that entirely false ideas as to the utility of certain operative procedures may be begotten of the expectation of what may be termed maximum or text-book motor loss. For all observers of peripheral nerve injuries the findings on the operating table proved in time that the actual motor loss in cases of complete division of motor nerves was far less than would be expected. Time after time patients were found who could perform acts which a reliance on text-book teaching led the observer to assert would be impossible were a definite motor nerve to be divided. Time and again the finding of the surgeon was that of a nerve completely severed by the projectile. Now there were various ways of explaining this very disconcerting state of affairs. It was possible that although the nerve in question was completely severed, the muscles which appeared to produce the movement were not supplied by that nerve in the normal way, but obtained their motor fibres from some neighbouring and intact nerve which usually does not supply them. This was an easy explanation, it entailed no more disturbance of ideas than that demanded by the popular mental recreation of considering the orthodox teaching to be very commonly wrong. There have been many wonderful additions to the list of anomalous nerve-supplies made during the war, and it will be well for the writers of our future anatomical text-books if they demand a rather more rigid proof of the anomaly than that which satisfied the clinical observer. No case may be regarded as satisfactory until the most careful electrical tests have been performed before, during, and after the operation. When these tests are carried out it will be found that the number of cases in which an anomalous nerve-supply accounts for an unexpected power of movement is reduced to a minimum. The only instance that has come under my own observation in which an undoubtedly abnormal nerve-supply was proved beyond a doubt was remarkable in that, so far as I know, it has never been described as a dissecting-room anomaly. In this case (Pt. H. C. H., 34,680, E. Surreys, G.S.W. right arm, 21/3/18) the palmaris longus derived its motor nerve from the ulnar.

AN ALTERNATIVE EXPLANATION.

An alternative to appealing to abnormal nerve-supply was the attempt at explaining these cases by revising some of our opinions concerning the normal action of muscles. At the present moment a critical attitude is demanded upon this question, as much confusion may arise both in clinical and strictly anatomical teaching if we do not take into consideration the third possible solution of the problem—the influence of the cortex in the production of voluntary movements. In examining the voluntary movements in a case of nerve injury it must never be forgotten that in asking a patient to perform some act we are asking him to initiate some realised spatial alteration of a part. All too often the examiner imagines that his directions to the patient amount to a command to exercise a particular muscle. As a consequence of this it has been assumed that the performance of a definite ordered movement is evidence of the activity of the muscle or muscles whose "action" the production of this movement is said to be. For instance, one well-known action of the interossei is that of spreading the fingers apart and closing them together again. If we ask a normal man to do these actions he will employ the normal agents—the interossei—for their performance. But if his interossei be completely paralysed by section of the ulnar nerve, and he desires to do these things, he will employ any agent that can possibly carry out his volition. In this case he may spread his fingers apart with his extensors and draw them together again with his flexors as he opens and shuts his hand. After some practice at this movement the abduction and adduction of the fingers may be performed with a minimum of actual extension or flexion, and then the action of volition is almost exactly like that carried out by the normal individual with the agency of the interossei. If now he be simply asked to spread his fingers apart and draw them together again, the examiner may readily mistake the response for true interosseous action and commit the error of diagnosing absence of injury to, or recovery in, the ulnar nerve.

PURPOSIVE RE-EDUCATION OF MUSCLES.

But, apart altogether from diagnosis of nerve injuries, there is another sphere in which the failure to realise the cortical power for utilising any agent of movement is productive of disaster. Much as been heard of muscle re-education. This art comprises all grades of treatment from the terrible monotony of repetitive mechanical movements, only to be likened to a form of punishment formerly reserved for criminals, to the intelligent coöperation of attendant and patient in the performance of voluntary and purposive efforts. Much good has resulted from this last type of re-education; the patient is encouraged to try, the attendant directs his efforts and arranges conditions so that his attempts may always be made under the most advantageous circumstances. But we must remember that the more we employ the cortex of the patient in the task—and this is the greatest virtue in modern re-education—the more must we be on our guard against stimulating him to employ muscles which are not paralysed to perform the task normal to muscles which are, or have been, thrown out of action, but which with proper surgical treatment may yet recover. It is over this very point that the best type of re-education breaks down. It is easy to train a patient in substituted or trick movements and to take the result as evidence of recovery—when, as a matter of fact, no sort of recovery of the original nerve lesion has taken place.

To the pioneers of modern methods of muscle re-education great credit is due, but they must be prepared to face the fact that many of their disciples are employed in training patients in useless trick movements which serve no other end than to deceive the unwary surgeon and so make him decide not to perform operations which are essential, or lead him to the belief that operative measures already undertaken have achieved an undue success.

SOURCES OF ERROR IN THE DIAGNOSIS AND PROGNOSIS OF LESIONS.

The most frequent sources of error in diagnosis of voluntary movements will merely be tabulated, since they will be discussed in detail in the forthcoming issue of the *Journal of Anatomy*.

(*a*) Complete division of the musculo-cutaneous nerve. The elbow is flexed by the supinator longus.

(*b*) Complete division of the musculo-cutaneous and musculo-spiral. The elbow is flexed by the pronator radii teres.

(*c*) Complete division of the musculo-spiral. The wrist may be extended by producing flexion of the metacarpo-phalangeal joints. The two terminal phalanges may be extended by the action of the interossei. The terminal joint of the thumb may be extended by "spring back" from the long extensor tendon, which acts as a ligament when the long flexor is brought into play.

(*d*) Complete division of the ulnar. The fingers may be spread apart and brought together again by the action of the long extensors and flexors. The index finger may be adducted to the middle line by the extensor indicis proprius. The two terminal phalanges may be extended by the long extensors if the metacarpo-phalangeal joints remain slightly flexed.

(*e*) Complete division of the median. Not uncommonly a fair fist may be made involving some flexion of all finger-joints by the pull of the flexor profundus innervated by the ulnar. This is one of the best examples of a cortical volition overcoming obstacles. The metacarpo-phalangeal joints may be flexed by the interossei. The proximal phalangeal joints may be flexed by the flexor profundus after the terminal joints are bent. The terminal joint of the thumb may often be bent, just as in musculo-spiral paralysis it may be extended, by using the paralysed tendon as a ligament. Opposition is often perfectly carried out by the action of the extensor ossis metacarpi pollicis and the ulnar-supplied adductors. The thumb can be "abducted" by the extensor ossis metacarpi pollicis.

(*f*) Complete division of median and ulnar. The wrist may be flexed by the extensor ossis metacarpi pollicis. The fingers may be flexed by producing extension of the wrist.

(*g*) Complete division of the internal popliteal. The foot may at times be depressed by the dissociated action of the peronei.

METHODS OF CHOICE IN IMMUNITY.

ILLUSTRATED BY TWENTY CONSECUTIVE CASES OF STREPTOCOCCAL INFECTION.

BY A. GEOFFREY SHERA, B.A., M.D., B.CH. CANTAB.,
LATE CAPTAIN, R.A.M.C.; LATE CLINICAL PATHOLOGIST, BRITISH RED CROSS HOSPITAL, NETLEY.

Foreword.

WITHIN the realms of what Dr. Leonard Williams[1] has humorously styled "bug-worship" there is an axiom which I have elsewhere[2] enunciated and which is, consciously or subconsciously, acted upon by all successful workers in therapeutic immunity. This axiom may be concisely detailed as follows: "Against an exotoxin a serum should be employed; against an endotoxin a vaccine." A simple corollary to this at once follows: "Against a combination of both exo- and endo-toxin both a serum and a vaccine should be used." As a matter of practical detail, where a potent endotoxin and a weak exotoxin coexist, a vaccine is generally efficient, and, conversely, a serum may be employed *per se*. It should be remembered that in specific therapy a knowledge of the toxins produced by the germ to be opposed is the best guide to the appropriate remedy. Exotoxins are usually more dangerous to life than endotoxins, and we may compare in these various aspects the exotoxins of tetanus and diphtheria with the endotoxins of the gonococcus and the staphylococci.

Whereas it is a comparatively simple matter to decide on the specific remedy when we have but one toxin to deal with at a time, it becomes a more subtle problem when we are confronted with germs which produce multiple toxins of different kinds. In the case of the dysentery bacilli, the meningococcus and the streptococcus we have to attack and slay germs which form both potent endo- and exo-toxins. The variety of the methods of vaccine therapy commonly used is liable to confound the busy practitioner, and it is to throw light on the comparative values of these methods that this detailed study of a number of cases of streptococcal infection has been made.

Now in dysentery, owing to the difficulty of obtaining vaccines of low toxicity, of which that of Graeme Gibson is probably the best, and in cerebro-spinal fever, where vaccinial antibodies cannot pass through the choroid plexus and so reach the cerebro-spinal fluid, we are driven in practice to rely on serums alone, except, perhaps, when the blood stream is invaded; and so great an authority as Dr. L. S. Dudgeon has recently expressed dissatisfaction with the current dysentery serums.[3] Of these, the Shiga serum is the most successful, and since the Shiga bacillus produces a very potent exotoxin this is what one would expect. Until vaccine treatment is combined with serum therapy in these cases, more especially in the Flexner type, I submit that the full potency of specific treatment cannot be estimated. To my mind it is useless to give a serum only in Flexner dysentery, since the principle toxin is an endotoxin. In cerebro-spinal fever, Sir Almroth Wright's method of "immunisation in vitro," might be tried with advantage, in the hope of introducing the hitherto neglected endotoxic factor in these diseases.

The axiom I have stated is modified but slightly by the fact that even serums contain a certain amount of anti-endotoxic power, the insignificance of which is proved by the uselessness of typhoid and gonococcal serums.

The Toxins of the Streptococcus.

Sufficient has been said by way of introduction to suggest the value of the study of streptococcal cases in respect of specific treatment; this germ produces potent endo- and exotoxins, including a hæmolytic toxin, well seen in the blood-stained sputa of pneumonic influenza cases, a filtrable exotoxin, and an endotoxin which is more potent than the filtrable streptolysin. Human blood contains a natural antibody for the streptolysin, so that we may expect some value from a serum; none the less, we must not neglect the endotoxic factor.

Streptococcus serum is both bactericidal and antitoxic, as will be illustrated below (Case 13). The rate at which the streptococcus can kill is sometimes phenomenal, as the following case shows:—

A soldier had a partially closed traumatic sinus communicating with the pleura. He was in good enough health to be able to get about freely. The sinus was one day probed by the surgeon for a foreign body revealed by the X rays. In the course of the operation the patient had a slight hæmoptysis, which was not taken very seriously. No anxiety whatever was felt at the time, but the same night the man became very ill, pyrexial, dyspnœic, and livid. The next day I took a blood culture and grew a short-chained streptococcus of the hæmolytic type, and the following day the patient passed into a state of muttering delirium and collapse, from which he never recovered. He died of acute streptococcal septicæmia. I was not asked to treat the case with serum because the case was too fulminating. The streptococci which entered the blood stream in this case must have been both virulent and numerous.

Immunisation Against the Streptococcus.

There are at least five different methods of performing this:—

(*a*) With a serum alone.

(*b*) With a serum, followed after a short interval by a full dose of vaccine.

(*c*) By a serum in the acute stages, followed by a vaccine when the subacute stage has been reached.

(*d*) With vaccine alone.

(*e*) By immunisation in vitro (Sir Almroth Wright's new method).[4]

Method (*e*) was reported to be highly successful, but has not been extensively tried by other workers as yet.

The cases recorded below, which form a consecutive series, are not specially picked so as to ignore failures, and may be classified according to the methods employed: (*a*) Cases 1 to 10 inclusive; (*b*) Cases 12, 13, 17; (*c*) Cases 11, 13, 14, 15; (*d*) Cases 18, 19, 20; (*e*) none.

Methods of choice.—The general principle followed was to avoid a "negative phase"; that is to say, that with the exception of Case 18 vaccines were avoided in the acute stages unless antiserum was also present. Case 18 was very amenable to a simple vaccine, although desperately ill. Had the vaccine not been immediately effective it would have been suspended and a serum substituted. The temperature charts are graphic in most of the cases.

Description of Cases.

Nomenclature: S.C., subcutaneously. I.M., intramuscularly. I.V., intravenously. S.S., antistreptococcic serum. A.V., autogenous vaccine. A.S.V., autovaccine, sensitised. A.T.S., antitetanic serum. Serum (α), an English serum. Serum (β), an American serum.

CASE 1.—Pte. D. (see Chart 1). History: Left foot crushed through explosion of a torpedo; secondary sepsis. Condition: Septic compound fracture left foot. Temperature 104° F.; secondary erysipelas of wound; severe general toxæmia with dyspnœa, running pulse, and muttering delirium at night. Organisms: Streptococcus fæcalis isolated in pure culture from wound.

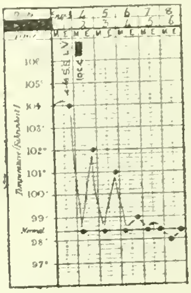
Treatment (specific).—1st day: Antistreptococcal serum (α) 10 c.cm. intravenously. 2nd day: Morning temperature normal; evening temperature 102°. 3rd day: Evening temperature 101°. 4th day: Temperature normal; it remained so. Total amount of serum given, 10 c.cm.

Remarks.—There was no anaphylactic reaction, for the patient had recently had antitetanic serum, and the amount given was not large enough to produce primary anaphylaxis in any ordinary subject. This was a typical case of wound erysipelas, the usual duration of which is ordinarily much longer than in this case. Result: Rapid recovery.

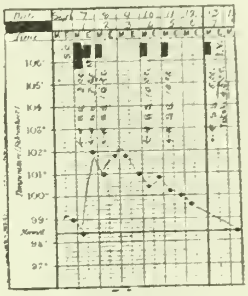
CASE 2.—Pte. L. (see Chart 2). History: A shrapnel wound involving left knee-joint; septic arthritis. Condition: Secondary erysipelas, with general toxæmia; knee very painful. Organisms: Streptococci, staphylococci, *B. pyocyaneus.*

Treatment.—1st day: Pyrexia 102°; erythema spreading up thigh; midday, 3 c.cm. S.S. (α) S.C.; no reaction followed; 6 P.M., 7 c.cm. S.S. I.V.; no reaction. 2nd day: Has had a restless night; knee very painful. S.S. 10 c.cm. I.V.; no anaphylactic reaction. 3rd day: No serum given; knee less painful. 4th day: S.S. 10 c.cm. I.V.; improving rapidly, less pain. 5th day: S.S. 10 c.cm. I.V.; knee much less painful and less swollen. 7th day: Knee approximately normal in size, no pyrexia. S.S. 5 c.cm. I.V. Total amount of serum given, 45 c.cm.

1



2



Remarks.—Under the recent influence of antitetanic serum, hence no anaphylaxis. Joint cases are notoriously troublesome. This one cleared up rapidly, most likely because it was treated early and vigorously. The presence of other germs does not appear to have been material, so that presumably the streptococcus was the active agent. Result: Recovered rapidly.

CASE 3.—Sgt. W. (not charted). History: Septic wound left leg, which involved the knee-joint later; secondary erysipelas, diarrhœa. Condition: Intermittent pyrexia, furred tongue, septic spots on abdomen, anæmia; patient very ill. Septicæmia and ? dysentery present. Organisms: Blood culture (1st day), *Streptococcus longus;* knee-joint (9th day), fluid grew *S. longus;* stools, *B. dysenteriæ* para-Shiga (pathogenicity not certain).

Treatment.—1st day: S.S. (α) 0·5 c.cm. S.C.; no reaction. 2nd day: S.S. (α) 9·5 c.cm.; evening temperature 99°. 3rd day: Distinct general improvement; P.M. 99°. 4th day: As before, except that the diarrhœa was marked. 5th day: Much improved. 6th day: Temperature normal, improving steadily. 7th day: Knee aspirated. Total amount of serum given 10 c.cm.

Remarks.—Serum discontinued at request of medical officer after 3rd day. Some weeks later a typical streptococcal septicæmia supervened. The serum was not used again. There was no anaphylaxis, as this patient also was under the influence of recent injections of A.T.S. (antitetanic serum). The serum did its work, but was abandoned before the septicæmia was mastered. Result: Failure.

CASE 4.—Pte. P. (not charted). History: Wound involving right knee; septic. Condition: Secondary erysipelas; A.T.S. given six days before treatment started. Organisms: A pure culture of *Streptococcus fæcalis* isolated from the wound a few days before the serum was given.

Treatment.—1st day: S.S. 10 c.cm. (α) I.V., evening; temperature 101·8° F. 2nd day: S.S. 10 c.cm. I.V.; complained of severe headache after both injections. A neurotic subject. Pain disappeared from joint after first injection; A.M. 98·2° F. 3rd day: Knee still swollen. 4th day: S.S. 10 c cm. I.V.; dressings also soaked with S.S. S.S. 10 c.cm. I.V. repeated three hours later, and was followed by a rigor (T. 102°). 5th day: Evening temperature 101°; constipated. 6th day: Morning temperature normal after enema. 7th day: Examination of pus showed fresh infection—namely, *B. pyocyaneus*, but aspiration of the knee showed streptococci only. Total amount of serum given, 40 c.cm.

Remarks.—The patient subsequently cleared up. The specimen of serum was milky. The reaction was not a true anaphylactic one, but probably due to some proteid toxin. Result: Unsatisfactory as regards the serum.

CASE 5.—Pte. W. (not charted). History: Wounded, age 36. Condition: Septic wound and compound fracture right femur; pyrexia, dyspnœa, and other signs of septicæmia. Organisms: Blood culture, after 48 hours' incubation, yielded a pure culture of a short chained streptococcus.

Treatment.—1st day: S.S. 20 c.cm. (α) I.V.; about an hour after the patient felt shivery and restless; temperature only 98° F.; he then slept profoundly for several hours, and woke up feeling much better. 2nd day: S.S. 20 c.cm. I.V.; 20 minutes after the injection he collapsed; no pyrexia followed to correspond. 3rd day: Injection omitted; evening pyrexia. 4th day: S.S. 2 c.cm. I.M. (right deltoid); put on calcium lactate gr. 10, t.i.d., for two days. 5th day: S.S. 10 c.cm. per rectum. 6th day: Morning temperature 99·5°; S.S. 1 c.cm. I.V., and after half an hour S.S. 5 c.cm. I.M.; S.S. 5 c.cm. I.V., together with calcium lactate gr. 10; no ill-effects. Six hours later: S.S. 10 c.cm. I.V., and calcium lactate gr. 15. No reaction; temperature 99°. 7th day: S.S. 20 c.cm. I.V., with calc. lact. per oram; reaction with temporary coma; recovered. 8th day: 3 A.M. comatose and hemiplegic. 11 A.M. comatose, and died with signs of intracranial pressure. Total amount of serum given: 93 c.cm.

Remarks.—This was not a case of anaphylactic death, since there was no urticaria or any other sign of serum sickness; it may have been a case of plethoric hemiplegia or, more probably, a case of an abscess bursting within the skull. The only other suggestion was that it was due to a toxic serum like the last case. A post-mortem was not allowed. Syphilis must not be forgotten. Result: Failure.

CASE 6.—Sergt. P. (see Chart 3). History: Gunshot wound left leg; compound fracture of femur. A.T.S. some months ago. Condition: No union; septic; secondary erysipelas with pyrexia and severe toxæmia. Organisms: Streptococci grown from bullæ.

Treatment.—1st day: 0·5 c.cm. S.S. (β) I.M. Acute anaphylaxis with collapse an hour later; recovered under pituitrin and oxygen. 2nd day: Generalised urticaria; right arm tensely swollen. It was suggested to the writer that thrombosis had occurred. Following the teaching that after one attack of anaphylaxis one can safely proceed without fear of another, S.S. 1·0 c.cm. S.C. was given at 11.20 A.M., and 5·0 c.cm. I.M. 30 minutes later. One hour later acute anaphylaxis occurred with collapse, cyanosis, and vomiting. The patient became pulseless. Pituitrin 1 c.cm. was given. Three hours later the right pulse was not palpable and the left rapid and feeble. Pituitrin and calcium lactate were given; gradual recovery ensued. 3rd day: Arm less swollen; urticaria of arms and body; pulse much improved; temperature normal. 4th day: Normal temperature; subsequent recovery. Total amount of serum given 6·5 c.cm.

Remarks.—The risk of anaphylaxis was known, but the second attack was unexpected. A longer interval before giving the second dose on the 2nd day might have been made. The case recovered from the second anaphylactic attack. Anaphylaxis may, of course, be one of the "reactions of immunity," comparable to agglutination. Result: Recovery.

CASE 7.—Orderly B. (see Chart 4). History: Pneumonic influenza. Inoculated Oct. 28th, 1918, with first dose of prophylactic vaccine; warded four days later with pneumonia. Blood count Nov. 19th, 1918; white cells 20,400 per c.mm.; no eosinophiles; and 76 per cent. of polynuclear neutrophiles, many of which were embryonic. Condition good, consolidation more lobar than lobular. Organisms—sputum: *Streptococcus hæmolyticus*, pneumococcus; no tubercle bacilli found. Empyema pus (subsequently): A pure culture of *Streptococcus hæmolyticus.*

Treatment.—1st day: S.S. (β) 1 c.cm. I.M. (buttock); no anaphylaxis. Never had serum. 2nd day: S.S. 20 c.cm. I.M. 3rd day: Swinging temperature, felt much fitter. 4th day: Still slight evening rise of temperature. 9th day: S.S. 10 c.cm. I.M.; unresolved pneumonia; no reaction. Total quantity of serum given, 31 c cm.

Remarks.—Subsequently a localised empyema was opened and the patient then made a rapid recovery and returned to duty. This localisation was, no doubt, aided by the serum (see Chart 4). Result: Localisation of empyema and rapid recovery after resection of rib.

CASE 8.—Major P. (see Chart 5). History: Gunshot wound left leg; amputation at thigh; had A.T.S. within the last month. Condition: Secondary erysipelas of wound, spreading erythema up and down leg; general condition so bad that it was thought to be a case of septicæmia. Organisms: Blood culture, negative; wound, a pure culture of *Streptococcus fæcalis.*

Treatment.—1st day: S.S. (β) 2 c.cm. I.M. (left deltoid), no reaction. 2nd day: 8 c.cm.; breathing easier; more himself mentally; previously he had been inclined to delirium. 3rd, 4th, and 5th days: gradually recovered. Total amount of serum given 10 c.cm.

Remarks.—The delayed effect on the temperature should be noted and compared with Case 13. No anaphylaxis. Result: Recovery without retrogression.

CASE 9.—Capt. H., aged 56 (see Chart 6) (Military Hospital, Eastbourne, under Dr. Henry L. Ewens, who was good enough to ask my advice about this case. He followed my suggestions, which were aided to no small extent by his own skill). Following are Dr. Ewens's notes:—History: Patient admitted from local camp; total abstainer; has been ill some days; not had A.T.S. Condition: cyanosed; had the toxic appearance of a moribund influenzal pneumonia; well-marked consolidation at one base; for pyrexia see Chart 6.

Treatment.—1st day: S.S. (β) 0·5 c.cm. S.C. 2nd day: S.S. 10 c.cm. I.M. Temperature 103·6°. 3rd day: Morning temperature 97·4°; less cyanosed; soft pulse: obviously better. 13th day: Lung practically clear; mitral bruit present; said not to have existed before. 30th day: Resolution complete. Total amount of serum given 10·5 c.cm.

Remarks.—Immediate success. Personally I do not think this was an ordinary pneumonic crisis. Result: Recovery.

CASE 10.—Sergt. D. (see Chart 7). History: Acute onset of facial erysipelas. Condition: Severe toxæmia and much swelling. Organisms: *Streptococcus erysipelatis* recovered from a bleb.

Treatment.—1st day: S.S. 1 c.cm. (α) I.M. morning; no reaction. S.S. 9 c.cm. I.M., evening; no reaction. 2nd day: S.S. 20 c.cm. I.M. 3rd day: 20 c.cm. I.M.; facial swelling much diminished. 4th day: Recovery proceeding rapidly. Total amount of serum given, 50 c.cm.

Remarks.—Vigorous treatment yielded an immediate result. Result: Recovery.

CASE 11.—Lieut. W. (not charted). History: Multiple septic wounds, thigh and leg; toxæmic and wasted. Condition: Wounds pouring out pus; average evening pyrexia 101°; much pain; morphia required daily for this. Organisms: *Streptococcus fæcalis* and *Staphylococcus aureus.*

Treatment.—1st day: Autogenous vaccine (A.V.) 0·25 c.cm., containing streptococcus 12 million, staphylococcus 125 million; no reaction. 6th day: A.V. 0·5 c.cm.: no reaction. 11th day: Patient developed septic arthritis of knee. General condition worse. 12th, 13th, and 14th days: S.S. (α) 20 c.cm. daily, so as to avoid a negative phase. Given per rectum on one occasion. 15th day: Leg amputated; general condition grave; extreme prostration, physical and mental; wasting marked. About three weeks later 0·5 c.cm. of the vaccine was given with benefit. A month after this there was still much discharge, but steady improvement had set in, and he eventually healed up completely about four months later. Amount of serum given: 60 c.cm. Amount of vaccine given: 15·8 c.cm.

Remarks.—Life was saved by the amputation, but the vaccine probably prevented a post-operative "flare." The case was undoubtedly helped by specific therapy. He had a large residual septic wound after the operation. It was a long case. Result: Complete recovery and healing.

CASE 14.—Pte. C. (not charted). History: Septic wound, knee; toxæmic; constipated. Condition: Pyrexia, 102·8° at night; very ill; much pain from knee; very wasted. Organisms from wound: Streptococcus; *Staphylococcus aureus.*

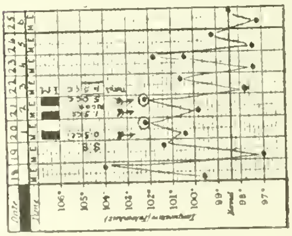
Treatment.—1st day: S.S. 10 c.cm. (α); after half-an-hour, A.V. 0·3 c.cm. Streptococci 60 million; staphylococci 600 million. Evening temperature normal. 2nd day: Morning and evening temperature normal; pulse not so good; septic diarrhœa. 3rd day: S.S. 10 c.cm. half-hour interval, then A.V. 0·4 c.cm.; no appreciable effect. 6th day: S.S. 10 c.cm. and A.V. 0·6 c.cm.; a reaction at night. The serum was then dropped and subsequent injections of vaccine were given. One month later there was a nocturnal pyrexia of 99° only, and one month after this the patient had obviously put on much flesh, and his temperature was normal. Amount of serum given 30 c.cm. Amount of vaccine 7·3 c.cm.

Remarks.—The vaccine was employed successfully in large doses from the first, owing to the "protective" power of the serum. Anaphylaxis was absent since the patient was under the recent influence of A.T.S. Result: Recovery.

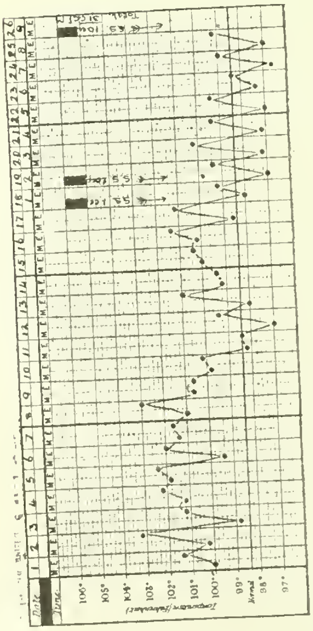
CASE 13.—Lieut. M. (see Chart 8). Patient had a wound of the chest followed by empyema, but the surgeon was of opinion that the wound had nothing to do with the empyema, and the bacteriology of the blood seems to be also in favour of this view. It was more likely an influenzal syndrome. He had had A.T.S. nine months previously. Condition: Septicæmia following empyema; hæmoptysis occurred, he was wasted, and had bedsores; also delirious, and had a deep hectic flush; the pulse was thready. The patient appeared moribund when I first saw him. Organisms: Previously from empyema, *Streptococcus hæmolyticus;* from sputum, *St. hæmolyticus*, pneumococcus, *B. influenzæ*, *Micrococcus tetragenes*, *B. septus*, no tubercle bacilli; from blood culture, after 48 hours' growth, *Streptococcus hæmolyticus.*

Treatment.—1st day: S.S. (β) 0·5 c.cm. I.M., no reaction. 2nd day: S.S. 1·0 c.cm. I.M. 3rd day: 2·0 c.cm. morning, 3·0 c.cm. evening S.S., I.M. 4th day: 8·0 c.cm. morning and 10·0 c.cm. evening. 5th day: 10·0 c.cm. morning. 6th day: S.S. 10 c cm. I.M. and 0·1 c.cm. A.S.V. (streptococci, 10 million); a slight rigor occurred; profuse sweating; pulse stronger. This was an anaphylactic reaction. 7th day:

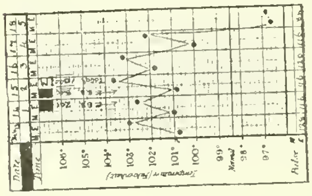
3



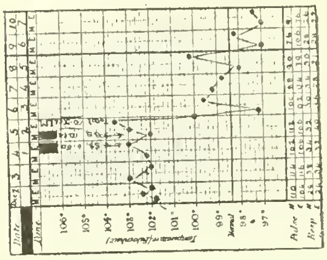
4



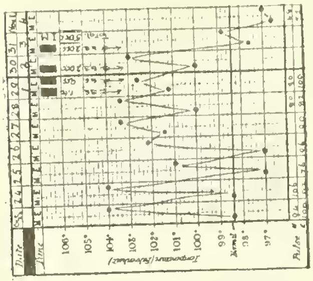
5



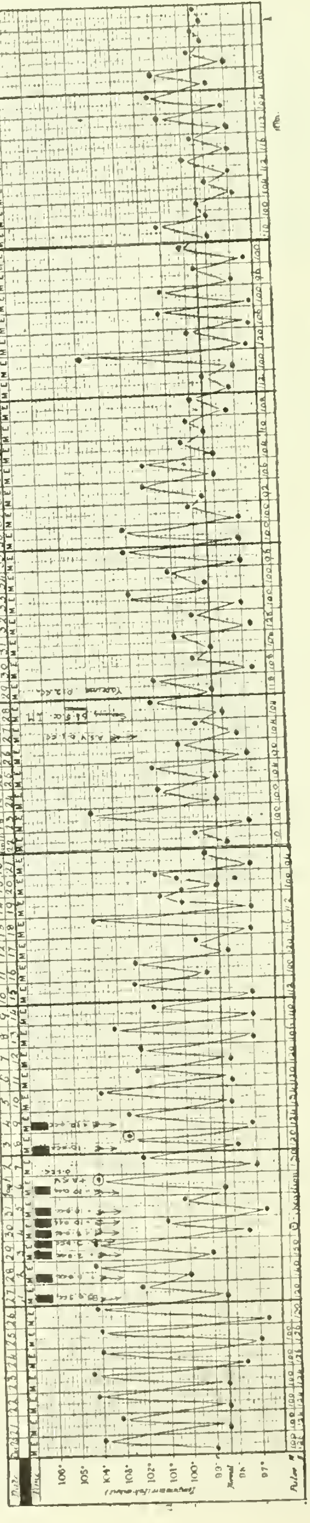
6



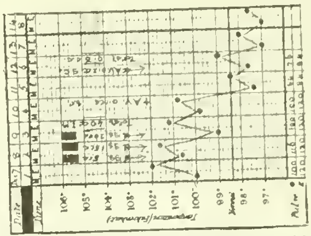
7



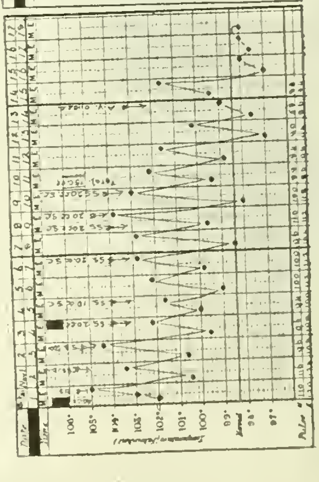
8



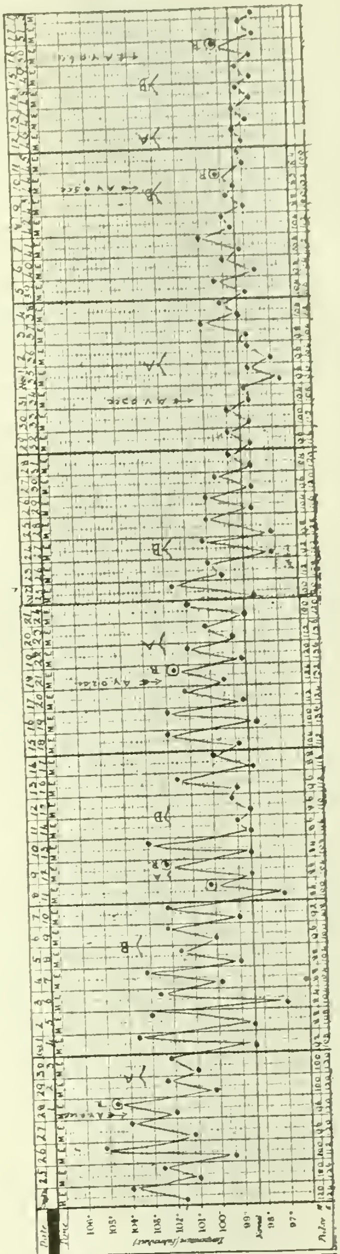
9



10



11



Much better; œdema of lips (serum sickness). 8th day: S.S. 10 c.cm. I.M.; anaphylactic rigor one hour after the injection. 9th day: S.S. 10 c.cm. I.M.; no apparent reaction, later temperature 103°. It was felt that in such a desperate case the risk of anaphylaxis was purely secondary, although the attacks gave rise to anxiety. 10th day: Serum discontinued by request; the patient was to be allowed to "die in peace." 26th day: A.S.V. 0·1 c.cm.; blood culture sterile after three days' incubation. Recovery without retrogression.

Remarks.—This case is a remarkable one. Here, again, we see anaphylaxis followed by recovery, which in this case was gradual (see Chart 8). It was one of the two only cases of verified septicæmia, which recovered at this hospital during its 4½ years of existence, so far as I know. The other was also cured with the same serum. The phenomenon of "storage of antibodies" is well illustrated by this case, for the last dose of serum was given on the 9th day and the case was not apyrexial until the 55th. The serum is much more slowly excreted intramuscularly than when given into a vein. In the light of the above, the question arises whether anaphylaxis may not be "a reaction of immunity" comparable to agglutination. Total amount of serum given: 65 c.cm.; vaccine, 0·2 c.cm. Result: Uninterrupted recovery.

CASE 14.—Miss W. (V.A.D.) (see Chart 9). History: Pyodermia of scalp and fingers, followed by acute tonsilitis. Condition: As above; pyrexia 102° F.; throat œdematous; swallowing difficult. Previously, 0·05 c.cm. of A.V. had been given for the skin condition (5 million streptococci). Organisms: Both skin and throat grew streptococci; the general toxæmia justified a blood culture, which was negative; no diphtheria bacilli isolated from the throat.

Treatment.—(A.V. 0·5 c.cm. S.C. not charted, Nov. 29th, 1918). Dec. 8th, 1918, 1st day: S.S. (β) 5 c.cm. I.M., midday; S.S. 15 c.cm. I.M., 6.30 P.M. 2nd day: S.S. 20 c.cm. I.M. A.V. 0·1 c.cm. S.C. (10 million streptococci). Has white patch on right tonsil which is disappearing. 3rd day: Patch on tonsil smaller. 4th day: Temperature normal; patch on tonsil thin and has a well-marked healing edge; patient speaks and feels better. 5th day: A.V. 0·2 c.cm. Total amounts given: Serum, 40 c.cm.; vaccine, in all, 0·8 c.cm. Subsequently a few more doses were given to complete the case of the pyodermia.

Remarks.—No anaphylaxis. The patient never had serum before. The combination of vaccine and serum was eminently successful.

CASE 15.—Pte. D. (see Chart 10). History: Gunshot (shrapnel) wound involving neck and jaw on right side. Condition: A wound about 2 in. long occupied superficially by toughly adherent slough; very severe secondary erysipelas; right eye closed; much œdema; features unrecognisable; whole face and neck involved; severe toxæmia. Organisms: Blood culture negative; bleb of face yielded a streptococcus.

Treatment.—1st day: S.S. (β) 10 c.cm. I.M. (buttock). 2nd day: S.S. 10 c.cm. I.M.; facial swelling severe. 3rd day: S.S. 20 c.cm. I.M.; can open eyes, swelling not so severe. 4th day: S.S. 20 c.cm. I.M.; swelling diminishing. 5th day: S.S. 20 c.cm. I.M.; improving slowly. 6th day: Desquamation; left ear freshly involved. 7th day: Left ear swollen: S.S. 20 c.cm. I.M. 9th day: S.S. 20 c.cm. I.M. (morning); right side of face and eye swollen up again; 20 c.cm. S.S. evening. 10th day: Œdema of neck and back; medical officer in charge of case not hopeful of recovery; smear from wound showed about 75 per cent. of germs to be phagocyted; S.S. 20 c.cm. 10th day: In statu quo ante. 11th day: Great improvement; features recognisable. 12th day: All œdema of face and neck gone; wound sloughy but looking healthier. 14th day: A.V. 0·05 c.cm. (streptococci 100 million); slight pyrexia; flatulence. Two more doses of vaccine completed the treatment, given at an interval of ten days.

Remarks.—A modified Carrel count proved prophetic; "storage of antibodies" was illustrated in this case. There was no anaphylactic reaction. The value of persistence is obvious; "protection" by previous doses of serum permitted a large dose of vaccine to be given safely. Result: Complete recovery.

CASE 16.—Pte. G. (not charted). History; G.S.W. left leg; amputation; sepsis. Condition: Pyrexia; septicæmia; pyæmia; clinically mild. Organisms: Wound; streptococcus, *B. pyocyaneus*, staphylococcus. Blood: Streptococcus (the day before treatment); pyæmic abscess; streptococci only.

Treatment.—1st day: S.S. (β) 10 c.cm. I.M. 2nd day: S.S. 10 c.cm. I.M.; serum sickness; urticaria. 3rd day: S.S. 1·0 c.cm. I.V.; immediate urticarial anaphylaxis, with collapse. 4th day: Temperature normal in morning, evening 99°. 5th day: General condition much improved. 11th day: Blood culture still positive. 12th: A vaccine was tried in view of previous serum sickness; the patient was much improved in health, however, already. 22nd day: A.V. 0·1 c.cm. (250 million streptococci); temperature immediately fell to normal; re-amputation was performed successfully. Blood culture negative. 32nd day: A.V. 0·2 c.cm. apyrexial. Totals: Serum, 21 c.cm.; vaccine, 0·3 c.cm.

Remarks.—Here, again, a second attack of anaphylaxis followed the first. The administration of A.T.S. to all wounded soldiers will necessitate great caution in the employment of serums in the future in these cases. This was the second case of verified septicæmia cured with serum (β). Result: Complete recovery.

CASE 17.—Lieut. P. (not charted). History: G.S.W. os calcis (left); septic, profuse discharge. Condition: Severe toxæmia; pyrexia 101·2° F. Organisms: Streptococci; *B. coli* (non-saccharose fermenter); staphylococci (wound).

Treatment.—1st day; S.S. (β) 10 c.cm. I.V., and after half an hour A.V. 0·3 c.cm. I.C. (streptococci 60 million). 2nd day: Morning temperature normal for first time since admission. 5th day: S.S. 10 c.cm. I.M.; A.V. 0·6 c.cm. I.M. 6th day: Distinct improvement; evening temperature 99°. 7th day: Serum sickness, urticarial-arthritic type, mild. 8th day: Temperature 101° after surgical manipulation. 10th day: A.V. 0·7 c.cm. I.M.; no reaction. 11th day: Foot amputated; temperature at once fell to normal: the wound rapidly cleaned and healed; one more injection of vaccine was given on the 23rd day.

Remarks.—Mild anaphylaxis: no post-operative flare; the case was complicated by the presence of *B. coli*, but did react favourably at first to the treatment. Result: Partial success only; eventually recovered.

CASE 18.—Pte. L. (see Chart 11). History: A bullet wound involving left hip-joint; abscess cavity 5 in. by 5 in., and 5 in. deep. Condition: Two sinuses connected with hip-joint, 5 in. deep; X ray report. Left ischium fractured, possible abscess of left ilium; left hip-joint abnormal?; tuberculosis because of obscured head of femur. Patient very weak; pus welled up from wound; wasting; anæmia; pyrexia; much pain; age 18·5 years. Organisms: *Streptococcus fæcalis* and staphylococci in pus; no tubercle bacilli found.

Treatment.—1st day: A.V. 0·1 c.cm.; rigor that night (20 million streptococci). 11th day: 0·1 c.cm.; temperature immediately fell to normal. After each improvement there was a "primary" period of diminished pyrexia ("A" on chart) and then pyrexia, and then a secondary improvement (B), the significance of which may assist in determining when to place the different doses. 21st day: A.V. 0·2 c.cm. S.C.; slight reaction. 31st day: Temperature normal; A.V. 0·3 c.cm. S.C.; marked general improvement almost from the first. 41st day: A.V. 0·5 c.cm.; sinuses closing rapidly. 51st day: A.V. 0·6 c.cm.; wound healed all but for a piece one-third of an inch in diameter. 61st day: Healed completely. Total 1·7 c.cm.

Remarks.—The vaccine alone achieved a remarkable result. It is possible that if a serum had also been used the healing would have been expedited. It must be remembered that where pus is present the endotoxic factor is very prominent. Result: Slow, but a complete success.

12

Pte. A.: Right thigh. (X ray by Miss Dell, radiographer, B.R.C.H., Netley.)

CASE 19.—Pte. A. History: Shrapnel wound right leg; compound fracture of femur. Condition: Mal-union; profuse and very chronic suppuration for months; vaccine requested (before X ray taken). Organisms: Streptococcus and staphylococcus. (See Fig. 12.)

Treatment.—Several doses of vaccine were given without any benefit. When the X ray was seen it became obvious that vaccines were useless until sequestra and foreign bodies were eliminated.

Remarks.—Foreign bodies and sequestra entirely annul the beneficial effects of vaccines. Result: Failure due to an error of judgment. I have elsewhere referred to the great value of the X rays in helping one to decide when not to use vaccines in septic wounds.[1]

CASE 20.—Cpl. S. (not charted). History: Wounded April 5th, 1917. Admitted April 9th, 1917. Compound fracture left foot with sinus; septic; had two operations for sequestrotomy. Condition: Persistent septic sinus. Organisms: Streptococcus, staphylococcus.

Treatment.—1st day (two months after admission): A.V. 0·2 c.cm. S.C. (20 million streptococci). 11th day: 0·3 c.cm., and so on up to 1·0 c.cm. The sinus healed on the 41st day and remained so. Total 5·4 c.cm.

Remarks.—There was no surgical interference during the treatment; a vaccine was quite sufficient. There was little or no general toxæmia, so it may be that the endotoxic factor was alone predominant. It will be remembered that diphtheritic wounds do not show appreciable general toxæmia as a rule.

Summary.

It is of interest to note that out of these 20 cases, nearly all acute, there were, despite anaphylaxis, 14 unequivocal successes, including two cases of well-developed septicæmia. Of the other 6 (partial or unsuccessful) cases:—Case 3 died from streptococcal septicæmia some weeks after the serum had been stopped by the medical officer in charge of the case. Case 4 died from intracranial pressure due to hæmorrhage or to the bursting of a pyæmic abscess. Case 5: In this case the serum was stopped because of severe reactions, but his wound healed after aspiration of the knee-joint. Case 7 derived temporary benefit, and made an uninterrupted recovery after resection of a rib. Case 17 only healed after amputation. Case 19 illustrated the folly of using a vaccine for shrapnel.

Notes on the Commercial Serums Used.

Serum (α) is an English serum; serum (β) a serum made from American strains.

	Cases.	Successful.	Unsuccessful.
Serum (α) ……	8 ……	4 ……	4
Serum (β) ……	9 ……	8 ……	1 (partial success, No. 7).

Serum (β) was stored in coloured phials, (α) in clear phials, both are highly polyvalent; (α) was sometimes milky, (β) never. The makers of serum (β) were exceedingly kind in supplying me with details of its composition, for which I thank them. Only want of space prevents my giving these in full. On a priori grounds I should have expected the better result from serum (α), since it is made from English strains. Whether the superiority of the former is due to better preparation or to better conservation, I leave for others to judge, but although I hold no brief for the makers I consider serum (β) to constitute the only valuable remedy extant for streptococcal septicæmia and for pneumonic influenza of the confluent type.

Conclusions.

That one attack of anaphylaxis protects against a second has been shown to be a dangerous fallacy. That the use of antistreptococcal serum has been found to be so unsatisfactory as to warrant its abandonment is likewise incorrect. Used with care the serum is of great value, provided a potent strain be employed, but to get the best results Method B should be followed. The exotoxic factor may perhaps be ignored where the germ is parasitic rather than toxæmic, but in the latter cases it is dangerous to ignore this factor. Method E has yet to win its spurs, but is quite rational. Method A (serum alone) is the method of choice in very toxic cases. One must always be prepared for anaphylaxis in cases which have had serum unless within ten days of the injection. A small dose, followed by an interval of several hours for developments, should be tried. Finally, I would request those who are still sceptical as to the value of vaccines in wound infections to study Fig. 11.

I beg leave here to express my thanks to the Commandant of the British Red Cross Hospital, Netley, for permission to publish these records, and to my late colleagues, especially Major H. S Souttar, C.B.E., and Captain R. H. Campbell, for their coöperation and for the latitude which was so liberally acceded to my activities in respect of those cases in which our work coincided, and lastly to Miss G. C. F. Porter for so kindly copying the charts

References.—1. Leonard Williams: Practitioner, London, 1915. 2. A. Geoffrey Shera: Vaccines and Sera, London, 1918, p. 100. 3. L. Dudgeon: Address on Bacillary Dysentery, B.M.A., London, 1919. 4. Sir A. E. Wright: Lecture, THE LANCET, March 29th, 1919.

A STUDY OF
EPILEPTIFORM CONVULSIONS.

BY R. G. GORDON, M.D., B.SC., M.R.C.P. EDIN.,
LATE CAPTAIN, R.A.M.C.

IN studying the statistical records of men invalided from the services for various causes, one cannot but be struck by the number of cases which are diagnosed as epilepsy. I statistics prepared during the summer of 1918, 4257 had bee discharged for this disability up to August 31st of that year

This number is large, and it makes one pause to conside what exactly is meant by the term epilepsy. Ordinaril speaking it implies the occurrence of fits, which ar supposed to be due to some undetermined physical chang in the brain. This is sometimes referred to as organi epilepsy and is distinguished from other forms of convulsion by various signs which will be referred to below Are the numerous "epileptics" met with amongst soldier and pensioners all of this "organic" type or not? If group of individuals of the same age and general healt were examined in civil life, without a doubt a certai number of "epileptics" would be met with, but the propo tion would not be anything like so high. Therefore we mus conclude that in the group of cases under consideration w have to deal with other conditions than this so-calle organic epilepsy.

The Army authorities recognise the difficulty of bein certain of the diagnosis, for it is laid down that a cas of epilepsy must not be dealt with as such unless a medic officer has seen the patient in a seizure and certified that is a true epileptic fit. Even so it is obvious that mistak are made, and it becomes important to make a thorough stud of the so-called functional fits which are very liable to b mistaken for true epilepsy.

The Origin of the Hysterical Fit.

Functional fits are genuine symptoms of hysteria, ar fall under Babinski's definition of this condition—namel that they are produced by suggestion and curable by psych therapy. The onset of the fit is generally found to depe on an emotional crisis. As is the case with neurotic sy ptoms generally, such a fit is the result of the displaceme of the energy which ought to be used in completing t action called for by the stimulus of an instinctive proce To explain this more fully it is necessary to outline t conception of the nature of instinctive processes expounded by McDongall. We have born within us certa instincts which we possess in common with the animals; o of these is the instinct of flight, another that of pugnaci and so on. Such instincts present for examination thr phases—the recognition of the stimulus, the feeling of t emotion called forth by the stimulus, and the action whi results from the existence of the first two. An instinct process once set in motion tends to go through these th phases and culminates by letting loose energy which normally transformed into the activity of the third pha For example, in the instinct of flight the stimulus may the appearance of an enemy stronger than the subject o some destructive force; this calls out the emotion of f and normally results in flight or concealment. In the c of pugnacity the stimulus may be an injury or an ins calling up the emotion of anger and normally resulting violent action of some sort against the object. Un certain circumstances, however, something may prevent t normal activity from taking place, and in such cases energy which is associated with the whole process finds outlet in some physical "expression of the emotion" wh is always profitless, being directed to no definite purp Such expressions are the sweating and shaking of f and anger; and in some cases the accumulation of liberated energy may become so excessive that, be uncontrolled, it no longer results in purposive activity bu the general motor explosion of an epileptic fit. The sympt determined by this misdirected energy will depend suggestions acting on the individual at the time; s suggestions may come from his own consciousness (a suggestion) or from his environment (hetero-suggesti It is not by any means easy to discover in every case psychological process by which the suggestion was accep but the following examples give an idea of how they arise.

Driver J., while on duty in France, was thrown from his horse and struck his head. He was unconscious for a time and was told that he had had a fit. He recovered his full consciousness quickly, but a severe headache persisted for some time. Six months later, while grooming his horses, he had a severe headache. He was much fatigued and under considerable emotional strain at the time, and the headache was followed by a fit. Subsequently he had frequent fits, but these only occurred when he had a severe headache. In this case the idea of headaches had become associated with that of fits, and whenever he had a severe headache a fit was suggested and took place.

Pte. M., a microcephalic of low intelligence, was a very "frightened" boy and an obvious martial misfit. Whenever anyone came into the room at all noisily he had a fit. This proved to depend on a childish memory of his father, who used to cause him great alarm by coming into the house drunk and knocking things about. On such occasions he would frequently have a fit. When he was made to realise the connexion between his present fits and those of his childhood they ceased entirely.

Dr. A. F. Hurst quotes a case of a soldier servant who had seen his officer killed, and was himself blown up with the same shell. The officer before he died had some convulsive movements, and the servant thereupon had a fit, and this fit was subsequently repeated on several occasions.

Such, then, is the origin of the hysterical fit. The nature of these will be determined by what the patient thinks the fit ought to be like. The man who knows nothing about epilepsy will simply throw himself down and wave his limbs about in a more or less violent manner. These movements may become extremely violent and require considerable force to restrain them. Although the action is not within the control of the active consciousness, it is guided by the subliminal consciousness, with the result that the patient always has his fit on the grass or on the bed, where he is unlikely to hurt himself. I once saw a large crowd of neurotic patients assembled on a gravel square surrounded by grass plots. A statement was read out to them which caused them considerable emotional excitement. About five or six had fits, and not one of these fell on to the gravel; without exception they managed to reach the grass before they collapsed.

However, in the case of patients who are familiar with what a true epileptic fit really is, by reason of their having suffered from one in their own persons, or having closely observed others affected with this malady, the diagnosis may be much more difficult. In such cases the movements may exactly simulate the so-called organic epilepsy, and well-known diagnostic signs of true epilepsy will cease to hold good. Such patients know that the tongue is bitten in epilepsy, and they will bite their tongues and lips sufficiently to cause bleeding, but the injury is never extensive, and the deep scars sometimes seen in true epileptics are never encountered in cases suffering from hysterical fits. Similarly, these cases know that the urine is passed in the course of an epileptic fit, and this they will do in a hysterical fit. Rarely epileptics relax the anal sphincter; this never happens in hysterical cases.

The patients referred to as having had epilepsy themselves will include two groups. Firstly, those who have had true epilepsy in childhood or in early life, but in whom the trouble had apparently ceased until the occurrence of an emotional crisis, when the fits reappeared. These latter fits will in all probability prove to be hysterical, and therefore curable. Secondly, one cannot study a series of true epilepsy in soldiers without being struck by the frequency with which the condition is complicated by the occurrence of hysterical fits. Presuming that it is right to say that an hysterical fit is produced by suggestion, what can be more suggestive than an organic fit? This will be especially the case if the fit follows an aura. For example, if the aura is a tingling of the fingers, whenever the fingers tingle, from whatever cause, a fit will be suggested, and if the patient is suggestible at the time he will have one. The following cases exemplify these conditions.

Pte. R. had fits when he was a baby, which continued until he was 8 years old and then ceased. At the age of 21, when out in Egypt, the fits returned and persisted for 18 months. He had no more until called up for army service at the age of 42. He was then much disturbed over business matters and found the training very hard. He developed fits, which were clearly hysterical and which were cured by psycho-therapy. In this case the infantile fits were almost certainly true epilepsy, the nature of those at the age of 21 were doubtful, but those at the age of 42 were clearly hysterical.

Pte. J. had had fits all his life, some of which were clearly true epilepsy, and one observed while he was in hospital was definitely so. After a bad time in France his fits became much more frequent and he had two or three a week. The majority of these were hysterical, and as a result of psychotherapy he went a period of two months without a fit, which was a longer interval free from convulsions than he had enjoyed in civil life.

Pte. H. was wounded by a shell on August 1st, 1918, in the back thigh and scalp. There was no fracture of the skull and all wounds were healed five weeks later, while ten weeks after the wound no scar could be found in the scalp. It was clear, however, that he had been concussed at the time of the wound and had had a short period of unconsciousness. Since the wound he had had a series of fits at intervals varying from two days to two weeks. He confessed complete ignorance of these fits, and stated that he had been brought in on more than one occasion by some passer-by, who had discovered him lying unconscious in the road. He said he knew nothing of how the fit began or what happened, except what was told him. Such a history points to the fit being organic in nature. However, he did not relax his sphincters, nor did he bite his tongue or experience any aura, while on one occasion he was apparently very violent, six men being required to hold him down. These facts point rather to a fit of a hysterical nature, and it is probable that he was one of the mixed cases described above. He was treated by psychotherapy and at the same time given bromide, and was discharged from hospital, having been seven weeks without a fit, more than three times the length of his previous record.

Diagnosis.

When hysterical fits closely simulate so-called organic epilepsy there are only three signs which will establish a diagnosis with certainty. The most important is the presence of a positive Babinski's sign after the termination of the fit. If this is definitely found, then the fit is certainly of the organic type, but unfortunately this sign is not always found in this variety, and at best its presence is fleeting, disappearing almost immediately after the return of consciousness. To be of diagnostic value the sign must be quite definite. Another sign is the presence of well-marked cyanosis. Hysterical patients as a rule are flushed during a fit, but inasmuch as cyanosis is due to the temporary throwing out of action of the muscles of respiration, and since these muscles are voluntarily controlled, it is possible for the hysteric to do this. I have, as a matter of fact, seen one case of fits which were undoubtedly hysterical in which the patient did become cyanosed. Finally, Collier and Buzzard lay stress on conjugate deviation of the eyes in organic epilepsy; this does not occur in hysterical fits. For the rest we must be guided by other signs, which, though not pathognomonic, yet, taken together, will form valuable corroborative evidence.

The history of the onset is often valuable, definite association with emotional crises or strong suggestive influences being in favour of hysteria. The frequency of the fits and the conditions under which they occur are important. Very great frequency suggests that some, at least, of the fits are hysterical. Occurrence in connexion with emotional crises, or with some particular symptom with which they were associated in the first instance, is in favour of hysteria. It has been stated that fits occurring at night are not likely to be hysterical, but this is by no means always true, as I have seen cases in which hysterical fits occurred at night, the emotional stimulus being afforded by a dream.

In true epilepsy the patient is not violent and does not require to be held down by force, but often in hysteria the movements are very violent, and the patient will relate that several men were required to restrain him. In spite of all this apparent violence the patient seldom hurts himself, and the hysteric does not present the scars and bruises of the true epileptic. Even if the tongue is bitten the injury is slight. Post-epileptic automatism does not occur after hysterical fits, but it is not at all impossible for a hysterical fit to occur in conjunction with a fugue which would be practically indistinguishable from a post-epileptic automatism, so that it is impossible to lay down any hard-and-fast rule on this point.

Certain conceptions suggested by Dr. Henry Head at a meeting of the South-Western Branch of the Medical Psychological Society appear to illuminate the connexion between hysterical and organic fits, and indicate that they should not be regarded as antithetical. He has kindly consented to my making use of these in the present paper. The epileptiform convulsion is a liberation of motor energy determined by the release from control of motor centres normally dominated by higher levels in the neuropsychical hierarchy. The fit will vary in nature according to the degree of control which has been removed. The whole nervous and mental mechanism of the human organism may be conceived as being built up on a series of functional levels, each of which controls and guides the levels below it. In the zone of physical nervous mechanism this can be observed clinically when, owing to certain lesions, stimulation of the foot causes a dorsi-flexion of the toe and a voiding of the bladder and rectum as the result of the removal of all higher control. Both phylogenetically and ontogenetically this reflex is primitive and the various less primitive higher reflexes normally control it. In other cases the contents of the bladder and rectum are retained, the control of these reflexes being intact, while the toe is still dorsi-flexed, for the level of the toe reflex control is relatively high, its biological significance being connected with the erect attitude. Admittedly, the exact delimitation of these levels is still far from being determined, but at the upper end of the scale they appear quite definitely again. It is generally admitted that the emotions acting as part of the various instinctive processes are the driving forces of our coördinated activities, but emotional forces acting unchecked result in inefficient utilisation of energy, whereas if this force is guided by reason and intelligence useful activity is produced. Here we definitely see a higher level guiding and controlling a lower level. Below the developed emotional level are the various less coördinated mental activities which psychotherapy in its investigation of the unconscious mind is gradually bringing to light.

It is suggested that the organic fit so-called is a liberation of motor energy produced by the removal of control down to a relatively low level, and therefore accompanied by the dorsi-flexed toe and the voidance of excreta, whereas the typically hysterical fit with violent movement of the limbs is due to liberation of energy caused by the removal of control of only the relatively high levels. Suggestion acting on the subconscious mind will tend to modify the neurone paths through which the motor activity finds expression, so that the nature of the hysterical fit will be largely determined by this suggestion. Hence we see cases in which the hysterical fit has begun as the mere emotional overflow described above, but as the result of repeated inquiries as to what he did in his fit and whether he presented this or that symptom, the patient has accepted the suggestion that he should manifest these symptoms. As a result of this the fits have changed in nature and have come to resemble organic fits much more closely, possibly by the resultant removal of further levels of control.

Prognosis and Treatment.

There should only be one word as to prognosis in hysterical fits, and that is "cure," which should be as certain as it is in other hysterical manifestations. There are two methods open to the physician; one is hypnosis and the other autognosis, to make use of the admirable term suggested by William Brown. Which will be chosen will depend on the physician and on the patient. If the patient lacks intelligence, so that he cannot follow the arguments necessary for the second method, hypnosis may have to be used, and if the physician has unbounded faith in hypnosis and confidence in its results he will probably employ this method with greatest effect.

In treating a case of hysterical fits by *hypnosis* the object is to produce in the patient a strong counter suggestion against the fit. Patients who are suffering from hysterical symptoms are ipso facto suggestible, and therefore there is never any difficulty in getting them under the influence of light hypnosis; deep sleep is not necessary to produce the effect, nor is it desirable. Having placed the patient in a comfortable position and suggested to him that his eyes will grow heavy and that he will fall asleep, several courses are open. If it is quite clear what was the origin of his fits, this may be explained to the patient while under hypnosis, and the suggestion is given that this exciting cause is in the past, and that no more fits will occur. Or it may only be necessary to suggest that there will be no more fits. In cases where it is considered desirable to produce a gross suggestion a fit may actually be produced while the patient is under hypnosis, and he may be told that this is the last he will have.

For my own part I very much prefer the method referred to as *autognosis*. By this is meant that the patient is afforded insight into his own condition and made to understand the pathogenesis of his illness. There can be no question that a great deal of suggestion is involved in this method of treatment, but it differs from the hypnotic methods, inasmuch as the patient is aware of what is going on all the time, and is invited and encouraged to coöperate in the treatment by the exercise of his reason and his will. This appeal to the patient to use his mind to work out his own salvation is, in my opinion, what makes this method much superior to that of hypnosis, for the patient as a rule is one of those inert individuals who would rather that other people would think and act for them. In common with other hysterical symptoms fits may occur in any individual given the requisite conditions, but they are very frequently met with in patients who are also psychasthenics. This makes no difference to the treatment, since autognosis is a method which is eminently suitable in this latter condition.

In carrying out this method of treatment the first thing to do is to gain the patient's confidence, and at the first interview it is as well to let him do most of the talking, encouraging him to tell you fully as to his health, as to how his fits began, or were increased in frequency. From this story it may be quite obvious how the fits developed. In other cases, especially where the fits date from early life, the patient may not remember the details of how the trouble commenced, and in such cases it may be necessary to probe more deeply into his mind. Help may be got in this direction from an analysis of his dreams, which frequently have to do with the buried memories of the past. It is not possible to enter into the details of dream-analysis here or to describe how the past may be brought back, but in war cases it will be found that this is, as a rule, unnecessary, there being no difficulty in discovering the origin of the condition. The next step is to find out under what conditions subsequent fits developed, and here it will generally be found that some emotion has brought on the condition, whether of anger, fear, joy, or sorrow. It is then pointed out to the patient how the fits have followed an emotion, and are, as has been explained above, a fruitless substitute for coördinated action. He is then told that his emotional energy must in future be redirected into more efficient channels, and for this purpose his menta make-up and attitude towards life must be stabilised. To do this it is necessary to investigate and bring to light the conscious and unconscious worries and problems which are disturbing the patient's peace of mind. He must then be got to set the proper value on his worries instead of running away from them. Next he must be trained to develop his powers of concentration and memory by appropriate menta exercises, and at the same time be given some congenia employment, such as farm work, carpentry, or the like which will employ his time and train his muscles. In thi way he becomes less liable to be dominated by his emotions and his energy, mental and bodily, is directed into usefu directions. At first these cases are best kept in isolation rooms or small wards, but as they get more confidence in themselves and their minds become more stable they should be sent into larger wards, and finally be encouraged to join in the general life of the hospital community, so as to train them for the give-and-take of life in the world.

This line of treatment is equally adapted to the patien who suffers from fits which are purely hysterical and to him whose fits are a combination of hysteria and "organic epilepsy, and in the future the mixed class is likely to b the most important; in fact, these considerations call for a drastic revision of our conceptions of epilepsy. In a cas in which we have seen one fit which is obviously organic w must not jump to the conclusion that they are all so and b content to order bromide. As has been said, it is probabl that the true epileptic fit is of relatively infrequent occurrence, and if we can cure the greater percentage of thes fits by means of psychotherapy we are conferring a inestimable benefit on the patient himself and on his relations. The man who has a fit once a fortnight may be a reasonably useful member of society and a possible companio to his friends, but the man who has fits every day is a millstone hung about the neck of the nation and an insupportabl burden to his relatives. The same argument applies to th patient who suddenly resumes having fits after a long period of remission; though the earlier fits may have been organic it is likely that the latter ones are hysterical, and therefore amenable to psychotherapy.

In conclusion, it is necessary to point out that fits may be consciously feigned. They differ, then, from hysterical fits in being under the control of the active consciousness, instead of being under the control of the subliminal consciousness. They will vary with the subject's conception of what epilepsy ought to be like, just as is the case in the hysteric, but the malingerer has to put himself to a very great strain to maintain his rôle, and consequently, if under close observation, he may be forced to confess his deceit.

Conclusions.

Therefore I would urge that so far as hysterical epileptiform convulsions are concerned, their recognition should be tantamount to their removal, and if there is any truth in the conclusions drawn from Dr. Head's observations there is hope in the future even for the so-called organic variety. At present our knowledge does not allow us to train our patients to restore control of their activities at so low a level as that at which the organic fit originates in the same way as it is possible at the emotional and subconscious levels, yet it does not seem impossible that the future may show us an answer even to this problem.

THE TREATMENT OF LUPUS VULGARIS.

BY ROBERT W. MACKENNA, M.A., M.D. EDIN.,
HONORARY DERMATOLOGIST TO DAVID LEWIS NORTHERN HOSPITAL, LIVERPOOL.

THE successful treatment of lupus vulgaris is a problem beset by many difficulties. A large majority of the patients who suffer from this affection are drawn from the less fortunate ranks of society: from the habitually underfed, insufficiently clad, and ill-housed denizens of our large cities. The conditions of their life are opposed to the effectual eradication of the tubercle bacillus. But persevering treatment, guided by judgment founded on experience, will sometimes work wonders even in the most extensive cases.

A first essential for successful treatment is to know what cases to tackle. Not every case should be put under treatment at a first inspection. For instance, there is neither necessity nor justification for proceeding to attack an isolated patch of lupus of small dimensions which is perfectly quiescent, producing neither discomfort nor serious disfigurement, and which has existed for years without much tendency to spread. Five years ago a medical friend referred to me a lady patient, aged 46, who for more than 20 years had had a patch of lupus on the right cheek, a little in front of the ear. In area it was slightly larger than a shilling. It was inactive, and the patient did not think it had increased appreciably in size during the previous ten years. She was able to conceal it almost entirely by bringing a curl of hair over it, and the "camouflage" was completed by the application of a little calamine lotion. I advised against any active interference, and when I last saw her the patch was apparently undergoing gradual resolution.

Another essential for successful treatment is the choice of an opportune moment. It is unwise, and may lead to disastrous results, to subject a patch of lupus which is in active evolution to anything but sedative treatment. Active mechanical treatment may serve only to stimulate the morbid processes. In such a case the application of lead and spirit lotion, or a varnish of ichthyol and water in equal parts, or starch and boric poultices frequently changed, will often cause the active manifestations to subside, and once the disease is quiescent it may be dealt with effectually. There is no royal road to success in the treatment of lupus. The methods at one's disposal are legion. But each case must be dealt with on its merits, for the line of treatment that has served well in one case may be of little avail in another. Most often good results are secured by a judicious blending of varying applications or procedures.

METHODS.

1. *Excision.*

Where one has to deal with an isolated patch of the disease, not too extensive to allow of excision without the danger of undue disfigurement, the best procedure is to cut it out.

In 1902 I saw at hospital a girl, aged 5, with a patch of lupus the size of sixpence on the right cheek over the inferior maxilla. Two other members of the family also suffered from lupus, a sister, aged 8, having a large patch over the left deltoid muscle and a brother, aged 9, suffering from extensive lupus of the face. Under a general anæsthetic I excised the patch by a lozenge-shaped incision, cutting widely outside the disease and carrying the incision deeply into the subcutaneous tissues. The edges of the wound were drawn together with horsehair, one deep suture of chromic gut being used to relieve the tension on the finer stitches. The result was a satisfactory linear scar. I saw the patient in September, 1919, 17½ years after the operation. She had grown into a robust young woman, and the scar of the excision was almost invisible. There had been no recurrence of the disease.

Unfortunately, by the time most cases of lupus come to hospital the mischief is too widespread, even if it is in a suitable situation, to permit of excision with such satisfactory results. One is therefore glad to fall back upon other methods. Many are available, but in the choice of which to employ two things must be kept in mind—viz., (*a*) the complete eradication of the disease; and (*b*) the avoidance of undue scarring.

2. *Chemical Agents.*

The treatment by the local application of caustic agents will, in some cases, give excellent results. Many caustic applications have been recommended, but in my opinion pyrogallic acid is the best. It is best applied in the form of a 5–10 per cent. ointment—i.e., 24–48 grains to the oz. A base of equal parts of lanoline and vaseline supplies a sufficiently adhesive unguent. The ointment should be spread on lint, the weaker strength being used for children, and the stronger for adults. After a few days the pyrogallic acid begins to break down the lupus patch, and an ulcerating surface is produced. The dressing, changed night and morning, should be continued as long as the patient can bear it. When severe pain supervenes—or earlier in the case of children—the application should be stopped and the ulcer dressed with starch and boric poultices. This soothing application rapidly brings about a restitution of epithelium over the tubercular tissue, and when this stage is reached it will be found that the lupus patch is considerably thinner. The application of pyrogallic acid should then be renewed, and the patch broken down once more.

After this process of alternately breaking down and healing up has been repeated several times it will be found that a considerable portion of the lupus tissue has been completely destroyed. The isolated nodules left behind may then be destroyed by boring into each of them the solid nitrate of silver stick.

In some ways this method of treatment is an imitation of the process by which Nature endeavours to cure lupus. A lupus patch tends to break down in the centre and spread at the periphery. In an old-standing case one frequently sees an area of atrophic skin in the centre, studded over with a few scattered nodules. The atrophic skin covers the site of an old spontaneous ulcer, and the ulcerative process has destroyed much of the tubercular tissue. Pyrogallic acid enables us to set up such an ulcerative process at will and to keep it more or less in control. Its only disadvantage is the pain which it causes. The ultimate result of this treatment is a smooth, pliant, and not unsightly scar.

Other caustic agents, such as arsenic and salicylic acid, may also be employed, but pyrogallic acid seems to have a special affinity for tubercular tissue, and I prefer it to other chemical agents.

3 *Curetting and Scarification.*

Curetting a lupus patch has long been regarded with favour. If thoroughly done under general anæsthesia it frequently yields good results, but results are much improved if linear scarification is employed as well. For some reason linear scarification has had a much greater vogue in France than in England. Its proper performance demands considerable attention to detail. It should be carried out with a scarifier, of which there are many patterns. Personally I prefer one with six blades, and it is most important that the blades be sharp. If not keen, they tend to tear rather than mince up the tissues. In using the scarifier one should begin on the healthy skin just outside the lupus patch, and then proceed to scarify the tubercular tissue first in one direction, then in another, crossing and re-crossing until the whole is reduced to a pulp. To be systematic, one should make the first series of cuts vertical, the next horizontal, and the next diagonal from left to right, and the next diagonal from right to left, and then repeat the process several times.

There is usually considerable bleeding which may be controlled by pressure. When the tissues have been thoroughly chopped up and the bleeding arrested, the part should be dressed with a simple ointment such as ichthyol gr. 2, vaseline 1oz., or a dressing of ung. glycerini plumbi subacet. may be applied, which has the advantage of producing an exosmosis that flushes the part with serum.

To get the best results from linear scarification, one must repeat the process every 14 days or so, carrying it out with thoroughness on each occasion. It gives rapid and excellent results, especially in cases of lupus where the end of the nose is in danger of destruction. An objection has been raised to the method on the ground that by opening up blood-vessels it may lead to the dissemination of tubercle bacilli through the system from an isolated patch of disease, but experience has taught that this is a theoretical objection, and I have never seen any untoward result follow the use of the method.

4. *Refrigeration.*

Another mechanical means of dealing with lupus is refrigeration with solid carbon-dioxide snow. The penetration of the cold from the ether or acetone-CO_2-snow mixture is not sufficiently deep to get good results in any but the most superficial cases—but firm pressure with a moulded piece of carbon dioxide snow cut a little larger than the patch it is intended to treat, for a period of 1½–2 minutes produces a deep slough. After this has healed it will be found that much of the tubercular material has been thrown off. If what is left is still an infiltrated mass the freezing process may with advantage be repeated. But if all that remains of the disease is a crop of scattered nodules, they may be destroyed individually, either with the solid silver-nitrate stick, or by ionisation with zinc in a manner to be described later. The scar that follows the treatment of lupus with CO_2 is, as a rule, an excellent one, pliant, elastic, and not much paler than the surrounding skin. Carbon dioxide snow is of special value in cases where (*a*) the lesion is on the cheeks; (*b*) when it is single and not too extensive; and (*c*) when it is hypertrophic rather than atrophic in type. It is also very valuable for melting down the thickened edge of an extensive and spreading patch of the disease.

But there are two classes of cases in which it should be used with caution—viz., the elderly, and also the half-starved slum child whose vitality is not sufficient to enable his sound tissues to react favourably after exposure to such intense cold. In such children I have seen the application of CO_2 bring about an extension rather than an arrest of the disease.

5. *Electro-Therapeutics.*

When the X rays were first employed in the therapeutics of the skin great things were expected from their use in the treatment of lupus, and even with inexact dosage and irregularity in the quality of the rays some very favourable results were obtained. But there is little doubt that the indiscriminate use of X rays in the treatment of lupus was responsible for the development of not a few cases of epithelioma. Such untoward happenings were, perhaps, unavoidable in the earlier days when the deleterious after-effects of the rays were less well-known than they are to-day. Within the last four years I have known two women, who had suffered from lupus affecting the greater part of the face, who some 18 to 20 years ago were treated by repeated exposures to the X rays, die of epithelioma which supervened upon their lupus; and at present I have under my care a woman with a huge and inoperable epithelioma that has developed on the top of a lupus from which she has suffered for over 30 years, and which has had a great deal of X ray treatment. With such cases as these in memory one limits the use of X rays in lupus cases with care, reserving it for ulcerated cases, which are often dried up rapidly and stimulated to heal by a few careful exposures, or to chronically thickened cases where one is anxious to produce some thinning of the patch. Nowadays I rarely apply X rays to a patch of lupus except through a layer of boiler felt. This cuts off the softer rays which may have a prejudicial effect upon the epithelial cells and allows the harder rays to penetrate to the corium in which the tubercular mischief really lies. In Copenhagen and Berlin before the war I have seen lupus treated with repeated full pastille doses of X rays at intervals of a month, but it seems to me there is grave danger in such a procedure. I prefer to give a third of a pastille dose, through felt, fortnightly, and rarely carry the X ray treatment further than to administer in all two full pastille doses.

There are so many other safer and equally effective methods of treating lupus that one has no justification for treating every case indiscriminately with the X rays. The treatment of lupus with the ultra-violet rays (as introduced and perfected by Finsen) has yielded extraordinarily good results, especially when carried out with the meticulous attention to detail which rules in the famous Light Institution at Copenhagen. But the expense, the cumbrous apparatus, the prolonged treatment, and the need of highly skilled and very patient operators has stood in the way of its general adoption. Fortunately, however, other means than those devised by Finsen of applying the ultra-violet rays have been discovered, and many small lamps with a large output of violet rays have been introduced. One of the most useful of these is the mercury-vapour lamp introduced, I believe, by Kromayer. I have had a fairly long experience of its use, and am bound to say that for rapidity of action and cosmetic results it presents advantages over the original Finsen lamp. In my experience the best results are obtained by somewhat diffuse radiation of the affected part. I cover the adjacent skin with lead-foil, leaving a border of sound skin about ¼ in. broad uncovered all round the lupus patch. This sound skin and the lupus patch are then exposed to the rays of the lamp, the front lens of which should be at a distance of 3 in. from the part to be treated. In many cases there is a mild sensation of burning felt by the patient, but this rarely becomes intolerable. Children can easily stand seven and a half minutes exposure, and adults tolerate ten minutes without complaining. The rays of the lamp have, I believe, a definite germicidal action, but in addition they set up a violent erythema in the part exposed, which may or may not be attended by superficial blistering. By increasing the blood flow to the part the treatment probably exposes the tubercle bacilli to the attack of a larger host of phagocytes than usual. Whatever the rationale of the treatment, the results are excellent, and I have known cases of lupus that have proved very resistant to other methods of treatment begin to improve immediately they were exposed to the rays of the mercury-vapour lamp.

The following is an illustrative case:—

A child of 12 months, some weeks after a slight febrile attack, was found to have scattered patches of lupus on the face and buttocks. She received weekly treatment with the mercury-vapour lamp, each lesion being exposed separately for five minutes and the lens being at a distance of 3 in. from the skin. She began to improve at once, and after 24 exposures the lesions had completely disappeared, leaving scars that could hardly be detected. I saw the child in May of this year, nearly two years after the treatment had ceased. There had been no recurrence of the mischief and the cosmetic results were excellent. In fairness it should be said that this was the child of parents in comfortable circumstances, and that it did not suffer either from shortage of food or scantiness of clothing. Its circumstances were advantageous, but I am of opinion that the mercury-vapour lamp was the chief agent in bringing about its recovery.

Recently I have been making use of an electric lamp with electrodes of pure tungsten. These electrodes burn with a flame that is very rich in ultra-violet rays, with actinic qualities of such virulence that to look at the light without deep-blue goggles is to develop immediately considerable irritation of the conjunctiva. I apply the rays in exactly the same way as the light from the mercury-vapour lamp, but if one desires to irradiate a large surface at a time the lamp may be placed at such a distance from the patient that the whole area is irradiated, the length of exposure being increased in direct proportion to the ratio subsisting between the distance of the lamp and the standard distance of 3 in. For instance, if the lamp is 12 in. from the patient the normal exposure of five minutes should be increased to 20 minutes. ($4 \times 3 = 12 : 4 \times 5 = 20$.) So far, the results I have obtained have been very satisfactory.

6. *Treatment by Ionisation.*

For the destruction of scattered nodules of lupus tissue I know of no more rapid or efficient means than ionisation with zinc salts. In this procedure the success depends entirely on attention to technique. Little, if any, good will result from ionising a patch without first ensuring that the ions will penetrate the nodules. This end can be attained by breaking down the ill-formed epithelium which covers the nodules. The electric current will concentrate itself at these points, where the tissues being moist offer less resistance to its passage, and the ions will stream in through the broken surface like sheep racing through a hole in a hedge.

As a preliminary, therefore, to the treatment of a patch of lupus with zinc ions, I briskly rub the area to be treated with a pledget of cotton-wool soaked in liquor-potassæ (B.P.). This denudes the nodules of their epithelial covering, while it leaves the sound epithelium of the adjacent skin almost intact. The nodules are thus exposed, and appear as moist gelatinous-looking masses embedded in the skin. The alkali is then removed by wiping the part with a little distilled water. A pad of two thicknesses of lint soaked either in 2 per cent. zinc-chloride solution or in a 10 per cent. solution of zinc-sulphate is then laid over the area to be treated, and an electrode of pure metallic zinc attached to the positive pole of the battery is applied with firm pressure. The indifferent electrode is applied to any convenient part of the body. A current of 2–3 milliampères per square cm. of area treated is applied for 10, 15, or 20 minutes, varying with the extent of the disease and the tolerance of the patient. At the end of a treatment the lupus nodules are found to be dry and glazed and surrounded by a whitish collar of coagulated albumin. Considerable redness and swelling follow the treatment. The part may be dressed with a detergent lotion, in which case a crust will form, or it may be dressed with a simple ointment. The reaction subsides in about a week, and the treatment may be repeated at fortnightly intervals. It leads to a rapid disappearance of the nodules, and the scar left after careful ionisation is better, in my opinion, than that obtained by any other method except Finsen's original method. Ionisation with zinc salts is a particularly useful method of getting rid of any nodules that may be left after a course of X ray or Finsen light treatment. But it may also be used with advantage in any form of lupus vulgaris, and in the treatment of ulcerating lupus it may be used alternately with the X rays. It is also very useful in the treatment of lupus affecting the mucous membrane of the nose. Here a 2 per cent. solution of zinc-sulphate should be employed, the affected nostril being packed with a pledget of cotton-wool soaked in the solution and a suitably shaped electrode inserted into the centre of the packing.

7. *Electro-cautery.*

But the method *par excellence* for the treatment of lupus affecting the mucous membranes, either of the nose or mouth, is cauterisation with the electro-cautery. For this purpose a preliminary anæsthetising of the mucosa by the application of cocaine or novocaine is necessary. The current should be carefully graduated before commencing the treatment. It should be strong enough to raise the cautery point to a dull-red heat and nothing more, as the object is to char the part slowly rather than burn it quickly. A good light is directed upon the part to be treated and the cautery point is applied cold to the centre of the affected part. The switch in the cautery handle is then closed and the part cauterised.

To use this method effectively it is advisable to make a series of punctures all over the affected mucosa at short distances from each other. If the platinum point is not too hot there will be little, if any, bleeding—there ought to be none—and the after-pain is infinitesimal.

To a greater extent than is perhaps appreciated, the nose is the portal by which the tubercle bacillus finds access to the skin of the face, and one should never feel assured that a patch of lupus, either on the outer surface of the nose or cheek, is completely cured until the condition of the nasal mucous membrane has been thoroughly investigated and any tubercle mischief there eradicated.

8. *Tuberculin.*

In my experience the treatment of lupus with tuberculin has been disappointing. Any improvement obtained has been only temporary and the patient has rapidly relapsed.

9. *Salvarsan.*

I have not tried salvarsan for lupus, but I have seen patients who had received that remedy at other hands. The benefit would seem to have been but transient. In so far as it improves the patient's general health and so raises his resistance it is calculated to do good, but salvarsan and its congeners do not seem to have that lethal affinity for the tubercle bacillus which they have for the spirochæte.

CAUSES OF DISEASE AND DEATH IN THE ANTENATAL PERIOD.[1]

BY GLEN DAVISON, M.D. DURH.,

CONSULTING PEDIATRIC PHYSICIAN, ASSISTANT PHYSICIAN, HOSPITAL FOR SICK CHILDREN; MEDICAL OFFICER, INFANT WELFARE CENTRES, NEWCASTLE-UPON-TYNE.

HOWEVER elementary may be our knowledge of biological laws, our reason and our training alike forbid us to take into consideration only the antenatal period (the time between conception and birth) in discussing disease and death in relation to a child. The period of time which the scope of this paper covers is purely conventional, and having made this clear I will proceed to bring before your notice some few of the innumerable factors which affect our inquiry into the ætiology of disease and death in the antenatal period.

The Educational and Social Factor.

In relation to established customs and practices.—The currently accepted belief of the laity as to a different social code for a man as distinct from a woman is not without profound effect. I venture to suggest that the results arising directly or indirectly from that hydra-headed doctrine profoundly influence the success of our work in the public health service.

Another illustration of the need for further educational work is the theory "that any space enclosed within four walls is suitable for a woman's confinement." The home may be clean or dirty, furnished or unfurnished, crowded or empty, devoid of sanitary conveniences or supplied with them; but for a woman to be confined anywhere but in her own place is still considered a tragedy in the lower middle classes. Another belief that holds almost universal sway is "that so long as the pregnant woman has engaged a neighbour, a midwife, or a doctor, and has given the approximate date of the expected confinement, she has merely to 'carry on' until the time comes for her to be delivered." It is gratifying to think that on this latter point at least we are not content to let things drift.

These three beliefs, when put into practice, account for a goodly proportion of disease and death in the antenatal period.

And, lastly, dealing with the educational aspect of the work among the laity, is it not about time that to boys as well as to girls we really began systematically in the schools to give them physiological teaching about their own bodies and their functions?

I have not as yet found any detailed analysis giving facts ascertained why the deaths of illegitimate children in general are just twice the mortality-rate of legitimate. I make the suggestion that ignorance of sex functions has more to do with the production of the unmarried mother than has previously been suspected, just as much, indeed, as my experience during the last 10 years in work amongst children has profoundly impressed me with the ignorance of the average married woman with reference to the way of rearing her baby. The function of reproduction is as much a gift of nature as health or stature; but whether we squander it with a prodigal hand or spend it wisely depends primarily upon knowledge, not upon intuition or gossip or old wives' tales.

In relation to professional knowledge.—Turning next to the second subdivision in the educational and social group, I have termed this "professional." It has two aspects—first, the definite teaching of the laity by our profession, whether by direct or indirect means, of the things we *know*. There is another aspect of the case which I specially wish to emphasise. While public ignorance is profound and difficult to combat, the real difficulty lies in our own ignorance of the many factors necessary to a fuller understanding of the ætiological factors of disease and death in the antenatal period.

The duty of research work is as imperative as our duty to prevent or to cure disease.

(1) *Inadequate statistical returns.*—I am greatly indebted to the courtesy of Dr. J. W. Ballantyne, of Edinburgh, for a masterly survey of the outstanding problems, and I propose to quote some of his suggestions and conclusions. He proposes in the first place that a definite place be assigned in our statistics to those deaths which occur in the first four

---

[1] Delivered before the Annual Congress (Section of Hygiene), Royal Sanitary Institute, held at Newcastle-upon-Tyne, July 29th, 1919.

weeks of life. He defines this period of time as neonatal and gives a close analytical picture of the birth- and death-rates for Edinburgh, for the period 1911 to 1917.

	1911	1912	1913	1914	1915	1916	1917
Birth-rate	20·8	19·7	19·4	19·8	17·8	17·4	14·7
Infantile death-rate (per 1000 live births)	115	110	101	110	132	100	123
Neonatal death-rate... ...	42·2	44·9	40·6	43·7	43·8	44·8	41·5

He defines the word "*neonatus*" as the new-born infant, or more exactly, the infant during the first four weeks of its life, and the chief maladies arising at that period are icterus neonatorum, trismus, sclerema neonatorum, ophthalmia neonatorum.

It will be seen from the foregoing figures that the neonatal-rate never fell below one-third of the total infantile death-rate.

He next points out that this rate does not vary *pari passu* with the infantile death-rate—vide figures for 1916 and also 1915. He gives figures in support of the belief that in 1916 the neonatal-rate was higher among legitimate as compared with the illegitimate births, whereas in 1917 the reverse held good.

1916 figures	49·4 legit.	47·4 illegit.
1917 ,, ...	38·0 ,, ...	76·0 ,,

In 1917 the illegitimate birth-rate rose to the high total of 10·1. He suggests that to enable us to deal adequately with the causes of infantile mortality we should have: (1) a conception-rate; (2) a sterility-rate; (3) a miscarriage-rate; (4) a separation of the neonatal deaths from the others which occur in the first year of life.

The first four weeks of life in comparison with the first 12 months of extra-uterine existence represent 1/13 of the time. The neonatal-rate (the word is Ballantyne's) is never less than one-third of the total infantile death-rate, and may become approximated to one-half the total. It is therefore obvious that special investigation is required to grapple with this appalling death-rate in the first four weeks of life.

(2) *Inadequate pathology.*—As throwing some light on Ballantyne's appeal for further professional knowledge, I quote the findings of Whitridge Williams in his published results on an investigation into the causes of fœtal deaths in 10,000 consecutive deliveries. The figures will serve to illustrate the importance of the educational factor in the ætiology of disease and death in the antenatal period.

Syphilis was identified in 26·4 per cent. of the cases, but the greatest group of all, 33·2 per cent., was one which comprises (under the heading of ætiology)—(1) various, (2) inanition, (3) debility, (4) unknown!

Not one of these words conveys a pathological entity. Ballantyne might well call for a greater scientific accuracy in dealing with neonatal mortality certificates. Added together we get a total of roughly 60 per cent. of deaths in the neonatal period. And the only definite pathological feature recognised was syphilis.

The Johns Hopkins figures *re* analysis of fœtal deaths showed "prematurity" as accounting for 7·10 per cent. The Edinburgh figures quoted by Ballantyne for 1915–16–17 showed that one-half of the deaths was certified as due to prematurity. He questions the accuracy of the statement, and suggests that the same scientific accuracy ought to be brought to bear upon the autopsies of the newborn as upon those of mature years. He concludes as follows: "Prematurity of birth, therefore, is rather a causal circumstance than a direct cause, and until more accurately stated causes of neonatal deaths are being recorded in certificates it is futile to speculate on the real root of neonatal mortality, and to devise measures to counteract the dangers which threaten this time in life."

Amand Routh, quoting Holt and Babbitt, states in his paper, entitled "Need for Medical Supervision During Pregnancy," that 66 per cent. of the deaths occurring on the first day, and one-half of the total deaths within the first 14 days, were due to prematurity.

The statistics of Queen Charlotte's Hospital for 1914 show 12·9 per cent. of total deaths as premature. St. Mary's Hospital, Manchester, for 1914 reports that the premature births were 20·4 per cent. of the total births. Dr. Routh's summary under the heading "Prematurity" is well worth quoting. "The precise significance of the word 'prematurity' needs standardising." Now let us survey these few figures. They are derived from hospitals of repute, and we have not the slightest basis for believing that the statisticians concerned are incompetent: Queen Charlotte's, 12·9 per cent.; St. Mary's, Manchester, 20·4 per cent.; Johns Hopkins, 7·1 per cent. The certificates upon which these returns were based were each labelled "prematurity."

Eclampsia and hyperemesis gravidarum.—These conditions also deserve mention under the subheading of further professional education, as they can only satisfactorily be investigated in a research department of an obstetric hospital. In both cases they are certainly recognisable as clinical entities, but the explanation of their occurrence, or any definite knowledge of how they may be prevented is, so far at least, wanting.

Four other conditions having special reference to the female generative organs and at the same time bringing a profound influence to bear upon disease and death in the antenatal period are ectopic gestation, placenta prævia, hydatidiform mole, and dystocia.

From this brief summary of educational needs, both of the laity and the profession, we can see many avenues waiting to be explored, all of which would lead us to a clearer knowledge of how to lessen the incidence of disease and death in the antenatal period.

The Environmental Factor.

Mental Environment.—The second great subdivision of the ætiological factors in the problem before us is one which I have called environment. The woman about to become a mother reacts in a greater or less degree to her environment. One of the pressing problems is the care and interest we are prepared to take in the case of all pregnant women in general, but of the unmarried woman in particular. It is a well-known fact, illustrated by statistics with almost ceaseless monotony, that the death-rate amongst illegitimate children is approximately double that of the legitimate. Ballantyne quotes one exceptional year when the reverse held good. I suggest that this difference in mortality is due largely to the life of solitary loneliness to which too often the woman is banished by the social code. Do we sufficiently appreciate the importance of the mental environment?

As professional men and women we should define our relationship to the problem of the unmarried pregnant woman. I have known of more than one Welfare Centre in which an attitude perilously near Pharisaic rigidity obtained. For my part, I do not think that we should be baulked even in the slightest degree in our efforts to save and build up for the Empire all babies, legitimate or not. And if we are to reduce the mortality rate of illegitimate children we shall have to attack the problem of the environment in the antenatal period of the child's mother.

Structural environment.—The second subdivision of the group, environment, I have called "structural environment." Fifty years ago Sir John Simon said that one of the causes of the high infantile mortality rate was: "Common sanitary defects of residence, foul air, foul water, locality and houses undrained, unpaved, unscavenged, unwashed, unlighted, unventilated." Unfortunately, the statement is not inapplicable even now. It seems to me as an outsider that the preventive branch of the public service must lose heart and faith more frequently over this question than over any other. To give birth to a child in any hovel, whether it be as inadequate from the point of view of sanitary science, as the foregoing description or no, is bad enough, but the task of carrying on household and maternal duties in a defective structural environment, while at the same time she carries the developing embryo, is one to which no woman should be subjected.

Industrial environment.—The third subdivision of the group environment refers to industrial conditions. It was the considered opinion of Sir John Simon that one of the causes contributing to infantile mortality was "the employment of women away from home, resulting in neglect of house and children."

Curiously enough, this explanation was accepted at the time by most people, but later researches have thrown some doubt upon its accuracy.

The report of the medical officer of health for Blackburn for 1915 gives the result of an inquiry into the rate of mortality amongst children of industrial and non-industrial mothers respectively. The results are certainly in favour of non-industrial mothers, but the difference is not very great.

In 1914 a special Local Government Board inquiry was undertaken in Lancashire in seven towns, selected because of the high proportion of married industrial women. The published results, however, were indefinite. I have emphasised the question of industrial environment because further investigation is urgently required thereon.

The Toxic Factors.

The third ætiological group is the "toxic" group. This in turn may be divided into two sub-groups: (*a*) chemical; (*b*) organismal. As illustrative of the former I mention lead and alcohol, and of the latter, gonorrhœa, syphilis, specific fevers, and diabetes.

Chemical causes—(*a*) *Lead.*—Newman[2] says that lead poisoning produces abortion in animals, and the passage of the lead through the placenta has been demonstrated. As a result of research on the subject Constantin Paul concluded that though lead poisoning did not prevent pregnancy and did not act injuriously upon fecundity or upon menstruation, it did act upon the infant. Out of his series of cases, 112 pregnancies in all, 20 children out of 36 who died never saw their first birthday. Further, the 112 pregnancies resulted in 55 abortions, 4 premature births, 4 stillborn, and 13 living. Sir Thomas Oliver[3] showed the remarkable ecbolic effect of lead upon pregnant women. A woman, aged 35, before working in a white-lead factory, had four children born at full time. She worked in the lead factory for six years, and during that time she had 9 miscarriages in succession and no living child. An even more interesting case was that of another woman, aged 34, who before going to a lead factory had 4 living children and afterwards had 2 living children. Then she had 6 miscarriages and became the subject of plumbism. She recovered, but left the lead works. She then had another living child.

(*b*) *Alcohol.*—The work of Nicholson (1900) leads one to the belief that alcohol as such may pass from the mother to the fœtus. Sullivan (1899) worked specially on the influence of maternal inebriety in the offspring by inquiry into degeneracy in the descendants of alcoholics. He selected a series of chronic drunkards from the female population of Liverpool Prison who had borne children. He excluded as far as possible tubercle, syphilis, and the neurotic constitution. The cases chosen were those in which alcoholism occurred prior to the procreative career. To the 120 inebriate women were born 600 children, of whom 55·8 per cent. died under 2 years of age or were stillborn.

He also showed that there was a progressive death-rate in the alcoholic family.

		Cases.	Dead and dead-born percentage.
1st	born	80	33·7
2nd	,,	80	50·0
3rd	,,	80	52·6
4th and 5th	,,	111	65·7
6th–10th	,,	93	72·0

These figures illustrate very clearly the progressively augmenting character of the influence of the mother's alcoholism. These figures, plus the facts elicited and published by the Committee of the Central Control Board (Liquor Traffic) would all seem to point to the fact that the statement made from time to time that alcohol is an individual and a racial poison is fully justified. For as long as we tolerate overcrowding, sweated labour, long laborious work, and monotomy, just for so long will people demand a quick and certain elixir, which, even if only for a time, will enable them to escape from these gloomy surroundings.

Organismal causes of toxæmia.—Of the organismal group the first is that caused by the gonococcus of Neisser. The complications fall naturally under three headings—i.e., direct extension, direct transmission, general absorption—and under the present social code any pregnant woman may become a victim. The Royal Commission on Venereal Diseases points out the close association between alcohol and venereal disease. "Alcohol makes latent syphilis and gonorrhœa active. It also makes the treatment of these two conditions more refractory. If alcohol is absolutely stopped during treatment of syphilis and gonorrhœa the result is much more satisfactory. The facts given point to the conclusion that decrease in the use of alcohol will be an important factor in diminishing the prevalence of venereal disease." With reference to gonorrhœa, the following facts may be of interest. They are found in the report above mentioned. "It is estimated that of cases of ophthalmia neonatorum 70 per cent. of the cases are due to the gonococcus. Bishop Harman found that 24·35 per cent. of the 1100 cases of blindness examined by him were stated to be due to gonorrhœal ophthalmia." There would almost seem to be a natural crescendo movement, whereby this destructive agent grips its victim.

The second organism, the *Spirochæta pallida*, was once regarded as of more importance clinically than Neisser's organism, but in extent of damage, plus difficulty of cure, the latter occupies first place. According to Newman, quoting D'Aulnay, it may produce 100 per cent. of fœtal deaths. Ballantyne gives as his average 46 per cent. of the pregnancies which end disastrously. Fournier says "infection before conception gives a mortality rate of 65 per cent. When infection takes place after conception the mortality is 39 per cent." According to the same authority "the three years following infection are more fatal to pregnancy than later years." The figures given by various authorities as to the mortality rate influenced by syphilis vary greatly. The German figures (Hochsinger) were 44 per cent. of stillborn children due to syphilis. Amand Routh says that in city populations 25 per cent. of stillbirths and abortions are due to syphilis; and further, this same authority says that if 20 per cent. are due to syphilis, about 27,000 deaths occur annually in the antenatal period and in the week following from that cause. Dr. Eardley Holland found the spirochæte in six out of the first seven stillborn fœtuses examined, and in 12 out of the next 18. Weber found spirochætes in 84 per cent. of macerated fœtuses born in the later months of pregnancy. The Wassermann reaction is not always reliable in pregnant women. Clinically syphilitic mothers give a positive reaction during pregnancy, but some pregnant women were negative even when gravid with a syphilitic fœtus.

Adequately to deal with these two scourges will call for all our power of organisation and scientific skill in treatment. It is gratifying to realise that this work is under way, even if it be not as yet under control.

The clinical conditions, eclampsia and hyperemesis gravidarum, have already been referred to. Closely allied to eclampsia is the condition of chronic parenchymatous nephritis. The old view that there was a clinical entity "nephritis of pregnancy" has not, as far as I can discover, been borne out by facts. The specific fevers form another group liable to upset the normal progress of pregnancy, and another condition of grave significance is diabetes. I have included it among the toxæmias because of the effect on mother and fœtus of the circulating oxybutyric acid and its immediate derivatives, diacetic acid and acetone. Finally, in this group I would mention the various conditions met with in adult female life in which the *Bacillus tuberculosis* plays a most important part.

The "Constitutional" Factor.

The fourth and last section dealing with the ætiological factors can only be briefly referred to. For the sake of convenience, and as a mental peg upon which to attach a few facts, I have called it the "Constitutional" group. The indefinite ætiology of the group of children comprised under the Mental Deficiency Act, 1913—idiots, imbeciles, feeble-minded—is important. It is with this group in mind that one is almost compelled to the belief that factors are at work either in father or mother, or both, which eventually produce the conditions we call microcephaly, cretin, or Mongol. Purves Stewart[4] says: "It is a mistake to marry a widow, however young and charming, who has a pseudo-hypertrophic child." If this is so, the ova of that woman must be blasted before fertilisation occurs, and the antenatal period is of no particular account as far as the qualities of the developing child are concerned. The ætiology of melæna neonatorum and of sclerema neonatorum is still undecided.

A Brief Summary of Congenital Defects.

In conclusion, let me review the various systems of the body, noting a few of the recognised congenital defects, the ætiology of which is not definitely decided.

Alimentary system.—Meckel's diverticulum, branchial cysts, congenital absence of the bile-ducts, thyroglossal duct, imperforate anus.

---

[2] "Infant Mortality."

[3] "Dangerous Trades."

[4] Nervous Diseases.

Was the oöspore endowed with these potential developments, Nature merely bungling her handiwork during the antenatal period, or was the perfect plan impossible even from the first?

The nervous system.—Porencephaly; congenital facial hemiatrophy; Little's disease; Warren-Sach-Tay's disease.

The vascular system.—Congenital heart disease. Dextrocardia. Absence of the anterior thoracic wall.

Are these antenatal or pre-antenatal in development?

The respiratory system.—Congenital atelectasis; cleft palate; hare-lip.

The genito-urinary system.—Congenital cystic kidneys; extroversion of bladder; undescended testicle.

The muscular system.—Congenital absence of the pectoral group of muscles.

We cannot definitely exclude these and other conditions from any survey of the causes of disease and death in the antenatal period, but must approach our work in the confidence that, with a fuller knowledge, we may be able to prevent their development in the future.

A CASE OF WERDNIG-HOFFMANN PARALYSIS.

By E. A. BARTON, L.R.C.P. Lond., M.R.C.S. Eng.,
MEDICAL OFFICER IN CHARGE OF INFANT DEPARTMENT, UNIVERSITY COLLEGE HOSPITAL;
AND
HELEN INGLEBY, M.B., B.S. Lond., M.R.C.P. Lond.,
CURATOR OF THE MUSEUM, ST. GEORGE'S HOSPITAL; ASSISTANT PHYSICIAN, VICTORIA HOSPITAL FOR CHILDREN.

CASES of Werdnig-Hoffmann type of progressive spinal muscular atrophy are so rare, less than a score of complete cases being hitherto reported, that we feel that the present case is worthy of record. The disease was described by Werdnig in 1891 and by Hoffmann two years later. The cause is so far unknown, nor is there recorded a case of recovery. Its familial character is extremely marked. The present case differs from those previously recorded in that nystagmus was a pronounced symptom and was probably due to the morbid condition of the oculo-motor nucleus; also there was profuse sweating almost from the first. The child was brought up to University College Hospital Infant Clinic, sent there from one of the infant welfare centres in the neighbourhood.

A. G., age 5 months, was admitted to University College Hospital on Dec. 3rd, 1918.

Family history.—Father, a railway porter, has had some weakness of chest, but not asthmatic. Mother an only child of her mother, the latter dying of cancer at age 31, the husband decamping soon after, leaving her an orphan, aged 3. Neither on father's side nor mother's can any similar disease be traced, nor is there any family history of syphilis or albinism. Of this pair there were born:—1st child, male, ten months after marriage, full term, not breast fed. When about three months old the infant "suffered with its chest" and lost the use of the right arm and leg. It had a swelling on the back of the left hand; no nystagmus. The child died, at 6 months, of broncho-pneumonia, paralysed on the right side only. 2nd child, female, born full term, alive and well, aged 9. The child had two "cysts" removed, one from forehead and one from the neck. 3rd child, female, alive and well. 4th child, female; at three months it lost the use of both arms. Paralysis increased and the child died of broncho-pneumonia at 14 months. There was no nystagmus. 5th child, male, born dead; mother had accidental hæmorrhage. 6th child, female, the patient, 5 months old.

Past history of patient.—Born full term, breast fed to a week prior to admission. The first sign of weakness noticed was pronation of forearms at three months. Then the child had "an influenzal attack," after which there was a sudden loss of power of both legs, associated with profuse sweating.

Condition on admission.—The child on admission was plump, of good colour, and well-nourished. There was profuse perspiration. The child's arms were everted and the forearms pronated, so that the backs of the hands were turned toward each other. The legs were flaccid, but moved slightly, the feet more so than the legs. There was no evidence of pain when the child was moved or taken up, though when the child was held erect the head fell limply forward. The muscles of the back seemed more involved than those of the belly, though the chest muscles were so far implicated that expansion was very imperfect, with some recession on inspiration, the breathing being mostl diaphragmatic. The knee-jerks were absent. Eyes: Pupil normal. Definite and pronounced nystagmus, much mor marked in the left eye which was involved before the right Nystagmus was increased markedly when the eyes wer turned to the left side.

Dr. Percy Flemming saw the case and notes "the fundu very fair—i.e., deficiency in choroidal pigment, partia albinism; no macular change, no cherry-red spot as i amaurotic idiocy." A week after admission the neck muscle were obviously more involved, and the child, even whe crying, lies quite still. The breathing had become almos completely diaphragmatic. The only muscles in which a electrical response could be obtained were the flexors of t limbs, and those showed a slight contraction to galvanism a faradism, but a large current was used. A throat swab w taken and found free of diphtheria; the spinal fluid w normal and sterile. The temperature was normal throughou and the child died a month after admission of bronch pneumonia due to involvement of chest muscles.

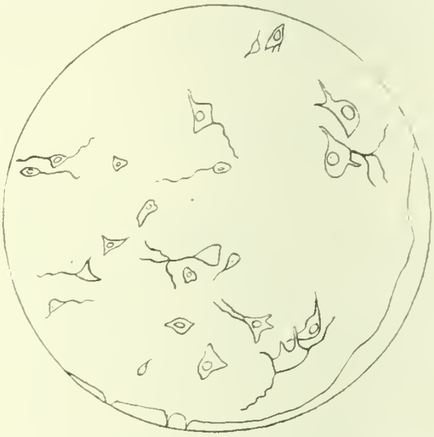


FIG. 1.—Anterior horn cells of cervical region from the normal cord o fœtus aged 7½ months. Obj. 1/6.

Notes of autopsy.—Body pale, neck and upper parts of tru and arms appear wasted owing to wasting of muscles, b the subcutaneous fat is abundant in this situation and elsewhe in the body. There is a general reduction in the size of ma of the muscles, especially pectorals, neck muscles, those thighs and arms, and of erector spinæ. The muscular tis is pale and flabby, and in none of those muscles examined there any indication of induration or infiltration with fat fibrous tissue; orbital muscles and those of abdomen app normal. No macroscopic changes in brain or cord. Rig heart distended, otherwise normal. Lungs emphysemato patches of broncho-pneumonia. No changes in other orga tonsils and pharynx normal.

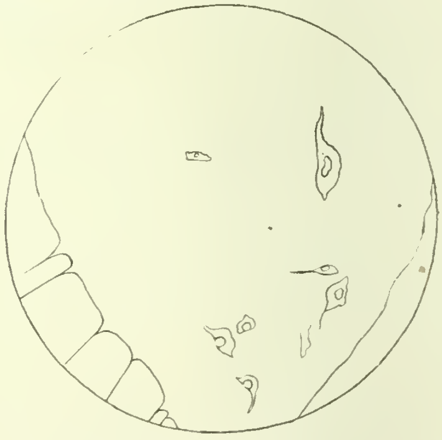


FIG. 2.—Anterior horn cells at about the level of C 2 from the cas Werdnig-Hoffmann paralysis. Obj. 1/6.

Pathological Report.

Pieces of spinal cord, medulla, pons, and mid-br were fixed in formalin for ten days and then transfer to Muller's solution for three weeks. It was unfortunate that all the material was treated in this way, for, though admirable for the study of nerve fibres, satisfactory preparations of nerve cells are difficult to obtain after fixation in Muller's fluid. The stains used were Nissl's toluidine blue, Giemsa, carmine, hæmatoxylin, and Van Gieson, but the best results were obtained with Unna's polychrome methylene-blue, differentiating with alcohol and clove oil. Bielchowsky's silver method (Da Fano's modification) was tried, but owing to the fixation the intracellular neurofibrils did not take the stain. Nerve fibres were studied by the Marchi and Weigert-Pal methods.

The outstanding lesion is a generalised atrophy of the motor nerve cells of the spinal cord, the heaviest incidence having fallen in the cervical and upper dorsal regions. The anterior horn cells are much reduced in numbers. Those that remain are for the most part in various stages of chromatolysis, although a few, not more than two or three in most sections, appear normal. Even these seem, as a rule, smaller than the cells of a healthy child of the same age. In the degenerated cells the nuclei are pyknotic, the protoplasm vacuolated, and the Nissl granules powdery, irregularly distributed, and sometimes absent altogether. Similar changes are present in the anterior horn cells of the lumbar region, but they are not so severe and a larger proportion of normal cells remain. No obvious changes are present in the posterior horn cells. In the dorsal region a few of the cells of Clark's column and the intermedio-lateral tract are degenerated, but the majority remain intact.

Higher up, in the brain-stem, the cell changes are not so marked. In the upper part of the medulla a few cells in the dorsal nucleus of the tenth and the nucleus of the eleventh nerve are degenerated, but the damage is only slight. The most interesting lesion is met with in the oculomotor nucleus at the level of the inferior corpora quadrigemina. The cells are not reduced in number, but about half of them show some degree of chromatolysis; in a few the Nissl granules have disappeared altogether. Higher up in the region of the anterior corpora quadrigemina the same nucleus shows practically no abnormality, only slight changes in one or two outlying cells being visible. In sections at this level the substantia nigra is seen to be very slightly affected and the cells of the red nucleus are normal. It is possible that the distribution of the lesion in the oculomotor nucleus explains the nystagmus which was observed clinically. The centre for lateral eye movements is partly degenerated, while that for up and down movement is intact.

Weigert-Pal preparations show degeneration of a small area of white matter near the outer surface of the cord between the anterior and lateral columns at the point of issue of the anterior roots, at all levels of the cord. The anterior roots outside the cord are extremely atrophied. The posterior roots are normal. By the Marchi method very little degeneration, only confined to the cervical region, could be observed, most of the lesions being of too long standing to be detected by this method. In the medulla and mid-brain the only abnormality noticed was a very slight degeneration of the fibres of the twelfth nerve. The pyramidal tract was not completely myelinated, but the defect was slight and not more than might be accounted for by the child's age. The blood-vessels are everywhere very much engorged, but this is not unusual in cases of death from broncho-pneumonia. There is no perivascular infiltration. Neuroglial proliferation is not marked, and there is very little evidence of neuronophagia.

Voluntary muscles: Pieces of the sartorius muscle examined show advanced degeneration. The fibres are mostly extremely small, but vary very much in size. Longitudinal splitting has taken place, with the result that many sarcolemma sheaths are filled with numbers of minute fibres; in others, however, only proliferated nuclei are seen. Where splitting has not taken place the fibres for the most part appear homogeneous in substance and stain irregularly. One or two giant fibres are visible, but they are not as large as those which are seen in myopathy. Extensive fibrosis is present between the muscle fibres. Cross striation can be made out here and there, but is the exception rather than the rule. No interstitial or intracellular fatty change is seen in frozen sections stained with Scharlach R. A few globules of fat are present round the vessels between the muscle bundles, but not more than occur normally.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A CASE OF SPLENIC ABSCESS WITH ENTERIC FEVER.

BY J. K. HAWORTH, M.D., B.S. DURH.,
CAPTAIN, R.A.M.C. (S.R.), SURGICAL SPECIALIST, 8TH LUCKNOW DIVISION.

THE occurrence of splenic abscess is rare, but in India it does occur occasionally as a complication of enteric fever or dysentery.

Patient was admitted to Lucknow Hospital with a temperature of 102° F., and with the history of having been ill with fever for 2 to 3 weeks, but just able to carry on with his work in an office. On admission he presented the clinical features of enteric fever. His tongue was dirty and furrowed, his pulse markedly dicrotic. He had a leucopenia. His temperature was 102° and persisted for some days. He had a sparse but definite rose-coloured rash on abdomen. He had constipation, no signs in chest, spleen enlarged and palpable. The blood slide was negative to malaria. His Widal was inconclusive, but he had been inoculated. There was no history of dysentery, and he was diagnosed as clinical enteric. Some six days after admission he complained of discomfort behind the last rib posteriorly and slight pain over spleen anteriorly, and except for a certain fullness nothing was palpable. The pain gradually increased, and 16 days after his admission a definite mass was palpable behind. This was tender and painful, though no local inflammation was present. The spleen now could not be felt, and there was a marked leucocytosis. X ray showed no pathological condition of spine or ribs. Diagnosis: Abscess of spleen. Operation.—Incision over maximum tenderness latero-posteriorly; after going through muscles pus was found and evacuated. It was thick and reddish, not unlike that from liver abscess. The abscess cavity was about size of a man's fist. Kidney seemed normal, spleen could not be felt, last rib felt normal. No caries of spine. The abscess cavity was shut off from abdominal cavity. A large tube was inserted.

Patient's temperature gradually improved, and he made an uneventful recovery.

Lucknow, India.

A CASE OF EXTREME ŒSOPHAGECTASIA[1]

(HURST'S ACHALASIA OF THE CARDIA).

BY H. BATTY SHAW, M.D., F.R.C.P. LOND.,
PHYSICIAN TO UNIVERSITY COLLEGE HOSPITAL, AND TO THE BROMPTON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST.

THE publication of the following case will no doubt help others to the diagnosis of this curious condition, because it sets forth the symptoms which may be elicited by suitable questions in "suspect" cases.

Mrs. G., a widow, aged 66 years, presented herself for treatment at the Brompton Hospital for Consumption and Diseases of the Chest, because she had become wasted and had a cough. She had been treated at various times for consumption, for bronchitis, and for dyspepsia and debility. The dyspepsia took the form of pain, occurring shortly after taking solid food. The act of vomiting (?) relieved the pain. For years she had lived on liquid food, which caused her no pain or vomiting. Her sputum, such as there was, was free from tubercle bacilli. She volunteered the strange statement that as a girl of 15 she could remember members of her family calling attention to the fact that she was the last to leave the table at meal-times, and her explanation is that she never could take her meals in the same period of time required by the rest of the family; she always had to eat slowly and wait till the food "passed on." So curious was this history that pointed questions were put to her, which led to the following facts being established:—

The taking of solid food was followed by these symptoms: (1) It caused pain at the epigastrium; (2) this pain was accompanied by what she called vomiting, but what was really regurgitation of food; (3) the act of taking the solid food soon provoked a cough; (4) it sometimes happened that she became breathless, and this was particularly so after attempting to take more solid food than usual; (5) liquid food caused none of these symptoms.

---

[1] Shown at the Clinical Section of the Royal Society of Medicine held on Nov. 14th, 1919.

The patient was radiographically examined by Dr. Stanley Melville, with the result that there was established an extremely marked œsophagectasia. So condensed was the wall of the dilated œsophagus that the picture was very well shown without the use of a bismuth meal. On the administration of the bismuth meal a sharply defined pencil-like portion of it was shown by Dr. Melville to reach from the point of contraction at the lower end of the œsophagus into the stomach. This phenomenon had already been shown by Dr. Melville in some of the cases published in THE LANCET of Dec. 2nd, 1916, and he further showed that the act of deep inspiration intensified the sharpness of this pencil-like appearance, or led to its development, if absent in quiet breathing, and that this periodic manifestation was dependent upon the compression of the large dilated œsophagus by the expanding lungs. The clinical recognition of the condition of œsophagectasia, largely due to Dr. F. Parkes Weber and Dr. Arthur F. Hurst, is now comparatively easy, and radiography has completed the ease of the diagnosis.

The case shows an extremely marked dilatation, and, further, that it is possible when the above five clinical manifestations can be defined to diagnose almost with certainty a condition which, in the absence of such symptoms, would be missed by a physician, and only discovered by a radiographer, who in the routine examination of cases in which bismuth meals were being investigated, paid attention not only to the behaviour of such meals as they passed through the stomach and intestines, but also through the œsophagus.

Harley-street, W.

A CASE OF

LABOUR IN A PRIMIPARA OBSTRUCTED BY A FIBRO-VASCULAR SEPTUM OR BAND.

BY HERBERT A. SMITH, M.D. DURH., M.R.C.S.

SOME seven cases of septa, mostly transverse and incomplete, have been recorded by English and American authorities. The late Dr. C. J. Cullingworth[1] published two cases of transverse septa which occasioned difficulty in labour. Dr. Stone, of Boston,[2] reported five cases of similar septa, in two of which the site was two inches from the outlet, and in the third the vagina was narrowed by a ridge of tissue two inches wide. Dr. J. F. Scott[3] reported two cases where the band resisted the advance of the head and became slit in delivery.

Last summer, while conducting the practice of a friend, I received an urgent call from a nurse who "needed assistance, as the after-affairs would not come along." On arrival I found a child already born (of a primipara, aged 22 years). Half an hour had elapsed, but the placenta remained in utero, obstructed by a fibro-vascular band of a crescentic shape, drawn across the os uteri. Starting by a round fibrous cord from the roof of the vagina—its fibres intimately incorporated with the floor of the urethra and attached to the symphysis pubis, the upper horn of the septum passed in a crescentic manner (with the concavity forwards) across the os uteri, as a distinct band, to the left vaginal fornix. At this point it measured 2½ in. in width. It then engaged the mesial line of the introitus posteriorly, and again becoming fibrous was attached by its lower horn to the centre of the perineal body. A series of varicose veins issued from its mesial attachment, embedded in a fibrous membrane covered on each side with a glossy mucosa. During the birth of the child a slit occurred in the centre of the mesenteric-like band, which was easily dislodged from its obtruding site. The post-partum treatment of the case needs no remark.

Remarks.

The anatomical disposition, no less than the crescentic form of the septum, renders this case worthy of record. The septum would appear to be either (*a*) an outgrowth of the two limbs or laminæ—in the process of development of the vagina—at the point of coalescence in the posteromesial line; or (*b*) an attempt at subdivision of the canal in forming a duplex vagina (as in a Didelphian type); or (*c*) a failure in obliteration of the Müllerian canal, which at a late embryonic stage is double, so leaving a septal outgrowth or division after sending down the process that went to form the hymen.[4]

West Ealing, W.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF SURGERY.

EXHIBITION OF SPECIMENS OF SECONDARY DEPOSITS IN BONE MISTAKEN FOR PRIMARY TUMOURS.

A MEETING of this section of the Royal Society of Medicine was held on Nov. 5th, Sir JOHN BLAND-SUTTON, the President, being in the chair, when a discussion took place on Secondary Deposits in Bone Mistaken for Primary Tumours. Illustrative specimens were exhibited.

The PRESIDENT, who opened the discussion, said that when secondary carcinoma grew in an organ not easily accessible to putrefactive micro-organisms the deposit might become big before attracting attention. This phenomenon had been particularly observed in connexion with the ovary. Large solid and semi-solid ovarian tumours had been removed under the impression that they were primary. The histology of such tumours had proved that the primary tumours arose in the breast, gall-bladder, or gastro-intestinal tract, and the subsequent history of such patients had confirmed the histological findings. This was equally true of bones. Portions of long bones had been removed and limbs had been amputated for tumours regarded as primary, but the tumour-tissue had contained epithelial elements. It was established that epithelial tumours did not arise primarily in bone. Forty years ago the attention of surgeons was drawn to the occurrence of tumours in bone, regarded as primary, but which contained epithelium, in shape and arrangement, resembling the lining of the vesicles of the thyroid gland. Many examples had been recorded in which such tumours had been discovered and removed, or recorded in the belief that they were primary; but after a minute examination of the structure of the tumour the surgeon had re-examined the patient and found an enlarged thyroid body. He related the case of a woman who had a tumour of the skull which was found, microscopically, to have the characters of thyroid gland substance. The patient's thyroid gland was enlarged. In recent years some remarkable bone tumours had been observed (and removed) in bones which, when examined, had been found to resemble the zona fasciculata of the adrenal. Subsequently a tumour of similar structure had been found in the kidney or in the adrenal. This matter was of clinical and pathological importance and well worthy the consideration of surgeons.

A Case Described.

The President described a case which was recorded in full at the opening meeting of the session in 1918. It was that of a doctor, aged 45, who had a swelling in the lower part of the right humerus. Clinically it furnished the usual signs of a myeloma and was excised under this impression. Two years later it recurred in the stump of the bone; this was excised with two inches of the humeral shaft. The patient remained well for five years and died suddenly in hospital. After death, a tumour was found in each adrenal and in the right kidney. The tumours in the humerus, in the adrenals, and in the kidney were so destroyed by extravasation of blood that the structure of the tumour could not be satisfactorily determined, but a solid secondary nodule in the heart, in shape and size like a nut, showed the characteristic structure of the zona fasciculata of the adrenal. On these facts the speaker had come to the conclusion that this was an example of the dissemination of an adrenal tumour, but Professor Shaw Dunn, who examined the specimens, believed that the primary tumour arose in the kidney and was a hypernephroma.

The chief lesson to be drawn from the narrative was this: A man had a tumour in the right kidney which had run such a chronic course that no one suspected its existence, although a secondary deposit in the right humerus had become large enough to be clinically obtrusive and mimic a myeloma. After removal of the secondary tumour the patient lived in comfort and usefulness for five years. It also illustrated what he had often tried to emphasise, that cancer per se was an extremely chronic disease until it became septic; then misery attended until life was extinguished by a terminal infection.

---

[1] Cullingworth: THE LANCET, 1889, i., 726.

[2] Anomalies and Curiosities of Medical Literature, Gould and Pyle, p. 397.

[3] Boston Med. and Surgical Journal, 1895.

[4] Minot's Human Embryology, 1899, p. 506.

Tumour of the Clavicle.

Mr. V. WARREN LOW showed the skiagram of a Tumour of the Clavicle.

The patient, a man of 55 years, was admitted to hospital for a lump on the right clavicle. About eight weeks before admission he "ricked" his shoulder while practising physical exercises. In order to ease the slight pain which followed he rubbed his shoulder with some liniment, and while doing this, about a fortnight after the accident, he first noticed the lump. The latter was not painful and caused him little inconvenience. On admission to hospital there was a hard, somewhat lobulated swelling on the right clavicle at the junction of the outer and middle thirds. The swelling was not attached to the skin and appeared to embrace the shaft of the bone. An X ray photograph showed that there had been a fracture, and that the broken ends of the bone, which slightly overlapped, were enveloped within a mass of growth. Although a Wassermann reaction was negative antisyphilitic treatment was adopted for a short time with what appeared at first to be some benefit. It was soon apparent that there was no real diminution of the swelling and it was decided to explore. The tumour was exposed and found to be a definitely bony swelling of the clavicle. There was no evidence of anything like growth on the surface. The compact tissue, which was certainly not thinned, was gouged through and a cavity was exposed containing some soft yellowish material not unlike what one would expect to find in a gumma. This was contained in a smooth-walled cavity in the bone from which the bleeding was profuse, and could only be stopped by filling the entire cavity with wax. Some of this soft material was examined by Dr. B. H. Spilsbury, who pronounced it to be carcinoma. There was no definite evidence of any primary growth and the clavicle was removed, recovery being uneventful. There was no evidence of carcinoma in his prostate, intestine, or mammæ, nor was there any swelling of the thyroid, and it was supposed that this was a case of bone tumour secondary to an adrenal growth. There was no direct evidence of this as the kidney regions appeared normal. It was ascertained that the man had afterwards died, but no particulars could be discovered. Dr. Spilsbury, in his report, said that the sections showed a malignant growth having the characters of a carcinoma and resembling a hypernephroma.

Errors in Diagnosis.

Mr. CYRIL NITCH reported two cases, which he described as examples of errors in diagnosis, resulting from absence of any symptoms which would have led to recognition of the primary growth.

The first occurred in a man, aged 52, with a swelling below the right elbow of two years' duration. This was causing great pain and had increased rapidly in size during the last three months. Immediately below the olecranon process there was a soft, fluctuating, fusiform swelling, 3 inches long and 2 inches wide, involving the upper third of the ulna, and invading the elbow-joint. A skiagram showed destruction of the coronoid process and practically the whole of the upper third of the ulna, only a thin shell of bone being left over the back of the tumour. Owing to the long history and the severe pain the lesion was thought to be due to tubercle. On cutting into the swelling it was found to be a soft, highly vascular, plum-coloured growth, studded with sulphur-coloured nodules. Above it was encapsuled, but below it was infiltrating the muscles. It was widely excised. Dr. L. S. Dudgeon made a microscopical examination and described it as typical of carcinoma of the adrenal cortex. The abdomen was then examined and a nodular tumour was found in the right loin. Shortly after the operation a soft pulsating nodule was discovered on the ninth rib. The growth in the arm recurred, and was now as large as at the time of operation six months ago. Until three weeks ago, when the patient had had a severe attack of hæmaturia, there had been no symptoms suggestive of the existence of the primary growth.

The second case was that of a female with a large globular swelling of the upper end of the right humerus and another in the body of the left scapula. These were thought to be sarcoma, and their real nature was not recognised until after a microscopical examination had been made of a portion of tumour removed for the purpose. It was then discovered that the growths were secondary to an adrenal carcinoma, which up to that time had given no signs of its existence.

Upper Extremity of Right Humerus Replaced by Growth.

Mr. E. K. MARTIN showed a specimen of the upper extremity of the right humerus completely replaced by growth, with fracture of the surgical neck.

The patient was a woman aged 52. For 12 months she had had numbness in the right arm, for nine months the limb had been painful, for five months there had been loss of power, and for two months swelling of the shoulder. On admission to hospital there was swelling about the anterior and outer aspects of the shoulder as low as the deltoid insertion. The skin was slightly reddened and the superficial veins were dilated. Sarcoma was diagnosed, and the limb amputated through the shoulder. Microscopical examination showed the presence of secondary carcinoma. Search for the primary growth revealed an extensive carcinoma of the cervix. The patient died six months later.

Mr. MARTIN also showed a specimen of the upper part of the left femur of a man aged 65, with a lobulated tumour projecting from the lower aspect of the neck and adjacent part of the shaft, the bone being expanded posteriorly.

The man had had pain in the left hip and thigh for six months and swelling for two months. The condition was thought to be sarcoma, and amputation at the hip was performed. There was a central deposit in the trochanter, neck, and head. Microscopically there was a delicate connective tissue stroma enclosing large alveoli, most of which were filled with spheroidal cells. In some alveoli the cells tended to assume a cubicle shape. There was no evidence of the position of the primary growth. Death occurred shortly after operation, and there was no post-mortem examination.

Carcinoma of the Ileum.

Mr. CLAYTON GREEN recorded a case of Carcinoma of the Ilium.

The patient was a woman aged about 56. Her first complaint was that of pain, thought to be rheumatic, along the course of the external cutaneous nerve of the thigh. Later a swelling of the ilium developed. She had always been constipated, but there was no definite evidence of intestinal trouble. The tumour was explored. It was very necrotic, and there had been extensive hæmorrhage in it. A section of a portion removed showed it to be a columnar-celled carcinoma. Radium was inserted into the tumour at the end of April, 1919. The wound had now healed and the tumour had not increased in size. There were still no intestinal symptoms.

The subject was discussed and illustrative cases were described by Sir CHARLES BALLANCE, Sir HUMPHRY ROLLESTON, Mr. G. D. NICHOLSON, Mr. CECIL ROWNTREE, and Mr. DOUGLAS DREW.

SECTION OF OPHTHALMOLOGY.

EXHIBITION OF CASES.

THIS section of the Royal Society of Medicine held its first meeting of the session on Nov. 5th under the presidency of Mr. W. T. HOLMES SPICER.

Acute Disseminated Choroido-retinitis.

Dr. RAYNER D. BATTEN showed a case of Acute Disseminated Choroido-retinitis of doubtful origin. The changes all took place practically while the patient was under observation. He was first seen by the exhibitor at the end of March last. Three weeks previously to returning home demobilised he had lost central vision in the right eye. A nearly flat subretinal patch was found to the temporal side of the optic disc below the superior branch of the retinal vessel. It was about one-third the size of the disc and was triangular in shape. A small retinal vessel passed over it and it was surrounded by an area of œdema. The remainder of the right fundus and the whole of the left fundus were normal. The eye was examined about once a week. Towards the end of May the whole of the right fundus was thickly strewn with patches of choroiditis, and these could still be seen in much the same condition. The central patch had now subsided and the vision had improved. As the appearance was strongly suggestive of syphilitic choroiditis, a Wassermann test was twice done, but was negative; there was no evidence of that disease about the man, and he strongly denied the possibility of such infection. In December, 1916, when on military service, he had a wound on the foot which was very tardy in healing. The area of the wound was still tender to pressure. A surgeon had declined to open up the foot again on account of the stubborn healing on the former occasion. In August last the vision was: Right, 6/18; left, 6/6. When seen on Oct. 2nd there was a history of sudden failure of vision in the left eye three weeks previously, with a central black spot. Later a similar condition was found in the right eye, the vision in that eye being 6/9, the vision in the left having been reduced to 6/36. He asked opinions as to the likelihood of further attacks, and as to the probable causal agent.

The PRESIDENT thought the involved area was raised above the general level of the fundus, and his view was that the cause was sepsis, from the original focus in the foot.

Optical Nerve Tumour.

Major J. F. **Carruthers**, R.A.M.C., showed an unusual case of Optic Nerve Tumour. The patient, 21 years of age, was not aware of anything wrong with his vision until he was 14. His attention was drawn to his sight, however, by increasing dimness of vision. As his other eye was good, however—it was still 6/6—he paid no attention to the matter. He later had dragging pain at the back of the eye, and last June he attended the Herbert Hospital for treatment. A consultation was held, and operative measures were discouraged. The man returned to work, but came again in July, and then the eye was found to be quite blind, and the pupil did not react to either light or accommodation, only consensually with the other. The pain he (the speaker) did not attach much importance to, as it did not seem to deter from sleep or enjoyment. There had been no injection of the conjunctiva and the media were clear. In July there was a pearly-white organised mass covering the whole anterior surface of the optic nerve; no hæmorrhages nor even vessels were apparent in or on it. There appeared to be a retino-choroidal rupture, and the structures inside a pigmented ring were evidently being drawn towards the under surface of the tumour. There was very little sign of progress since July.

Mr. **Hugh Thompson**, who saw the case in June, thought it was probably a birth injury to the nerve—a view in which several colleagues agreed. With the exception of a little more pigmentary disturbance he saw no evidence of advance.

Mr. M. S. **Mayou** suggested the possibility of the tumour being tubercular, and asked whether the man had been investigated from that point of view.

Mr. **Leslie Paton** referred to a similar case, though of less degree, which he showed before the Ophthalmological Society ten years ago. In that patient there was no sign of rupture of the choroid. The discussion on it showed that most members considered it a congenital malformation in the connective tissue of the disc. The question whether or not this growth was progressing was an important one in considering whether the eye should be removed.

Colonel J. H. **Parsons** said Mr. Paton's case was one in which there was a little mass at the edge of the disc. There was no absolute proof that the lesion was a growth. The eye was excised. The section gave an appearance exactly similar to Coats's disease, exudative retinitis; it was in a very early stage. He thought it very likely that the present case was one of birth injury at the head of the nerve, with subsequent cicatrisation.

Mr. **Treacher Collins** suggested that there had been some hæmorrhage into the vitreous, and that the white mass in front of the vitreous was organised fibrous tissue.

Major **Carruthers** replied that no tubercular or other disease was found at the medical examination, and the urine was normal.

Mr. H. R. **Jeremy** and Mr. W. H. **McMullen** showed cases of Supposed Avulsion of the Optic Nerve Head.—Mr. **Malcolm Hepburn** did not agree with the description.

Bilateral Changes in the Macula.

Colonel **Parsons** exhibited a case showing Bilateral Changes in the Macula. When the young man's mixed astigmatism was corrected his vision was practically normal. He entered the army unaware of any optical defect, and remained three years, until he was examined again before leaving for Egypt with a draft. Then Mr. Secker Walker, of Leeds, finding the macular changes, quite rightly secured his release. The changes were of long standing, and he thought it likely they were caused by colloid bodies in the choroid. These bodies were usually found in elderly people, but they were seen in young subjects of retinitis pigmentosa.

Mr. **Treacher Collins** thought the condition was probably retinitis circinata—i.e., hæmorrhages into the retina itself, organising into white masses. The white patches round the disc seemed to be too extensive for ordinary colloid degeneration.

The **President** took the same view of the case as that expressed by Colonel Parsons. In retinitis circinata there was, he believed, always some loss of vision, and generally the macula was very grey in appearance, what had been well described as a "Passover-bread appearance"—white masses with black holes in them.

Result of a Plastic Operation.

Mr. R. R. **Cruise** showed a patient six months after a plastic and grafting operation on a damaged socket for the purpose of wearing an artificial eye. It showed either that the conjunctiva had encroached at the expense of the skin, or the graft itself had been so altered by the constant orbital moisture as to approximate to conjunctiva. He re-emphasised the points he made when showing the case before the Ophthalmological Society six months ago.

The **President** expressed the congratulations of the Section to Mr. Cruise on his skill.

Mr. **Simpson** showed a case of probable Partial Avulsion of the Optic Nerve.

Dr. **Rayner Batten's** paper on the Need of Ophthalmic Physicians for the Advancement of Ophthalmology was then read. The discussion on it was postponed.

SECTION OF NEUROLOGY.

Some Lessons of the War Applied to Spinal Surgery.

A meeting of this section of the Royal Society of Medicine was held on Nov. 13th, Dr. W. **Aldren Turner**, the President, being in the chair.

Mr. **Percy Sargent** read a paper on Some Lessons of the War applied to Spinal Surgery. In some respects, he said, gunshot injuries of the spine differed from those usually met with in civil practice. The primary outstanding difference was that of wound infection. The gunshot wound was invariably compound, whilst the fracture-dislocation was not. The majority of wounds in which the cord was directly or indirectly implicated did not lend themselves to early radical excision. Whether or not a patient with a gunshot injury of the spine died of meningitis depended almost wholly upon whether or not the dura mater had been torn, and under no circumstances was it justifiable to open the intact theca, in the presence of a septic wound, in order to ascertain the state of its contents. It became evident in the earliest days that the escape of cerebro-spinal fluid almost certainly meant death from meningitis unless the leak could be stopped, and this, in an otherwise favourable case, he always regarded as one of the few definite indications for early operation. In many cases the theca had been punctured by a fragment of bone which, remaining in situ, plugged the hole which it had made, and prevented both the escape of cerebro-spinal fluid and the ingress of micro-organisms. An operation which uncorked the theca in the presence of a septic wound enormously decreased the chances of recovery. Mild infections of the spinal membranes from which the patient recovered might produce intrathecal adhesions, such as gave rise later to that loculation of cerebro-spinal fluid which so closely resembled the meningitis circumscripta serosa described by Horsley.

The second outstanding difference concerned the manner in which the cord was damaged. Most of the injuries of civil life were produced either by the massive displacement of one part of the vertebral column upon another, or by a crushing fracture of the vertebral bodies, whereby part of the comminuted bone was squeezed backwards so as to contuse and compress the cord. Momentary displacements of the two vertebræ upon one another, with immediate rebound, might also injure the cord. In any case the damage was most commonly produced by direct violence, and the result might vary from a slight contusion up to a complete shearing across of the cord. The cases of gunshot injury comparable with these were those in which a spent bullet or shrapnel ball, impinging upon some part of the spine, entered the vertebral canal, driving fragments of bone before it. But when a missile of high velocity struck some part of a vertebra without entering, or directly violating the contents of, the vertebral canal, effects were commonly produced which were less often seen in the spinal injuries of civil life. The resulting changes in the cord were usually described as concussion phenomena, and the lesions varied from transient œdema up to total disintegration of the cord at the point of maximum intensity. Momentary or very short-lived loss of function had been observed many times, not only from actual hits, but also as the result of the bursting of a high-explosive shell close to the patient.

Morbid Anatomy.

After referring to the description of morbid anatomy and histology of the damaged spinal cord which was given by Dr. Gordon Holmes in his Goulstonian lectures (1915), Mr. Sargent said that in the light of these observations the pre-war conception of hæmatomyelia needed revision. Minute hæmorrhages were present in every cord which had been at all severely damaged and were relatively unimportant, but in fracture-dislocation hæmorrhages of any size were very rare. Similarly, whilst a slight extra-medullary and extra-thecal hæmorrhage was commonly met with in recent examples of gunshot wounds, a hæmorrhage of sufficient extent to cause symptoms of compression was rarely encountered. On the other hand, a small amount of effused blood within the theca might perhaps give rise later to adhesions and loculation of the cerebro-spinal fluid. Although the functions of the damaged cord could only be re-established to the extent to which the nervous elements had not been actually destroyed, the cord was so "over-wired," as Dr. Henry Head expressed it, that quite a gross amount of destruction was not incompatible with a useful degree of recovery. All that surgery could do was to place the injured cord in the conditions most favourable for recovery by removing, as thoroughly as was practicable, any actual or potential cause of compression.

1. *Conditions found at an early date in gunshot injuries.*—Cases selected for laminectomy within a few days of the wounding were those which were considered suitable as judged by the following criteria: (1) absence of serious concomitant injury, such as hæmothorax; (2) leakage of cerebro-spinal fluid from the wound; (3) radiographic evidence of the presence of a missile or fragments of bone within the spinal canal; (4) some evidence, however slight, that the conductivity of the cord was not wholly abolished. To this list might perhaps be added pain, though the necessity for surgical intervention on the ground of pain alone was much rarer than the text-books would lead one to suppose. The first 24 cases subjected to early operation two to ten days after being wounded could be grouped according to the gross anatomical features which they represented into (1) (9 cases) those with a missile and bony fragments within and narrowing the spinal canal, but without laceration of the dura; (2) (6 cases) those similar to the foregoing but with leakage of cerebro-spinal fluid; (3) (5 cases) those with a missile within the theca mostly with gross destruction of cord and all with leakage of fluid; (4) (4 cases) those in which no evidence of injury could be seen within the spinal canal. In such cases the injury to the cord, whatever its degree, represented a pure concussion effect. Of these 24, 16 were followed for periods of from 12 months to four years. Only 8 showed any considerable degree of recovery; 2 were in statu quo and 6 were dead. Of the 8 definitely improved, neurologically speaking, only 4 could walk, but in all of them partial or complete voluntary vesical control had been regained. All but one had a piece of metal and bony fragments removed from the spinal canal, whilst in four cases cerebro-spinal fluid was leaking from the wound.

(2) *Conditions found at a later date in gunshot injuries* included; dense scar-tissue, often with bony fragments embedded in it, adherent to the cord or to the nerves of the cauda equina, the scar, perhaps, forming a veritable annular stricture; definite cystic loculation of cerebro-spinal fluid; a pale and shrunken cord or intramedullary cyst; partial or complete division of the spinal cord, and fragments of bone, and even metal embedded in it.

(3) *Conditions found at early operation in fracture-dislocation.*—Within 24 hours of the accident the unruptured theca was tightly stretched over an anterior bony prominence and devoid of pulsation below that point. In all cases the salience of the bony projection was reduced by traction upon the spine and manipulation, whilst the theca and its contents were carefully protected from further injury. After a short time such reduction was no longer possible and the salient ridge would have to be chiselled away, or two or three laminal arches both above and below the site of the dislocation might be removed, as this tended to straighten out the theca.

(4) *Conditions found at late operations in fracture-dislocation.*—In addition to the above, the lumen of the spinal canal might be still further encroached upon by callus; scarring of the membranes might constrict the cord or cauda equina, and meningitis circumscripta serosa was commonly present. In one case, four months after the accident, a pale, soft, swollen cord was found pressed against the dura mater by a definite cystic collection of cerebro-spinal fluid situated in front of it.

The conclusion to be drawn was that some of the extra-medullary causes which militated against recovery could be eliminated, or at least minimised, by early operation, and that at a later date conditions might exist which retarded recovery, but which were capable of being removed by operation. Early exploratory operation should, perhaps, be more often undertaken in cases where there was no septic wound to contra-indicate it. The experiences of the war had shown that there was no sign or group of signs by which a complete lesion could be diagnosed with precision in its earliest stages. The early appearance of a defence reflex from the soles and the presence of an extensor reflex in the great toe might be taken as favourable indications. He advocated exploratory laminectomy so as to secure a full and complete exposure of the spinal contents for some distance above and below as well as at the site of injury. In the hands of those familiar with the operation he considered the risks to be small and the dangers to have been exaggerated.

Cystitis.

No amount of care would either wholly prevent or cure cystitis in the absence of return of vesical function. If neither voluntary nor reflex function could be restored the patient would sooner or later inevitably succumb to pyelonephritis. Until vesical function returned every precaution must be taken against infection, and over-distension of the bladder ought to be avoided. Over-distension probably played a part in allowing kidney infection, and recovery of function was delayed in the atonic bladder which resulted from over-distension. Head and Riddoch emphasised the fact that toxæmia inhibited the reflex activity of the spinal cord. Absorption through the wall of any pus-containing cavity was accelerated when the contents were under pressure, and in this way also over-distension of the bladder would retard recovery. Once the activity of the vesical reflex arc had begun (according to Head and Riddoch, about the third week after the spinal injury) the automatic action of the bladder could be established by methods which these authors had described in detail. The amount of fluid constituting the adequate stimulus for detrusor action is determined for each individual case; twice a day this quantity is poured into the bladder until the reflex is evoked. The evacuation can be facilitated by such means as deep breathing, hypogastric pressure, and by any cutaneous or other stimulus capable of evoking a flexor spasm of the legs. The re-education of the bladder was, he said, one of the most important of all the lessons learnt from the study of gunshot wounds of the spine, and should prove of inestimable value in the treatment of those cases of spinal injury which were met with in civil practice, as well as in the management of many cases of paraplegia resulting from diseases of the cord.

Bedsores.

The work of Head and Riddoch had emphasised the importance of bedsores and pointed out their real significance. If the bedsore killed it did so most frequently by way of the kidneys, for it formed a link in a fatal sequence of events—namely, bedsore, toxæmia, depression of spinal activity, cystitis, and pyelonephritis. Besides, healing depended largely upon the recovery of the reflex functions of the cord, which were inhibited by the action of circulating toxin absorbed from the bedsore. It was during the period of spinal shock that the skin was most vulnerable, and it was therefore in the earliest stages that the greatest precautions should be taken.

Paralysed Limbs.

The spinal injuries of the war had provided ample material for determining the signs whereby complete and incomplete lesions of the cord might be distinguished from one another. (See Riddoch's paper in *Brain*, vol. xl.) From the purely practical point of view it was important to be able to ascertain not merely whether any minimal conduction persisted through the damaged segments, but whether enough useful cord remained undestroyed to allow of a useful degree of recovery in the limbs. Many paretic patients who could produce quite good voluntary contractions of the muscles were totally unable to put the legs to their primary and fundamental use as organs of locomotion.

When any considerable degree of recovery had taken place in an injured cord the usefulness of the legs might be impaired, not only to the extent to which sensory and motor paths had been permanently cut, but by other causes as well The accessory causes, which in varying degree contributed to the disability, and which were largely remediable, were :—

1. Inability to make proper and coördinated use of the recovered neuro-muscular mechanism, a power which could be restored by properly directed methods of re-education.

2. *Hysteria.*—The fact of getting a paraplegic patient out of bed and into a chair might have a strong psychical effect; the gradual systematic re-education of movements which had long been lost interested and encouraged him, and every improvement brought about by these and other means was a powerful stimulus to further effort. The swimming bath had been of incalculable value. Patients who on dry land could perhaps just stand with support, but who could make no movement of progression, were sometimes able to walk almost unaided in the bath at their very first attempt.

3. *Deformities.*—A third cause of disablement in a recovering case was furnished by deformities due to neglect. Deformities should never be allowed to develop, but when established their correction by orthopædic measures constituted an essential preliminary step in treatment.

4. *Spasticity.*—Spasticity should be regarded from two aspects; firstly, as it affected those with total transverse lesions, or with lesions so severe as to preclude any possibility of recovery of function in the lower limbs; and, secondly, in those who possessed, or were on the way to regain, what would otherwise be a useful degree of voluntary power. Spasticity not only concealed and rendered useless any voluntary power that might exist, but the spasms were often so disturbing to the patient as to tell seriously on his health. Further, the constant friction against the bedclothes damaged the skin and caused bedsores, particularly in those cases where the cord lesion was so situated that outbursts of sweating accompanied the flexor spasms, whilst splinting for the prevention of deformities was rendered excessively difficult. If we regarded the spasticity as the manifestation of excessive and uncontrolled reflex action, we might either attack the afferent or the efferent side of the reflex arc; or else we might deal with the mechanical rather than with the neural aspect. To take the mechanical aspect first, by dividing the attachments of muscles, their effective action might be, temporarily at least, abolished or modified; by transplanting the spastic hamstrings into the quadriceps tendon their energy could be utilised for correcting the very deformity which they would otherwise produce. We might also diminish the afferent impulses which evoked reflex action by avoiding rough handling and every other sudden and strong impulse, especially massage and electricity; or we might divide some of the posterior nerve roots passing to the affected segments by the operation suggested by Professor Foerster for the spastic diplegia of cerebral origin. Mr. Sargent said that he exposed the conus medullaris and upper part of the cauda equina by removing the neural arches of the last two thoracic and first two lumbar vertebræ, and then divided alternate bundles of the lumbar and sacral posterior roots to the extent of about two-thirds of their total bulk, the actual number divided depending upon the degree of spasticity which it was desired to overcome. In cases of complete division of the cord, or with such a severe lesion as to render any useful degree of recovery impossible, he divided the anterior roots as well. Possibly in such cases, in order to preserve the power of facilitating automatic action of the bladder, it would be better to divide anterior roots alone. A useful minor operation for the temporary relief of spasticity, when it chiefly affected the adductor muscles, was to expose and crush the obturator nerves. In the hopeless cases these nerves should be divided so as to produce permanent paralysis.

Discussion.

Mr. A. J. WALTON said that there was a marked amount of destruction even when the bullet had never entered the dura, and this was due to the momentum of the body causing the injury, and not by pressure on the cord. There was no immediate urgency in removing pieces of bone or bullet lying in contact with the cord as the damage was done at the time of injury.

Dr. HENRY HEAD said that there were certain criteria by which it was possible to tell that the cord was not divided. If in three months the patient had definite extensor spasms, if jamming up the sole of the foot caused an extensor response, then the cord was not divided. The first stage which the patient went through was the stage of shock; there were no reflexes, there was no bladder action, and no motor or sensory activity. During the second stage there was return of reflexes and automatic action of the bladder. If in the third stage there was a return of extensor spasms and response to stimuli the cord might be said not to be divided. He pleaded for hope in these cases. In the large majority if the patients remained in a condition of helplessness for more than two months, exploration should be carried out. Signs of extensor spasm and a response to stimuli should be looked for specially and repeatedly. Many patients whom he had seen were regarded as hopelessly paralysed, although they had had extensor spasms and should be got up. If the cord was divided the bladder should be got into condition and the bedsores cured; the patient might then live a very comfortable chair life.

The CHAIRMAN, Sir J. CHARTERS SYMONDS, Mr. DONALD ARMOUR, Dr. G. RIDDOCH, Dr. J. COLLIER, Dr. E. FARQUHAR BUZZARD, and Mr. BLUNDELL BANKART also took part in the discussion, and Mr. SARGENT briefly replied.

SECTION OF PSYCHIATRY.

THE PATHOLOGY OF DEMENTIA PRÆCOX.

A MEETING of this section of the Royal Society of Medicine was held on Nov. 11th. Dr. WILLIAM MCDOUGALL, the President, referred to the loss which the section had sustained through the death of Dr. Mercier. A resolution of condolence with the relatives was passed.

Sir FREDERICK MOTT then read a paper on the Pathology of Dementia Præcox or, as he himself preferred to entitle it, some studies in this branch of pathology. He referred to the work of Kraepelin, and noted that in the recent translation of the latter's book no certainty was claimed in our knowledge of the pathology of this disease.

Atrophy of the Testis in Dementia Præcox.

An interesting observation in connexion with the pathology of dementia præcox was the frequency with which retrogressive atrophic changes occurred in the testes. In his experience these changes were found in more than half the cases. In cases of general paralysis, on the other hand, he had not found a case in which spermatogenesis had ceased before the time of death. Slides were projected on the screen showing the degenerative changes in dementia præcox cases—the absence of spermatogenesis and the thickened basement membranes. These pictures were contrasted with slides from preparations taken from the testes of octogenarians, the latter showing a markedly less degree of atrophy.

Degenerative Changes in the Brain.

The brain of the dementia præcox case might well pass for a normal organ on examination by the naked eye. Certain important changes were, however, found by staining sections. These changes, occurring in the nuclei of the neurone, were stated by Kraepelin to occur in the frontal region, but Sir Frederick Mott had found that the basal ganglia and pons were also affected.

The passage of the nerve impulse was dealt with in detail, the speaker describing the passage through the axon as a physical process analogous to the passage of an electric current along a copper wire. This was shown by the fact that fatigue did not occur in the axon but at the synapse, nor was carbon dioxide found even after the nerve had been tetanised, except in such small quantities that the cells of the nerve sheath rather than the axon itself were to be held responsible for its production. The stimulus at the nucleus was chemical, atomic oxygen being released by the action of a catalase upon an oxidase. It was this latter action which in dementia præcox was suppressed. Sections of grey matter from cases of dementia præcox compared with similar sections from a case of tetanus showed far less absorption of the basic dye, proving a diminution in the essential basichromatin substance which was also lacking in the atrophic testes of these patients. At the same time the nucleoli took on a red or purple stain, showing an excess of oxychromatin matter.

Discussion.

In reply to the PRESIDENT, Sir FREDERICK MOTT stated that similar retrogressive changes were found in the ovaries to those described in the testes. He was satisfied that the changes he had found were sufficient to account for the symptoms of dementia præcox, that they were primary causes of the disease and not secondary to any psychical factor.

Sir ROBERT ARMSTRONG-JONES championed the idealist theory against the materialist. He had not found treatment with adrenalin, spermine, or thyroid extract effective, whereas galvanic stimulation of the cortex had given more encouraging results.—Dr. H. J. NORMAN supported the "material" view.—After some interchange of definition for the word "psychogenesis" the discussion came to an end.

MEDICAL SOCIETY OF LONDON.

EXHIBITION OF CLINICAL CASES.

A MEETING of this society was held on Nov. 10th, Mr. V. WARREN LOW, the President, being in the chair, when an exhibition of clinical cases took place, amongst them being included the following:—

Mr. V. Z. COPE showed a man who had had a Baghdad Boil (Leishmaniasis) of the Lip. After many forms of treatment had been tried, healing had followed rapidly after intravenous injection of antimony, and very slight scarring had been left.

Cases for Diagnosis.

Dr. F. J. POYNTON showed two cases for diagnosis.

The first was that of a man, aged 34, who had been admitted to hospital in October, 1919, with symptoms of 14 months' duration. During this time he had complained of loss of feeling in the left side of the body, particularly the arm, numbness of the fingers spreading up the left arm, and hiccough after meals. The last symptom had gradually got worse until the attacks lasted continuously for from five to six days, both when he was asleep and awake. During these attacks he could not eat any solid food, and micturition was very frequent, sometimes three times during the hour. The patient made no movements of his left arm, which he kept flexed. There was a suspicion of spasticity about his left leg. The muscles corresponding to the fourth, fifth, and sixth cervical segments were wasted, and in some there was fibrillation. All the forearm muscles were slightly wasted, but more so on the left side. There was some wasting of the interossei. The diaphragm moved fairly well. There was no muscle tenderness. Biceps and supinator jerks were absent on both sides; the knee-jerks were present, the left being slightly increased. Abdominal reflexes were absent. The plantar response on the left side was usually extensor when first examined; that on the right, flexor. The maximum area of loss of sensation corresponded to the fifth to eighth cervical segments and the first and second dorsal. Over the hand and radial side of the forearm there was complete loss of sensation to touch, pain, and temperature. The Wassermann reaction was negative, and lumbar puncture gave a clear fluid. There was no reaction of degeneration.

Dr. Poynton raised the question of the importance of fibrillary tremor as a diagnostic sign of progressive muscular atrophy and asked whether the presence of sensory changes should exclude that condition as there seemed to be some difference of opinion among neurologists. Dr. F. S. LANGMEAD held that fibrillary tremor was of little value as a means of distinguishing progressive muscular atrophy from other systemic diseases associated with wasting of muscles.—Dr. A. FEILING was of the same opinion and thought that the sensory changes were very strong evidence against a diagnosis of progressive muscular atrophy.

The second case was that of a girl, aged 10 years, with paralysis of the right arm and leg, weakness of the left arm and leg, and some alteration in speech. The onset was abrupt and occurred at the end of July this year. She complained of pain in her right arm and the pain persisted for two days. On the third day the mother noticed that the arm hung limp and powerless. The child was in good general health but rather fretful. About a week later it was noticed that she was limping and began to lose the power of her right leg. Soon afterwards the speech became slow and deliberate and then was lost altogether. At about the same time she began to lose the power of her left arm and leg, and the mother noticed that her mouth was pulled to the right side. She was now confined to bed, and her right arm became rigid and contracted and remained so. For the first four weeks in bed the child was unable to move her limbs except for slight movements at the knee-joints, and there was also incontinence of urine. She had regained partial use of her arm and leg before admission to hospital, and speech had commenced to return. The bladder control had also been regained. There was no history of unconsciousness, feverishness, headache, or vomiting. There was no reaction of degeneration and no impairment of sensation. Knee-jerks and tendo Achillis jerks were active and arm reflexes were exaggerated on both sides. The right arm was rigid and resisted passive movements. Attempts to move the arm caused the hand to go into a coarse tremor. The movement in the right leg was one of extension. Like the right arm, it was rigid and resistant. In the left leg all muscular movements could be carried out but were weak and slow. The affection of the left arm was particular. All movements were retained except hyperextension of wrist joints, but they were wildly incoördinated. There was no athetosis.

The condition had improved during treatment in hospital. The diagnosis suggested was polio-encephalitis affecting the mid-brain. There was, however, a marked functional element present.

Pituitary Tumour: Dyspituitarism.—Huntington's Chorea (?).

Dr. FEILING showed a case of Pituitary Tumour: Dyspituitarism.

The patient, aged 40, a railway signalman, noticed in March, 1919, that he "could not see things immediately to the side of the object he was looking at," but could see objects to the extreme right and left. There was no headache or vomiting. Some polyuria was present, and he had been subject to "bilious attacks," which had occurred about once a month for the last five years. He had been gaining weight for the last ten years; his hair had been falling out for two years. There had been loss of sexual desire for ten years. Examination showed marked obesity, the patient exhibiting somewhat female contours. His weight was 13 st. 7 lb. (at age of 25 he weighed 10 st. 4 lb.). The hair was falling from the scalp; the pubic and axillary hair were normally developed. The skin was dry and harsh; the mammary glands were well developed. The blood pressure equalled 125 mm. Hg. The heart and lungs were healthy. The urine was normal in amount, and there was no albumin or sugar. Carbohydrate tolerance was being tested, but he had passed no sugar after ingestion of 100 g. of pure dextrose. No signs of disease were found in the central nervous system except in the visual fields, which showed a paracentral scotoma in each eye, absolute in the right and relative in the left. The Wassermann reaction was negative in the blood and the cerebro-spinal fluid.

A skiagram by Dr. GILBERT SCOTT showed well-marked enlargement of the sella turcica with destruction of both clinoid processes.

Dr. FEILING also showed a case of Chorea, (?) Huntington's chorea.

The patient was a married woman, aged 49. There was no family history of any similar disease. The present illness dated from 1910, when she tripped in the street and was found unconscious. On getting about again a fortnight later she found that the right hand had begun to "twitch." All movements since then had gradually become worse. Present condition: There were now choreiform movements affecting the head, face, tongue, jaws, upper limbs, and slightly the lower limbs. Movements ceased in sleep and during hypnosis, but voluntary muscular actions in hypnosis were accompanied by choreiform movements of the limbs. There were no signs of organic nervous disease.

Multiple Exostosis.

Mr. DONALD ARMOUR showed a case of Multiple Exostosis. The patient was 18 years of age and was operated upon two years ago, when an exostosis was removed from the femur. He was admitted to hospital for acute appendicitis, when numerous exostoses were discovered in different parts of the body.—Mr. T. H. KELLOCK said that absorption of multiple exostoses sometimes occurred when union of the epiphyses took place. On the other hand, they occasionally took on malignant features.

Splenic Anæmia: History of Syphilis.

Dr. REGINALD MILLER showed a case of Splenic Anæmia in a patient in whom there was a history of syphilis.

The patient was a male, aged 37. He had had paratyphoid fever in December, 1916, and stated that there was no enlargement of organs in the abdomen at the end of this illness, but that he had suffered from pain and distension in the upper abdomen, gradually increasing since then. There was no hæmatemesis. When first seen in August, 1919, the liver and spleen were both much enlarged and hard. He had been slightly jaundiced three times while under observation; bile was present in the urine. There was no family history of jaundice. Examination of the blood showed the fragility of the erythrocytes to be normal. Average counts: Red blood corpuscles, 4 to 4½ millions;

hæmoglobin, 70–75 per cent.; colour index, 0·6–0·8; leucocytes 2000 to 3000. After treatment of the spleen by X rays these had risen, on the last occasion, to 3800 with a pyrexial reaction, and the polymorphs were about 50 per cent.; lymphocytes, about 40 per cent. No abnormal cells were seen. The patient had been infected with syphilis in 1903, and was treated for three years with mercurial injections and by the mouth. In December, 1918, the Wassermann reaction was negative. In May, 1919, there was some enlargement of the cervical glands, the Wassermann again being negative. He prescribed for himself and received five injections of galyl (0·4 g.). The negative Wassermann reaction and the leucopenia favoured a diagnosis of splenic anæmia rather than one of syphilitic splenomegaly.

The treatment being employed consisted of iodide and X rays, the possibility of splenectomy being kept in view.

Dr. F. PARKES WEBER thought that the diagnosis was probably one of thrombo-phlebitis of the portal vein, which had also implicated the hepatic vein. He said that any form of chronic enlargement of the spleen might produce leucopenia, for it occurred in the condition under discussion, in chronic malaria, in kala-azar, and in lymphadenoma, when the spleen was particularly affected. The question of splenectomy was of interest, for in cases of thrombosis of the portal vein accompanied by splenomegaly, splenectomy had sometimes given satisfactory results, as it did in splenic anæmia.

Dilatation Aneurysm.

Dr. A. H. GOSSE showed a case of Dilatation Aneurysm in a man, aged 43.

Four months previously the patient first noticed pain in the right side of the chest; a cough developed with some sputum, which was now streaked with blood in the mornings. Dyspnœa had been very marked, especially on exertion, and some dysphagia had recently been complained of. He had had occasional attacks of palpitation, and his appetite and digestion were poor. He stated he had not had syphilis. On examination there was some diffuse pulsation over the upper end of the sternum. There was no bulging in any part of the chest wall. The left border of the heart was obscured by emphysema. The aortic second sound was accentuated and a faint diastolic murmur was present to the left of the sternum. Râles and rhonchi were present over the lungs. There was tracheal tugging. The pulses, which were collapsing in character, were not delayed. The pupils were equal and reacted. The cough was brassy. A satisfactory examination of the larynx had not yet been obtained. The Wassermann reaction was positive. The X ray report stated: "General enlargement of aortic shadow; some encroachment into posterior mediastinum. Pulsating. No positive sacculation." No tubercle bacilli were present in the sputum. The systolic blood pressure was 140 mm. Hg and the diastolic 60 mm.

It was proposed to administer one of the substitutes for salvarsan in the next few days. The aneurysm was of the dilatation type and was an aneurysm of symptoms rather than of signs. The aortic incompetence had developed during the past week. It was probable, therefore, that the incompetence was due rather to stretching of the aortic ring than to disease of the valve segments. The blood in the sputum might be due to the soft granulations which sometimes occurred at the point of compression in the trachea. A polygraph tracing of the two radial arteries taken simultaneously showed no delay of the pulse on the left side. The difference in the systolic and diastolic pressures, which were taken on the left arm, first drew attention to the possibility of aortic incompetence, which was then confirmed by the presence of the diastolic murmur.

THE TUBERCULOSIS SOCIETY.

INTESTINAL TUBERCULOSIS IN CONNEXION WITH PHTHISIS.

AT a meeting of this society, held at the Royal Society of Medicine on Nov. 10th, Dr. H. A. ELLIS read a paper on Intestinal Tuberculosis in Connexion with Phthisis. The question, the speaker said, had been overlooked to a great extent because it was most apparent in the last and hopeless stage of the disease. There was, however, no doubt that symptoms due to intestinal tuberculosis occurred in the earlier stages of phthisis, and had a detrimental effect upon the progress of the case. It was while giving doses of tuberculin by the mouth that he noticed symptoms which pointed to intestinal disease; these consisted of flatulent dyspepsia, inability to take food, specially fat, together with obstinate constipation which, when corrected by aperients, tended to the opposite extreme. There were general tenderness and irritability of the abdomen and pain on deep palpation, most marked at a point to the left and above the umbilicus. The condition was made worse by foodstuffs containing much cellulose. Dr. Ellis considered that these symptoms were due to the formation of tubercles between the mucous and muscular coats of the intestine, which, by coming into contact with Meissner's and Auerbach's plexuses, upset the mechanism of peristalsis. Food was thereby retained longer in the gut and decomposed, giving rise to wind and the signs of intestinal auto-intoxication. Treatment consisted in avoiding foodstuffs containing much cellulose, and in relieving constipation; the latter was best accomplished by giving saline aperients, night and morning, thus preventing food from remaining in the stomach overnight and disturbing sleep. Dr. Ellis said that he first tried tuberculin by the mouth with good results, and later his picric brass preparations in oil. The oral administration of the latter was discontinued because of the indigestion caused, and he commenced to give it in the form of suppositories containing ⅛ gr. twice weekly. This was followed by signs of reaction when tuberculosis was present, but otherwise had no effect. Pain and some degree of diarrhœa resulted according to the severity of the disease. With repeated doses the reactions tended to become less and less, and the general condition and well-being of the patient at the same time improved, although it was some time before a full diet could be taken. Where diarrhœa was already present the suppositories were found to cause almost uncontrollable looseness, but in mild cases 1/36 gr. was given with success.

Discussion.

Dr. HALLIDAY SUTHERLAND said that he had tried brass paste on six very bad cases of lupus with striking results and thought that there was no doubt that Dr Ellis's preparation had a definite specific action upon tuberculous tissue.

Dr. A. J. WILLIAMSON thought that many of the symptoms ascribed by Dr. Ellis to intestinal tuberculosis might well be explained by toxæmia due to the disease in the lungs.

Dr. JAMES WATT did not think that the symptoms described could be considered pathognomonic. When cases came into sanatoriums and were rested it was common for atony of the intestine to occur. It was possible that the suppositories acted beneficially by clearing out the lower bowel.

Dr. A. SANDISON compared the symptoms to those put forward by Sir Arbuthnot Lane in his book on "Intestinal Intoxication."

Dr. ELLIS, replying, said that mechanical action would not explain the facts, because in non-tuberculous cases nothing happened, whereas in tuberculous enteritis violent diarrhœa resulted. He did not consider that the symptoms were pathognomonic of the disease, but in conjunction with phthisis, they led to a suspicion of the intestinal disease which caused the auto-intoxication.

THE VOCAL THERAPY FUND.—A meeting was held on Nov. 11th, at 47, Portland-place, London, W., when Lieutenant-Colonel Martin Flack, Director of Medical Research, R.A.F., spoke on Breathing Efficiency in Relation to Health, and Miss Bush described Vocal Therapy Methods of Voice and Health Restoration in use at the Maudsley Hospital. Colonel Flack demonstrated the use of the instruments by which the breathing efficiency and resistance to air-pressure of flying men are ascertained. In the course of his address he maintained that a big chest measurement necessarily indicates neither good respiratory capacity nor respiratory efficiency. Nor does a large breathing capacity always predicate flying efficiency; because, explained Colonel Flack, when the tone of the diaphragm and abdominal muscles is lowered, as happens when a man becomes tired or has had a crash, the power of resistance to air-pressure is considerably lessened, a condition demonstrable by a diminished power of breathing out. As regards breathing from the general hygienic point of view, Colonel Flack maintained that the power to fill the chest is not so important as is popularly believed. Too little attention is paid to the supplemental air in which respiratory exchanges take place. The practice of thoroughly emptying the lungs is fully as important as that of filling them. Miss Bush said that 350 cases of dumbness and stammering have been dealt with at the Maudsley Hospital, and the condition of the men was alleviated by a scientific procedure applied in a manner which inspired them with faith and hope. Methodical exercises in breathing and articulation were given, and use was made of the healing influence of music.

Reviews and Notices of Books.

A Manual of Physics. By J. A. CROWTHER, Sc.D., sometime Fellow of St. John's College, Cambridge, Demonstrator in Physics in the Cavendish Laboratory, Cambridge. London: Henry Frowde and Hodder and Stoughton. 1919. Pp. 537. 16*s.*

THIS book, the latest addition to the Oxford Medical Publications, is useful as giving a survey of physics such as is required by medical students.. In covering so wide a field it was inevitable that some parts of the subject should receive inadequate treatment, but this is no excuse for omitting all mention of osmosis, diffusion and electrolytic dissociation, without a knowledge of which progress in physiology is impossible.

The author frequently uses expressions which are inaccurate and misleading. We have, for example, "the principle of the conservation of heat," the "coefficient of expansion of a gas at constant volume." The latter, one would have supposed, was a slip, but in the next sentence the author explains that the expression is "an unhappy one, but is frequently used and very convenient." Anyone with experience of teaching knows how prone students—especially students who are studying physics only as a means to an end—are to express themselves inaccurately without any encouragement from a text-book. The aim of their scientific training should be to emancipate them from such a tendency. There are many diagrams in the book. For the most part these are good, those in optics particularly so. The electrostatic ones are poor. Lines of force are drawn entering conductors at angles varying from 45° upwards. The examples and examination questions at the end of each chapter are a useful feature. Answers to the numerical examples are supplied. The paper is good as paper goes nowadays, and the type is clear.

Fevers in the Tropics. By Sir LEONARD ROGERS. Third edition. London: Henry Frowde and Hodder and Stoughton. 1919. Pp. 404. 30*s.*

Sir Leonard Rogers's well-known work, "Fevers in the Tropics," has now reached its third edition. In the preface the author states that ten years of very active advance in tropical medicine have passed since the first edition appeared. Many alterations and additions have therefore had to be made. The section on kala-azar has been largely rewritten, nearly every section has been revised and brought up to date, and the history, geographical distribution, ætiology, and prophylaxis have been placed before the clinical section to render the work more readable. Special attention to treatment has been given in the chapters on kala-azar, trypanosomiasis, malaria, and amœbic hepatitis. Of new subjects, recent work on typhus has been included, and short articles added on infective jaundice, trench fever, and Oroya fever. Of omissions, the dropping of the chapters on epidemic dropsy and liver abscess are the chief. The method of classifying tropical diseases by the amount of fever they show is hardly a happy one, and is open to criticism. It does not illustrate the chief points of diseases like kala-azar, sleeping-sickness, amœbic hepatitis, but as it was the method devised in the first edition it might be difficult for the author to change it now. The references to the literature are incomplete. Unless fully given it would be better to omit them. On the whole, the high standard of previous editions is maintained throughout the text, and the book is a pleasant one to read.

Reconstruction Therapy. By WILLIAM RUSH DUNTON, Jun., M.D., Assistant Physician at Sheppard and Enoch Pratt (Mental) Hospital, Maryland, U.S.A. With illustrations. London and Philadelphia: W. B. Saunders Company. 1919. Pp. 236. 6*s.* 6*d.*

THIS book has been written by an assistant physician of an American mental hospital who has evidently had considerable experience of occupational work for mental patients. For several years he has been responsible for a training course in occupational therapy for mental nurses at the Sheppard and Enoch Pratt Hospital and has written a manual of occupation therapy for nurses. As the result of this he has written excellent chapters on the duties of the occupation director, the financial side of occupation therapy, and training courses for nurses; the value of occupation in the treatment of the insane is fully brought out. Incidentally, he has written a very readable chapter on occupational therapy for the blind. One chapter gives a plan for the organisation of the re-educational facilities of a community which is at present being worked out in Baltimore and vicinity. Yet in spite of these good points we are constrained to say that the book as a whole is neither well written nor well thought out. In a few places the writer is unintelligible; in others the train of thought is not consecutive. The title is misleading; it would seem that the writer's experience of the surgical side of the subject is not sufficient to enable him to deal with that side of reconstruction therapy. But he certainly points out how the lives of patients in hospitals can be made more interesting. A useful bibliography of occupational therapy is included.

Teaching the Sick: A Manual of Occupational Therapy and Re-education. By G. E. BARTON, A.I.A., Director of Consolation House. Illustrated. London and Philadelphia: W. B. Saunders Company. Pp. 163. 6*s.* 6*d.*

THIS book sketches a course for the re-education of cripples in joinery, and is the result of the author's experience, not only in teaching the sick and training teachers of the sick, but of his own efforts to do such work. "With his whole left side practically useless" he started out to reclaim a piece of land, and make such repairs and build such new sheds and poultry houses and the like as were necessary. Having succeeded in so doing, Mr. Barton hands on the tricks of his trade. The patient is introduced through paper folding to mechanical drawing, the simplest appliances being used at first. Chip carving and modelling in wax and cardboard lead up to wood-working. The plane is the first tool used, then the saw; the reciprocating drill prepares the patient for the use of the hammer. For joinery in bed the "Consolation House Carpenter Shop" has been invented and assembled. The book is very readable; it is slight, but achieves a useful end.

A Text-book of Hygiene for Training Colleges. By MARGARET AVERY, B.Sc. Lond., M.R.San.I. London: Methuen and Co., Ltd. 1919. Pp. 324. 7*s.* 6*d.*

IF the training colleges could realise the inspiration behind the new syllabus of hygiene which the Board of Education has recently issued they would be very critical of text-books on the subject. The content of this book is obviously based upon the old syllabus, and in order to bring it into line with the new syllabus is amplified by the addition of two—perhaps three—chapters, chiefly dealing with legislation as it affects child life, and with maternity and child welfare work. This latter-named chapter is obviously not derived from first-hand acquaintance with such work, and actually neither this one nor that on legislation contains any reference to the Maternity and Child Welfare Act, 1918.

The author would have been well advised to be more guarded in her statements on certain medical problems, such as the ætiology of rickets. Her psychology, too, is somewhat out of date, throwing little light on the real problems of mental hygiene. Considerable care to give references has, as a rule, been observed, but they are lacking just exactly where they are particularly needed. We should be greatly interested, for instance, to know which are the schools where "over eleven per cent. of infants take it (alcohol) daily and thirty-four per cent. occasionally." The statement that the infant mortality-rate has increased during the war is a sad example of inaccuracy.

The author has a fluent style, so consciously free from technicality as to be somewhat carelessly colloquial, and the ease of expression may tend to distract attention from a careful examination of the substance of the book.

JOURNALS.

Tubercle: a Monthly Journal Devoted to all Aspects of Tuberculosis. Vol. I., No. 2. November, 1919. London: Bale's Medical Books and Journals. 25*s.* per annum.—The second number of this monthly journal opens with a suggestive paper read by Dr. E. L. Collis at the Newcastle Congress of the Royal Sanitary Institute on the Effect of Occupation on the Incidence of Pulmonary Tuberculosis. Occupation may affect a disease as to (1) its prevalence or (2) its type, and pulmonary tuberculosis exhibits both these results. The effect on prevalence is shown by a study of the figures of sex and age groups and of social groups. For instance, in females under 15 the mortality is higher than in males, probably because boys lead a more active outdoor life, but the prevalence is reversed when in later life industrialism affects males more than females. Age variations also occur, presenting special mortality in young adults and in middle age in certain industrial and rural districts (Brownlee). There are thus occupational conditions which cause an increased prevalence at mid-life —the period when industrialism has had time to make its mark on the body. Further, Dr. Major Greenwood has shown by statistics of women employed under war conditions that industrialism tends to raise the female mortality to the male level. As to the influence of occupation on the type of disease, the case of workers exposed to silica dust is a clear case, contrasting with the cases of boot and shoe operatives, printers, and tailors, in whom an increased prevalence is present without change of type. In both cases Dr. Collis contends that the causative factor may be defective ventilation—in the one case of the workshop, and in the other a deficiency of "internal" ventilation of the lung due to silicosis.

The next article, Prognosis in Tuberculosis, by Professor Kraus, of Berlin, has a long and largely irrelevant dissertation on the *thorax phthisicus*, but contains a good account of the effect of pregnancy on tuberculosis of the lungs, and of the indications for abortion. The author takes a more favourable view of the prognosis than that commonly held in this country. The subject is pursued further in a useful collection of abstracts from American and continental sources. Another series of abstracts deals with a large number of cases of tuberculosis treated by heliotherapy and various artificial rays. The method of collecting the scattered material on a given subject is much to be commended. In an editorial article on residential treatment of tuberculous soldiers, it is rightly pointed out that there is a tendency to exaggerate the value of the permanent colony scheme to the detriment of older measures, which require elaboration in directions indicated by experience and which must in any case be the foundation of progress in the future.

A review of recent progress in Scandinavia and Finland records the increasing recognition of light treatment, both in surgical and (with less assured results) in pulmonary cases. Artificial pneumothorax, thoracoplasty, and thoracoscopy, with Jacobaeus's operation, are all in vogue, while sociological measures and research are also being pushed forward. Under the heading "Central and Local Authorities," various reports are reviewed; among them that of Dr. G. Lissant Cox, who states that arrangements have been made with the medical officers of health that notifications should go first to the tuberculosis officers—a plan which should be generally adopted, as the old system leads to unfortunate delay. Many pages of the journal are given to reporting the annual meeting of the National Association for the Prevention of Tuberculosis, the first meeting for five years, and also the first since the foundation of the Ministry of Health. The proof-reading leaves something to be desired.

Reports and Analytical Records

FROM

THE LANCET LABORATORY.

CHELTINE MILK AND MALTED FOOD (No. 1).

(CHELTINE FOODS CO., CHELTENHAM.)

THE proportion of milk nutrients contained in this preparation may be judged from the amount of milk fat in it which, according to our analysis, was 17·50 per cent. This represents approximately 62 per cent. of milk solids, assuming that the milk employed contained an average of 3·5 per cent. of fat. The nourishing value is increased by the constituents of active malt, the diastase of which renders the casein flaky rather than curdy when separated by the gastric juice. The complete analysis was as follows: fat, 17·50 per cent.; proteins, 21·16 per cent.; sugars, 28·85 per cent.; dextrin, 11·40 per cent.; starch, 12·99 per cent.; mineral matter, 3·50 per cent.; moisture, 4·60 per cent. The total matters soluble in cold water amounted to 40·25 per cent. The food is intended for infants from birth to the age of 5 months, and there is evidence that it appears quite suitable for this purpose when natural resources are not available.

PINHEROIN.

(OPPENHEIMER, SON AND CO., LTD., 179, QUEEN VICTORIA-STREET, LONDON, E.C. 4.)

Pinheroin is the name given to a syrupy linctus containing in each fluid drachm 1/40 gr. of dia-morphine-hydrochloride (syn. heroin), 1 gr. terpin hydrate, and 20 minims of essence of Canadian pine. The formula was suggested by authorities on the treatment of respiratory trouble, and the linctus is favourably spoken of in relieving bronchial catarrh, asthma, and irritable winter coughs. Pastilles are also prepared with the same drug foundation, and a further preparation is pinheroin compounded with creosote hydrate free from caustic action. All three preparations are agreeable to take. The absence of morphine was indicated in our analysis by no blue colouration resulting on the addition of perchloride of iron. There was a colouration produced, however, in the creosote compound due to the phenolic constituent.

IGLODINE.

(THE IGLODINE CO., LTD., MANOR CHASE, NEWCASTLE-ON-TYNE.)

Iglodine is a clear, colourless fluid with a smell reminiscent of tri-bromo-phenol. It is a definite organic iodine derivative, and its formula is represented as $C_4H_7I_3 + H_2O$. The active constituent is miscible with water. Three preparations have been submitted to us, respectively described as (1) iglodine antiseptic (standard), (2) iglodine concentrated aqueous (40–1), and (3) iglodine embrocation. The preparation has been widely used in the dressing of wounds, and a well-known bacteriological authority has established its effective germicidal power compared with other well-known antiseptic agents. Part of the iodine was liberated, we found, on the addition of peroxide of hydrogen and acid, and the availability of the iodine thus shown accounts mainly, no doubt, for the antiseptic value of the preparation.

VALERIANATE "GABAIL," DEODORISED.

(THE ANGLO-FRENCH DRUG CO., LTD., 238A, GRAY'S INN-ROAD, LONDON, W.C. 1.)

The disagreeable odour and taste are well-known drawbacks to the use of valerian preparations in medicine. Many attempts have been made to mask these undesirable characteristics with a qualified success. The above preparation from the Laboratories Gabail, Paris, contains in 100 g. 10 g. of the extract of valerian (French Codex), 3 g. of valerianic acid, with a sufficiency of ammonium carbonate in glycerine and distilled water. There is also prepared a mixture on the above principles, but with the addition of strontium bromide. In neither instance is there any suggestion of nauseous smell or taste, and as the drug is of admitted value, chiefly in functional nervous diseases, it is an important advance to render it agreeable to the patients.

HYPOCHLORINE.

(L'ANTISEPTIQUE, 48, RUE DE LONDRES, PARIS.)

As far back as 1894 an investigation undertaken by a LANCET Commission as to the antiseptic and disinfectant power of electrolysed sea-water elicited the fact that hypochlorous acid, its active constituent, was second to none in this respect. Since that time this conclusion has been abundantly confirmed, and solutions of hypochlorous acid prepared in different ways have been freely and advantageously used in the vast antiseptic treatment called for during the war. "Hypochlorine" is described as "une solution aqueuse d'hypochlorite de magnésie," a description which corresponds with that of the electrolysed sea-water introduced by M. Hermite 25 years ago, except that "hypochlorine" is free from excess of inert salines. The active agent is in reality hypochlorous acid. On adding potassic iodide to the fluid iodine is at once liberated, corresponding, we found, to 3·546 g. of available chlorine per litre. The total saline constituents amounted to 16 g. per litre. Bacteriological experiments show that "hypochlorine" is a powerful germicide, and the fluid has the advantage of being non-corrosive and non-poisonous. Its power of destroying noxious odours is, further, an important feature.

THE LANCET.

LONDON: SATURDAY, NOVEMBER 22, 1919.

The Future of Medical Research.[1]

THE fifth annual report of the Medical Research Committee has made a prompt appearance, for the Committee are submitting at the beginning of November to their late authority, the National Health Insurance Joint Committee, an account of a year's work up to the close of last September. We congratulate the Medical Research Committee upon this readiness, especially as the period under review, covering the transition from war to peace, and the setting up of the Ministry of Health, has presented problems which required thoughtful handling. In considering the document, therefore, we have to think, first, of the scientific activities of the Committee during the war, and, secondly, of the future of medical research in the United Kingdom under the altered but hardly less difficult conditions of peace, with social circumstances in flux, and a sad decrease in the value of money. In respect of the services done for the country by the Medical Research Committee during the war there is no doubt that the Committee, from the moment—the earliest moment possible—when their energies were placed at the disposal of the War Office, had an important influence in promoting the developments of scientific medicine in the Naval, Military, and Air Services, as well as in large civilian enterprises undertaken in defence of the realm or offence of the enemy. The Committee from the beginning prompted the employment of scientific men for special investigations, and many of those best fitted to carry on specific inquiries received remuneration through the agency or discretion of the Committee, whether indirectly by way of officers' pay or directly by way of grants from the public funds. The report sets out under appropriate headings the work done by the separate departments during the year, and the full references to published papers show how various and how practical that work has been.

An annual report is necessarily a report of work done, but the introduction of the Committee lays little stress on past exploits. They leave the references to tell that part of the story, and occupy most of their modest space in stating the resolution of the Committee to secure that the intensive studies of the war period shall be aimed for the future, and from as many directions as possible, towards the solution of health problems under the normal conditions of peace. The organisation of scientific work promoted during the war has already been dissolved over large fields of research; but that much of that work, which in its origin had a purely military objective, will be directly applicable to medical work in civilian life has been for long apparent to all medical men. To preserve for the country an invaluable continuity in the struggle against disease is now the aim of the Committee, who have made, and are making, every attempt to maintain what has been most valuable and promising among the enterprises of their collaborators. But their pecuniary resources have now become totally inadequate. Such a programme can only be fulfilled if more money is found by the State. The progress of medical research in the United Kingdom must to a great extent be proportional to the pecuniary resources on which the Committee can depend. The Committee, in setting this position frankly before the public, are placing themselves in the plight, now so familiar to all organisers of scientific research, that while the public expects results for money given, those directing research cannot always promise what the results will be; they cannot even say what are the grounds for believing that value will shortly be returned for subsidies received. Yet distribution of public money must be accounted for to Parliament—that is an elementary principle of democratic government. Well, Parliament will be wrong to withhold endowment, where medical research is in question, with the idea that it is economical to do so until a promise is exacted that a given investigation will have a definite issue. As a matter of fact, to subsidise the Medical Research Committee is not an expenditure but a form of insurance.

We have therefore to inquire how the future benefits are to be secured. By the terms of the Ministry of Health Act the duties of the Medical Research Committee will pass in June of next year under the control of a Committee of the Privy Council, while the National Health Insurance Joint Committee, formerly the authority of the Medical Research Committee, has now been affiliated to the Ministry of Health. It is obvious that the national benefits, as far as all these bodies are concerned, will largely depend on the methods by which the linking up is effected between the Ministry of Health and the Medical Research Committee. If the scientific progress made in times of war is to be continued at the same or at an accelerated pace in times of peace, and if the intensive researches founded to meet military exigencies are to be employed for the benefit of the community in normal times, the association between the Committee and the Ministry must be real, flexible, and open to development on all sides and upon the initiative of either. The basis on which this can best be done is indicated, it seems to us, by the obvious circumstances of the position. The Ministry of Health will have before it all day, every day, and with any pathological circumstances that can be imagined, problems in health where medical research will be required. The Ministry of Health will be served not only by the science of the general practitioner, the consultant, and the specialist in their places, but by the existing State medical organisations, the members of which are for the most part a highly trained body of men. From this wide periphery information will constantly be reaching the Ministry as to where particular assistance is needed, and for that assistance the Ministry will turn to the Medical Research Committee. The Committee, with a large experience of analogous responsibilities during the war, will be able to institute intensive research upon the questions submitted, always supposing that they are in receipt from the State of a subsidy with which to command the aid of the best men. And it should be understood that the position of the Medical Research Committee, when such events arise, would be auxiliary, not directing. It is particularly important that the medical profession should understand that the Medical Research Committee is not a bureaucracy claiming supervisory powers, but a Government body whose business it is to help the efforts of medicine—individual, collective, and institutional—along various lines; and it should be noted that, from the beginning of their work, the Committee have realised the necessity for using all available resources to bring the study of medicine at the bedside into close touch with the modern laboratory. Indeed, it was originally the design of the Committee to include a number of research beds in their central institute, but, the impracticability of this being recognised, arrangements have now been made for members of the staff of the Committee to do their work away from their own central institute, at the London hospitals where schemes of research are being organised. The hospitals will in this way be joined in the general scheme of research, while the practical step towards complete and mutual understanding between the Medical Research Committee and the Ministry of Health may be secured by ensuring that the Committee of the Privy Council, the authority under which the former work, should be composed of persons enjoying high position in the organisation of the latter.

---

[1] Fifth Annual Report of the Medical Research Committee, 1918-1919. London: H.M. Stationery Office

◆

Qualitative Problems of Food-Supply.

THE problem of the proper nutrition of the human population of the world upon the available supplies is the most pressing issue of our time. In regard to the quantity of food the matter is in the hands of those who produce and distribute. Medicine is largely helpless. But in regard to its quality there is much to say. Fortunately the colossal need has produced workers of like calibre, and in Professor E. H. STARLING'S reprinted[1] Oliver-Sharpey lectures on the Feeding of Nations we have the elements of a scientific study of the composition, provision, and distribution of food on which all future work must largely be based. The particular form of scantiness varies from country to country; in some there is a shortage of milk, in others of meat, and in yet others of all and every masticatable article. Scattered outbreaks of deficiency disease have occurred all over the world during the last two or three years; in Mesopotamia scurvy broke out among our Indian troops and beri-beri among the British troops; in Central Europe all possible forms of deficiency disease have occurred at the same time, and some of them in the same people. The visit of Professor K. F. WENCKEBACH to London last week made it abundantly clear that in Vienna, where he presides over the international relief measures, any deficiency disease may break out at any time. On this account the mission at Vienna of Dr. HARRIETTE CHICK, on behalf of the Lister Institute, may be productive not only of results of scientific interest. but of great influence on the nutrition of a people.

Deficiency in diet formed the topic of a very searching discussion at the Section of Therapeutics of the Royal Society of Medicine last Tuesday afternoon. Professor F. G. HOPKINS opened the debate by pointing out that the vitamine hypothesis of deficiency disease has passed the early phase when novelty arouses undue enthusiasm and uncritical opposition. The experimental work of the Lister Institute has placed beyond doubt the main facts regarding the production of scurvy and beri-beri. The causation of rickets is less well established as due to deficiency disease, although in experimental work the nature of the fat in the diet has been shown to be the sole critical variant. Professor HOPKINS noted the suggestive fact, confirmed by others in the debate, that in prolonged fasting deficiency disease does not develop. In the case of pellagra, evidence, he said, pointed not to a lack of vitamine but to some other grave deficiency in the diet. Dr. F. D. BOYD, of Edinburgh, communicated his important investigations into the health of Turkish prisoners of war. Among them he found the first symptoms of pellagra to consist in a failure to assimilate fat and protein, while, long before ordinary clinical signs of the disease developed, there existed a pre-pellagrous state in which supposedly healthy individuals were excreting far more than their normal output of protein and fat. He defined anew the "biological" value of protein in diet. The amount of protein needed to keep a man of 70 kg. body weight in nutritive balance varied, he said, from 30 g. when the source of protein was meat, up to 102 g. when the source was maize. Pellagra began to appear when the biological protein value in the diet fell below 40 g. daily. Dr. H. E. ROAF laid stress on the wasted and semi-translucent intestine found post mortem in pellagrous cases, the intestinal tube evidently being quite abnormal in regard to absorptive capacity. On behalf of the Lister Institute Miss E. M. HUME set forth the merits of marmite and wheat-germ for the prevention of beri-beri in armies, egg-yolk and dried peas being far behind in potency. We hope to give an extended account later of this discussion, timely as it was in view of the national problems ahead.

An important contribution on the accessory food factors in raw cow's milk appears in the November number of the *Biochemical Journal*. In one series of experiments undertaken by Miss R. E. BURNES the animals chosen were guinea-pigs; in another series of experiments undertaken by Miss HUME monkeys were employed. Taking the results together it was found possible to maintain good health in animals of 300 to 400 g. weight if 100 to 150 c.cm. of raw cow's milk were consumed daily. It is an interesting observation, however, that when dried milk was substituted for fresh milk scurvy was not prevented, even when amounts equivalent to the fluid milk were taken, and this was true whether the dried milk was of recent manufacture (1 or 2 weeks old) or of much greater age (6 to 12 months). On the other hand, no indication was obtained from either series of experiments that the growth-promoting properties of fresh milk suffer any serious damage during drying. But all the evidence is in favour of employing an extra antiscorbutic in the diet of infants nourished upon dried cow's milk. It is suggested for this purpose that the raw juices of oranges, swedes, and tomatoes be used for the sake of their richness in accessory food factors. We note that the dried milk used in the investigation was reduced by means of revolving drums, the temperature of which is considerably over 100° C., although the time of contact is said to be only a few seconds. It would be interesting to determine whether milk dried at a comparatively low temperature, as in the spray process, suffered any loss of antiscorbutic property in the same way as the milk powder used in these experiments. Individually these researches may seem small and particulate, but their steady accretion is overlaying the globe with a stratum of exact dietetic knowledge which may give a new lease of life to the human race

---

[1] Longmans, Green and Co., pp. 146, 5s.

Syphilis and Insanity.

AN address was delivered recently to the Fellowship of Medicine by Sir GEORGE SAVAGE, in which the relations between syphilis and insanity were discussed in some detail from the clinical and ætiological points of view. This discourse contained many lessons of interest and importance, not only to the general practitioner, but to some of those younger specialists whose positivist inclinations in pathology may well, perhaps, be corrected by due consideration of an elder's weighty words; we therefore look forward with interest to their fuller publication in the columns of a contemporary. One of the more important of these lessons is that experience shows the practical unwisdom of the prevailing mental habit of insistence on the doctrine of the "single cause." However necessary for teaching purposes, or for the systematic classification and delimitation of clinical entities, this imputation of single causes of disease may be, clinical experience and careful thought alike impress us with the obligation of recognising the complexity of the causation of disease. Herein Sir GEORGE SAVAGE, as a clinician of unrivalled authority and experience, ranges himself beside the late Dr. MERCIER, who, in one of the most valuable of his essays—that on "Causation"—declared repeatedly that what we call "*the*" cause of a disease is that in which, for our purposes, we are most interested. The position is now accepted—and Sir GEORGE SAVAGE does not dispute it—that without antecedent syphilis there is no general paralysis of the insane. In consequence, non-syphilitic clinical forms, apparently closely resembling general paralysis of the insane, are differentiated therefrom, and are placed in different categories by the application of pathological tests. We therefore consider syphilis as "*the*" cause of general paralysis. Nevertheless, as Sir GEORGE SAVAGE points out, and not for the first time, we do not know why some persons, and, indeed, some races of mankind, though sodden with syphilis, should yet escape general paralysis of the insane. Moreover, some persons already infected seem only to become the victims of "G.P.I." after the intervention of an accidental or incidental factor. Thus, Sir GEORGE SAVAGE has noted many cases in which indications of general paralysis became first noticeable after influenza, contracted during prevalence of that disease; and, like French observers, he has seen groups of cases, serially infected by syphilis, and all, or several of them, developing general paralysis. Some have believed that there are "strains" of spirochætes specially prone to produce general paralysis, and WIEDERSHEIM, 30 or more years ago, in his "Structure of Man," hinted that even such pathological changes as those of tabes may be indirectly due (under the action of the spirochæte, it must now be claimed) to the occurrence of morphological variations in the lumbar cord. Wider approaches are thus opened up to the one goal of all physicians.

Syphilophobia is too often dismissed impatiently. Sir GEORGE SAVAGE devoted some attention to a group of cases wherein the subjects, without having run any real risk of contagion, are yet obsessed by dread of syphilis; and he observed, with truth, that the youthful masturbator and the ascetic celibate alike may become so obsessed—the one during life's evolution, the other during its decay. Classic syphilophobia, on the other hand, follows actual infection or serious risk—more commonly, we think, the former. Indeed, it is probable that the spirochæte itself, and not the mere idea, plays a real part in the production of the mentality of the syphilophobe, when the need for diagnosis on a pathological basis is urgent. For if there are some cases which fall within the province of the psycho-analyst, there are others which need intelligent, careful, and conscientious specific treatment by drugs. Moreover, danger point is reached by not a few in this distressing and distressed condition, who, fearing and believing that others know the source of their misery, avoid society, and in extreme instances may seek escape in suicide. But there are also certain cases in which mental, moral, and physical degeneration may ensue, rapidly and progressively, in the years or months closely consequent to infection. Perhaps such are less common than they once were, but they do occur, and a neuronic rather than a vascular pathological basis may be suspected. Possibly these cases can be regarded as analogous to the acute myelitis and nephritis sometimes seen during the late secondary stages of syphilis. The association between what, in a generic sense, may be called "fits" and syphilis, is complex, but its importance is evident. Undoubtedly, "fits" which are truly epileptic are common in children the subject of congenital syphilis, or, what is not quite the same thing, whose parents have been syphilitic; while, in the juvenile form of general paralysis, less familiar to the practitioner than it should be, "fits" of various clinical form occur. But, apart from the irregular "fits," or seizures of classical general paralysis, slight "fits" or faints sometimes happen under stress or strain to those who have been infected; and they are apt to be followed by progressive mental enfeeblement, although the course of classical general paralysis is not pursued. Sir GEORGE SAVAGE, while suspecting local vascular change, in such cases, as the underlying anatomical factor, points out how frequently the diagnosis of general paralysis is wrongly made. The ultimate outcome, however, is certainly bad; feeblemindedness generally results. A valuable and practical distinction is to be made, moreover, between "general paralysis of the insane" beginning as "locomotor ataxy" and locomotor ataxy accompanied by manifestations of insanity. The recognition of the distinction is important, and difficulty is thereby lessened.

With respect to one important matter, namely the relation between imbecility, idiocy, and parental syphilis, Sir GEORGE SAVAGE accepted the positive results of the Wassermann test, when applied to so many idiots and imbeciles who do not display specific characters of congenital syphilis, as evidence that parental infection has played a part in the production of the mental and physical arrest, even when no further evidence of parental syphilis can be obtained; and, from garnered wisdom he produced clinical evidence which sustains the confidence of the laboratory workers. Yet he insisted, and rightly, that the children of syphilitics, more often than others, apart from all question of syphilis, are the offspring of the less desirable type of parent; while their surroundings, more often than those of others, are apt to be unfavourable or degrading. The note of caution in respect of the attribution of certain effects to a single cause was thus sounded, at the conclusion as well as at the beginning, of a vigorous and progressive lecture.

Annotations.

"Ne quid nimis."

STATE AID TO THE UNIVERSITIES OF OXFORD AND CAMBRIDGE.

Both the ancient Universities have applied for financial assistance to the State, and as a matter of course it has followed that Royal Commissioners have been appointed to inquire into the financial resources of the Universities and their constituent colleges and halls, as well as into the relations of the affiliated foundations to any central administration. Mr. Asquith is the chairman of the Commission, which forms one body of three committees—namely, a Committee for the University of Oxford, a Committee for the University of Cambridge, and a Committee on Estates Management. The Secretary of the Commission is Mr. C. L. Stocks, an Assistant Secretary to the Treasury. The following is the personnel:—

Oxford Committee.

The Right Hon. H. H. Asquith (chairman).
Professor W. G. S. Adams, Gladstone Professor of Political Theory and Institutions, Oxford.
Professor W. H. Bragg, C.B.E., F.R.S., Quain Professor of Physics, London.
Lord Chalmers, G.C.B., late Secretary to the Treasury.
Mr. Albert Mansbridge.
Sir H. A. Miers, F.R.S., Vice-Chancellor of Manchester University.
Miss Emily Penrose, O.B.E., Principal of Somerville College.
Sir John A. Simon, K.C.V.O.

Cambridge Committee.

The Right Hon. G. W. Balfour (chairman).
Dr. H. K. Anderson, F.R.S., Master of Gonville and Caius College.
Miss B. A. Clough, Vice-Principal of Newnham College.
Sir Horace Darwin, K.B.E., F.R.S.
Sir Walter M. Fletcher, K.B.E., F.R.S., Fellow of Trinity College.
The Right Hon. Arthur Henderson, M.P.
Dr. Montagu R. James, LL.D., Provost of Eton.
Mr. G. M. Trevelyan, O.B.E.
Professor Arthur Schuster, Fellow and Secretary of the Royal Society.

Committee on Estates Management.

Lord Ernle (chairman).
Mr. H. M. Cobb, Fellow and Member of the Council of the Surveyors' Institution.
Sir Howard Frank, K.C.B.
Sir J. H. Oakley, Past-President of the Surveyors' Institution.
The Hon. Edward Strutt.

Undoubtedly the public support of Oxford and Cambridge bears no proportion whatever to the value of their public work. Now and again we learn of benefactions to both, though these are generally in the form of bequests to the particular college of which the testator had been a member and not to the Universities themselves, whose benefit is consequently only indirect. Again, neither Oxford nor Cambridge can expect to receive from local generosity large sums of money; the huge benefactions to the American universities, which owe their existence to local spirit, can have no counterpart here. The ancient Universities having approached the State will recognise that the State, in return for any grants made, will expect to have some reasonable responsibility in the allocation of the grants; but probably the day is gone by when the authorities of Oxford and Cambridge shudder at the thought of State interest in their affairs.

THE LISTER MEMORIAL.

Two tablets in memory of Baron Lister of Lyme Regis were unveiled on Tuesday, Nov. 11th: the one, a marble portrait in bas-relief, to be a permanent memorial of Lister's work in University College Hospital; the other, similar but smaller, to be erected in University College. Sir George Makins, in unveiling the former, traced the development of Lister's great principle which revolutionised the practice of surgery in his time and asserted itself in every ramification of the science of preventive medicine. Sir Joseph Thomson spoke of Lister's association with the Royal Society, of which he became a Fellow at 33 years of age. Both tablets have been worthily executed by Professor Havard Thomas.

TUBERCULOUS MENINGITIS AND LETHARGIC ENCEPHALITIS.

The difficulty in diagnosing between these two conditions is well illustrated by a case of tuberculous meningitis recently reported by Loygue[1] in a man, aged 27, in whom this diagnosis was discarded, not only during life, but even on naked-eye examination post mortem, which did not appear to contradict the hypothesis of lethargic encephalitis suggested by the patient's symptoms. It was only after microscopical examination, which showed an absence of the lesions characteristic of lethargic encephalitis described by Marie and Trétiakoff in the locus niger and gray nuclei, and the presence of tubercle bacilli that a correct diagnosis was established. The symptoms presented by the patient closely resembled those of a group of patients previously observed by Loygue, in which the clinical picture, epidemiological character, and macroscopical appearances of the nerve centres post mortem excluded the diagnosis of tuberculous meningitis, the existence of lethargic encephalitis being confirmed by the fact that three of the five cases recovered. The symptoms in Loygue's patient were torpor and somnolence, disturbance of speech, subfebrile temperature, and rapid and progressive loss of flesh, followed by sphincter disorders, characterised first by incontinence and then by retention of urine, doubtful meningeal symptoms and, towards the close, paresis of the levatores palpebrarum, ocular convergence, and dysphagia. The absolutely clear cerebro-spinal fluid, its scanty albumin content, and absence of a cellular reaction were in favour of excluding both cerebro-spinal and tuberculous meningitis. Subacute syphilitic meningo-encephalitis was excluded by a negative Wassermann reaction in the blood and cerebro-spinal fluid. The autopsy showed a diffuse congestion of the brain without any obvious lesions on the convexity or base, apart from an œdematous and infiltrated appearance of the region between the inferior surface of the cerebellum and the posterior surface of the pons and medulla, and slight adhesions in the fissure of Sylvius. There was no trace of any granulations. Examination of the thoracic and abdominal organs was negative and there was no bony or glandular tuberculous focus. On microscopical examination lesions of meningo-encephalitis were found in the region of the medulla, pons, cerebral peduncles and lower part of the Sylvian fissure, with numerous tubercle bacilli scattered throughout the inflammatory tissue.

---

[1] Bulletins et Mémoires de la Société Médicale des Hôpitaux de Paris, 1919, 3e série, xliii., 769–775.

THE HUNTERIAN MEDALLIST.

A NUMBER of distinguished guests attended the centenary dinner of the Hunterian Society held at the Trocadero Restaurant on Nov. 12th, when the President, Dr. W. Langdon Brown, handed the silver medal of the society to Mr. John Adams in recognition of his work at the Thavies Inn venereal clinic for expectant mothers. Sir Frank Dyson, the Astronomer Royal, was happy in his allusion to the medallist's namesake, the discoverer of Neptune. It may be recalled that the planet betrayed itself by its slow movement, appreciable to the discerning eye, upon its background of fixed stars. Mr. Adams's progressive work on the salvarsan treatment of mother and fœtus stands out in like manner upon the more stationary background of average practice.

THE TREATMENT OF INFANTILE BERI-BERI.

BERI-BERI has been a disease of frequent occurrence in the Philippine Islands for many years. Since the American occupation some of the medical officers from the United States, stationed in the Philippines and attached to the Bureau of Science at Manila, have carried out experimental investigations on the ætiology and treatment of the disease, and have thereby given considerable assistance in the elucidation of certain of the problems connected with this interesting malady. The results of these researches on beri-beri have generally been published in the *Philippine Journal of Science*, and in our columns we have commented upon them from time to time as they appeared. Our attention has again been directed to the subject by reading the recently issued annual report for 1918 of Dr. A. J. Cox, director of the Philippine Bureau of Science. Adverting to the incidence of infantile beri-beri, which in past years has been a considerable factor in the production of a high infantile death-rate, Dr. Cox draws attention to the beneficial results which have followed upon the treatment of the disease by an extract of rice polishings, locally known as "tiki-tiki." Investigations formerly carried out had shown a high incidence of beri-beri among women, and especially among mothers who were suckling their babies. It was also shown that these women were suffering from under-nourishment, and that polished, or over-milled, rice bulked largely in their dietary. Their breast milk was poor in quality, and to this circumstance was attributed the occurrence of beriberi in their infants. The Bureau of Science began to prepare the extract of rice polishings in 1914, in which year no fewer than 889 children under one year of age died of beri-beri in Manila. In that year only 58 litres of tiki-tiki were prepared; in 1915 the amount was increased to 200 litres, in 1916 to 300, in 1917 to 400, and in 1918 to 500 litres, which is estimated to be sufficient to treat 10,000 infants. Prior to 1914 95 per cent. of the babies in Manila attacked by beriberi died, but now, and corresponding to the increased employment of the rice-polishings extract, this percentage has been reduced to practically nil, the only deaths from infantile beri-beri now recorded being instances in which the illness had not been notified to the health authorities until it was too far advanced to benefit by treatment. In view of these successful results Dr. Cox urges the Government of the Philippines to grant further financial help in order that the plant for the preparation of tiki-tiki may be enlarged and the use of the remedy made available on a more extended scale and in a wider area. We learn, also, from Dr. Cox's report that a series of experiments on the treatment of adult beri-beri by means of an autolysed extract of yeast has been carried out, and a certain amount of this extract prepared for use by the Bureau of Science. Dr. Cox promises a report in an early number of the *Philippine Journal of Science* on the results obtained in adult beri-beri by the administration of this extract.

SYPHILITIC RECTO-VESICAL FISTULA.

THOUGH syphilis is well recognised as a cause of ulceration and stricture of the rectum, cases resulting in communication with the bladder are extremely rare. At a meeting of the Académie de Médecine of Paris on Oct. 28th, M. P. Peugniez, of Cannes, reported the following case. In July, 1918, he saw in consultation a man aged 69 years. His medical attendant said that he was suffering from cancer of the rectum and that a surgeon had proposed colostomy. The history was that in March he had a sudden attack of frequency of micturition with severe pains. He passed urine every hour, day and night. After these symptoms had lasted four or five days gas was passed from the urethra during micturition and the urine was turbid. In June traces of fæcal matter appeared in the urine and soon fragments, of which the character was undoubted, were passed during micturition. The urine became more and more turbid and deposited a fœtid sediment of fæcal debris. There were no rectal symptoms. Cystoscopy revealed an elliptical perforation behind the trigone, a little to the left of the middle line. Its borders were regular and showed no exuberant granulations. They were cut perpendicularly as if a piece had been punched out of the bladder wall. The rest of the mucous membrane was red and rich in vascular arborisations. During the examination fæcal fragments were seen to float in through the perforation. Rectoscopy showed at a distance of 15 cm. from the anus a perforation of the same size and character as was seen in the bladder. There were no granulations and no tumour, and the rectal mucous membrane was very little altered in colour or suppleness. M. Peugniez at once thought of a syphilitic lesion. There was no history of a primary sore, but the patient had 15 years before "psoriasis" of the nose and cheeks, which yielded in a few days to specific treatment. Five years before he came under observation a mobile epigastric tumour appeared and rapidly attained the size of the fœtal head. Radiography showed that it compressed the stomach. It was complicated by two attacks of icterus and the general health failed. Under treatment the tumour disappeared in a few weeks and the patient recovered. For the recent recto-vesical complication M. Peugniez prescribed mercury and iodine. At the end of August fæcal matter in the urine had become exceptional. In September cystoscopy showed that the ulcer was cicatrised, but after the examination fæcal matter appeared in the urine. A fortnight later, it had totally disappeared. In November cystoscopy showed that the ulcer had healed, but after the examination gas was passed in the urine for a few days. After that recovery was definite. Recent examination revealed the scar of the ulcer in the bladder as a dark spot. With the rectoscope scarcely any trace of the ulcer could be discovered. The general condition of the patient was perfect. It is remarkable that the kidneys were unaffected, though the ureteral orifices were bathed for months in fæcal fluid. However rare syphilitic recto-vesical perforation may be, it is necessary to bear the possibility in mind in order to avoid mistaking it for cancer of the rectum and the performance of a useless and dangerous operation.

THE HEALTH OF TROOPS IN INDIA.

A White Paper[1] recently issued, dealing with the medical arrangements for troops on the North-Western Frontier, contains the replies made by the Government of India to criticisms in the House of Commons and the British public press. Many of the allegations are categorically denied, but in such a way as to leave the impression that the Government of India has concentrated on some exaggeration or inaccuracy, leaving the spirit of the accusation unanswered. A number of admitted abuses are explained on various political grounds. For instance, the requisition of certain streams owned by an Afghan tribe, recommended by the military authorities in 1916 and 1917, was not carried out by the Government for fear of local disturbances at an awkward time. Whatever the reason, however, it is surely bad generalship to send troops to a region where the water-supply is admittedly inadequate, and the connexion of the Kohat cholera epidemic with the water shortage is not denied. It is difficult from a perusal of the correspondence to judge to what extent the acknowledged deficiency in transport, hospital stores, and in medical staff was due to lack of foresight, and to what extent to circumstances beyond the control of the Government of India. The most encouraging piece of information in the White Paper is the announcement of the visit to India of Major-General Sir R. Havelock Charles, Medical Adviser to the Secretary of State. Sir Havelock Charles will discuss with local medical authorities—and we hope also with the rank and file of the profession—such matters as recruiting for the Indian Medical Service, the provision made for medical and sanitary training and research, and the organisation of the medical women, on the importance of which we recently commented. The visit should help to improve the mutual understanding on big medical questions between the Secretary of State for India and the Viceroy. We trust that future correspondence may indicate a desire on both sides to improve conditions rather than a facility in repartee.

THE LATE MR. R. H. HORTON-SMITH, K.C.

The recent death, at an advanced age, of Mr. Richard Horton Horton-Smith, K.C., removes a well-known barrister whose professional work ended with the last century, and who since his retirement has devoted himself to the furtherance of political, artistic, and philanthropic causes. A well-known classic, his interests included music, Freemasonry, and hospital administration. His direct association with hospitals dates from 1898, when he joined the committee of King's College Hospital, and he became later chairman of University College Hospital. In 1904 he was elected a member of the committee of the Brompton Hospital for Consumption and Diseases of the Chest. He was also chairman of the Public Dispensary in Drury Lane, and just before his death received an address of gratitude for his labours on its behalf. Mr. Horton-Smith was a life governor of the three hospitals mentioned above, and also of St. Mary's and the Westminster Hospitals. He took the keenest interest in surgery, and during the later years of his life was such a regular attendant at the lectures at the Royal College of Surgeons as to be known there as "our legal member." There were many doctors among his wide circle of personal friends and his loss will be keenly felt in hospital circles.

THE STAINING OF TUBERCLE BACILLI.

The most delicate method for demonstrating the presence of Koch's bacillus by staining is that based on decolorisation by acids. Some acids, especially the mineral, exercise too violent an action, especially if prolonged; so that, in a sputum which contains few bacilli, the employment of them when in excess of the limit of the acid resistance may vitiate the result of the examination. The acids usually employed are glacial acetic, formic, oxalic, citric, tartaric and lactic, with the object of minimising the excessive decolorisation which occurs when mineral acids are used, and they have, moreover, the advantage of differentiating the tubercle bacilli from para-tubercle bacilli, which are acid-fast in less degree. Professor Antonio Gasbarini, of the University of Pavia,[1] is of opinion that the best results are obtained by the use of lactic acid as a decolorant. His technique is to treat the slide, the smear having been previously dried over the flame, with Ziehl's carbol-fuchsin for a few minutes, and then immerse it without washing in a 2 to 3 per cent. alcoholic solution of lacto-methylene-blue. This solution is prepared by making a mixture of an excess of methylene-blue with lactic acid 40 c.cm. and water 160 c.cm., with four parts alcohol of 95 per cent. The lacto-blue has a simultaneous decolorising and recolorising effect extending to all parts of the preparation, which is then washed in running water, dried, and mounted. To demonstrate the tubercle bacillus in urine the smear is treated with a 5–10 per cent. solution of soda with 5 per cent. alcohol in order to dissolve the fatty matter of the smegma bacillus which renders this micro-organism acid-fast. Koch's bacillus remains coloured red and easily distinguished from the associated flora and cytological elements which assume a clear, pale-blue tint not easily attainable with other methods. This method Professor Gasbarini asserts is much more reliable than those in which mineral acids are employed, and he has been able to demonstrate the presence of tubercle bacilli in sputum, urine, and fæces in doubtful cases where Ziehl's method had given negative results. Since the acid-fast property of Koch's bacillus is not deranged by the action of the lactic acid it is evident that the method may reveal its presence even when existing in small numbers and without previous centrifugalisation. Moreover, it enables a differentiation to be made between tubercle bacilli and the ordinary pseudo-tubercle, and by the same means the smegma bacillus is decolorised by the lacto-blue in 20 to 25 minutes, while that of tubercle is still well defined. The sharp staining of other non-acid-fast bacilli facilitates the investigation of the associated micro-organisms which are of considerable importance in tuberculous infections, and lends itself to the study of tuberculosis in the tissues themselves.

---

[1] H.M. Stationery Office. Cmd. 398. Price 3*d.*

[1] Il Policlinico, Practical Section, July 13th, 1919.

THE ELECTION OF DIRECT REPRESENTATIVES TO THE GENERAL MEDICAL COUNCIL.

THE counting of the votes for the English Direct Representatives on the General Council of Medical Education and Registration was completed on Wednesday with the following result:—

Sir T. Jenner Verrall...	5362	Dr. E. H. M. Stancomb	3303
Dr. R. A. Bolam	4872	Dr. G. A. Main	2910
Mr. E. B. Turner... ...	4803	Dr. A. Blackhall-Morison	1761
Dr. J. A. Macdonald ...	4745	Dr. J. Brown...	1636
Mr. W. F. H. Coke ...	3534		
Dr. A. Welply	3491		

The first four names on the list are those of the gentlemen duly elected to the Council, which begins its next session on Tuesday, Nov. 25th. The figures of the Scottish poll were: Dr. Norman Walker, 974; Dr. Ebenezer Duncan, 823; Dr. Michael Dewar, 252. Dr. Walker has thus been re-elected to his place on the Council by the Scottish medical profession.

SILVER SALVARSAN IN SYPHILITIC DISEASE OF THE NERVOUS SYSTEM.

AT a recent meeting of the Frankfort Medical Club Dreyfus[1] stated that he had treated 54 cases with 500 injections of soda silver salvarsan. This series consisted of 3 cases of early cerebral syphilis, 12 of cerebro-spinal syphilis, 26 of tabes, 6 of latent syphilis, 4 of multiple sclerosis, and 1 each of polio-encephalitis superior, Landry's paralysis, and malignant tertian. The dosage in syphilitic disease of the nervous system is a decidedly more complicated matter than in the other stages of syphilis. Cautious procedure is required in order to avoid reactions. Patients who are confined to bed can tolerate larger doses than those who are treated as out-patients. Early cerebral syphilis requires single doses up to 0·25 g. (0·75 g. weekly and a total dosage of 4 g. and more). In cerebro-spinal syphilis, and syphilis in which the serum reaction is positive, the highest single dose should be 0·2 g. (0·4 g. weekly and a total dosage of 3–4 g.). In tabes a careful dosage is necessary, 0·15 g. being the highest single dose (0·3 g. a week and 2–3 g. as a total dosage). The effect of silver salvarsan on the patients' subjective symptoms was very good, and surpassed that seen with salvarsan and neo-salvarsan. Unpleasant symptoms from the use of the new drug were not observed. Dreyfus concludes that silver salvarsan is superior to other preparations of salvarsan in syphilitic disease of the nervous system. It appears from his work to be of special value to the neurologist, as it enables him to treat his patient more energetically without being compelled to combine salvarsan with mercury, which in cerebro-spinal syphilis frequently, and in tabes almost invariably, is badly tolerated.

Sir Donald MacAlister, K.C.B., President of the General Medical Council, has been invested by President Poincaré with the Cross of Commander of the Legion of Honour.

AT the Royal College of Surgeons of England Sir John Tweedy will deliver the Thomas Vicary lecture on the Surgical Tradition at 5 P.M., on Wednesday, Dec. 3rd. On Thursday, Dec. 11th, at the same hour, Sir Charles Ballance will deliver the Bradshaw lecture on the Surgery of the Heart.

BRITISH ORTHOPÆDIC ASSOCIATION:

ANNUAL MEETING.

THE annual meeting of this Association was held in the rooms of the Medical Society of London on Nov. 14th, under the presidency of Mr. E. MUIRHEAD LITTLE.

President's Address.

The PRESIDENT, in the course of a short opening address, said that for years to come the orthopædic surgeon would have to treat the injured and crippled pensioner and the remote results of wounds and disease incurred in or near the fields of battle. It would be the duty of members of this Association to continue to lead surgical opinion on these matters. How far would the methods found useful in the treatment of recent war injuries be applicable to the surgery of peace? In the treatment of compound gunshot fractures of the long bones in the special surgical hospitals it had been found generally possible, with improved methods at disposal, to do away with all shortening not due to actual loss of bone. He had been told that in some cases the limb had been even unduly lengthened by traction. It was probable that the extensive damage to muscles, which was so common in gunshot injuries, was the factor which had facilitated these results. He asked whether equally good results would be possible in the treatment of fractures in civil life by similar methods. This question would have to be answered by orthopædic surgeons, so that the conditions governing success and failure might be properly estimated and the reputation of civilian surgery maintained. In the years ahead, the stumps of the survivors of some 50,000 wearers of artificial limbs would offer cases for treatment, and if the operations introduced by Vanghetti, and the special prostheses for them proved of practical value, a host of operations would be necessary to kinematise many of these stumps. The problems involved in the operative treatment of the disabilities resulting from spastic paralysis needed discussion and elucidation. We did not yet know how many cripples there were in this country, and it was most desirable that a census should be undertaken. A large number of our cripples had hitherto failed to receive effective treatment on orthopædic lines, and it appeared quite certain that with the assumption by the Government of greater responsibility for the public health, there would ensue an increase in the facilities for treatment throughout the country, and a corresponding increase in the number of surgeons interested in orthopædic surgery, all of whom should be members of the Orthopædic Association.

Discussion on Kineplastic Amputations.

A number of illustrative cases having been shown, the PRESIDENT, in opening the discussion on this subject, said former methods of producing movements in artificial hands and fingers depended upon efforts made by the upper arms and shoulders: an elaborate example of this was seen in the Carnes' arm. Vanghetti had performed many operations on fowls, and during the last 20 years his writings had stimulated surgeons to put his principles into practice, in which connexion he referred gratefully to Professor V. Putti's lecture published in this country last year.[1] The various kinds of motors could be divided into the "club" and the "loop." In the former class were the motors which were meant to be connected with the prosthesis by their peripheries, and in the loop class were those connected by their inner and more central surfaces. He described the desiderata of a plastic motor, remarking that in his somewhat limited experience the club motor with osseous nodule in the end gave the greatest promise of usefulness; it was better fitted to stand the pressure of the attachment than was the tunnel, and it could be better planned to stand a large range of movement. The amputation sites suitable for cinematisation were: First, those so close to a joint that the segment below the articulation was of no use for working a socket. Secondly, stumps which were too long after amputation through joints could well afford to lose an inch or two to make plastic motors.

Major ALWYN SMITH, who is responsible in South Wales for military orthopædic cases, pointed out the great importance, especially in such a district as his, of keeping industrial efficiency in mind when planning an operative procedure.

---

[1] Medizinische Klinik, 1919, xv., 806.

[1] THE LANCET, June 8th, 1918, p. 791.

Major M. FITZMAURICE-KELLY said the orthopædic surgeon had to be guided in every case by his particular material. His experience had been that, whenever it could be got, a clava type of motor was by far the best. He detailed his reasons for that statement. Club motors, he considered, had the best chance of surviving, for there was a concentration of the whole power of the muscle at one point, whereas in a tunnel there was hampering by adhesion of muscle or tendon with consequent reduction of power. In club motors the range was greater. He did not think that a prosthesis could be successful until the forces were surgically produced for the instrument-maker to apply. Orthopædic surgeons must solve the surgical problem and leave the mechanical problems to the engineers.

Mr. A. S. B. BANKART related two failures he had had through operating on too small a scale, and he was anxious that others should benefit from his experience. Large flaps must be used and considerable masses of bone taken away in planning a properly formed motor.

Captain MAXWELL (chief arm instructor, Ministry of Pensions), though not a surgeon, spoke of his experiences and hopes as one who had lost an arm many years ago and as an officer with a wide experience of casualty clearing station practice in the war. He referred with great regret to the large number of cases in which, in the early days of the war, men were fitted with the artificial arm as soon as it was ready, and at once turned into the world to do their best to earn their living again, without having been given any instruction as to its use or limitations. He urged a close consultation between surgeon and limb-maker, with the view of effecting small improvements as they appeared to be practicable.

Mr. ROWLEY BRISTOW said the great lesson brought back by those who visited Italy was the need for these cases to be segregated in orthopædic centres or hospitals in touch with the special surgical and mechanical opportunities.

Habitual Dislocation of the Shoulder-joint.

Mr. R. OLLERENSHAW opened the discussion by reading a membership thesis upon four cases in which conservative treatment had been attempted before he saw them. The operative treatment resolved itself into three methods: (1) pleating the capsule; (2) ex-section of a portion of the antero-inferior aspect of the capsule and narrowing it by overlapping the edges; (3) the deltoid flap operation. He considered the muscle flap operation as the best of these, because it provided a good sling bracing the head and neck of the humerus, and a muscular sling which contracted actively when the rest of the deltoid was in action. He described the conditions found in the four cases, and regarded the recurrence of dislocation as primarily due to a loss of muscle balance in the musculature controlling the joint, with some capsule laxity. He had not had any recurrences in his four cases, but would make a later report on them.

Captain N. DUNN said he had had the opportunity of carrying out different operations for recurring dislocations of the shoulder, and in many cases excision of a portion of the capsule was followed by recurrence of the dislocation. In one very obstinate case a Claremont was done, and he did not think there was a recurrence. In one case sepsis supervened, but the after-result was quite good.

Mr. HARRY PLATT (Manchester) said that in one case his deltoid flap was too thick and too short, the latter probably because he did not take the insertion down to the bone.

Amputations of the Foot.

Mr. S. T. IRWIN read a paper—also a membership thesis on this subject—in which he said that he had been struck in his work in the Limbless Department of the U.V.F., Belfast, by the difficulties in fitting cases of partial amputation of the foot, by the impossibility of giving even moderately useful appliances, and the consequent frequent re-visitations of patients for adjustments. He divided the subject into the following heads: (1) Amputations of the toes; (2) Amputations in the foot proper, with special reference to Lisfranc's and Chopart's amputations; (3) Amputations in the vicinity of the ankle, with special reference to Syme's amputation; (4) Capacity for work after these amputations. Under the first heading he said that where relief could be obtained with retention of the toe, as in hammer toe, by excision of the joint, it was better surgery to retain the toe, especially the great toe. No amputations in the lower limb gave more disappointing functional results than did partial amputations of the foot—they were only suitable as primary amputations where conservatism was of the first importance. The main objection was that the anterior pillar of the antero-posterior arch of the foot was shortened, so that the weight of the body acted through the centre of the ankle-joint, while the support acted downwards through the posterior pillar of the arch, producing a complete rotation round a transverse horizontal axis lying behind the ankle-joint. Hence the heel moved upwards and a potential equinus resulted. The more the anterior pillar of the antero-posterior arch was shortened the worse the result, the greatest disablement following the amputation through Chopart's joint. The scar, at first placed anteriorly, became progressively lower, until eventually it lay on the ground. Deformities and disabilities secondary to amputations in the foot could be combated to some extent by division of the tendo Achillis, by suture of the extensor tendons to the plantar fascia, and by producing ankylosis of the ankle-joint, but none of these measures produced satisfactory results, and the best course was to re-amputate and convert a partial into a complete amputation of the foot. Chopart's and Lisfranc's operations should not now, he considered, be performed. Of the operations through the ankle-joint, James Syme's he regarded as *facile princeps*, and gave reasons for his opinion. There were objections to Pirogoff's amputation. He exhibited a graph to indicate how the functional result varied after amputations in the lower limb. In a general way there was a fall in capacity for work as the stump became shorter, but there were secondary irregularities of great importance which should influence the choice of operation for a particular case. The chief variants were (1) the value of the ideal amputation at the given level, (2) the type of prosthesis appropriate to the amputations. Comfortable progression and capacity for work were diminished by amputation of the great toe; loss of other toes did not generally produce disability, though, if possible, they should be retained. After a Lisfranc there was a marked drop in the capacity curve, due to the shortening of the anterior portion of the arch and its consequent flattening, while the secondary changes were of even greater importance, due to the muscular action in trying to prevent deformity. There was a still further drop in the curve with Chopart's amputation; there was complete removal of the anterior pillar of the arch, with sequelæ which the author detailed. After a Syme amputation, however, there was an abrupt rise in the capacity curve, for it left a stump nearly perfect.

The PRESIDENT congratulated the author on the thoroughness with which he had dealt with the subject, and was glad to find the results of later investigations bore out the recommendations of the surgeons at Roehampton, on which the Memorandum issued by the War Office in April, 1916, was based. Those surgeons arrived at the conclusion that if one could not amputate in front of the anterior metatarsals it was of no use to do anything in front of a Syme. His own site of election would be the middle of the leg—i.e., higher than Mr. Irwin's site.

Major ALWYN SMITH, Mr. D. McC. AITKEN, and Mr. P. J. VERRALL joined in an interesting discussion.

Birth Paralysis.

Mr. H. A. T. FAIRBANK opened a discussion on this subject, his remarks being illustrated by tables and a number of slides. In Thomas and Sever's 471 cases the sexes were about equally divided; the right arm was affected in the proportion of 3 to 2 on the left. Labour in these cases had usually been difficult, though in some it was normal. There were four head presentations to one of breech. He proceeded to discuss the prevalent theories of causation, and said the traction theory best explained the condition in most of the cases, and that the subluxation of the shoulder-joint developed gradually as a direct result of the paralysis. He elaborated eight separate reasons for this belief. The pathological lesion varied from a slight tear in the perineural sheath to complete rupture of the nerve trunk. In some cases the lesion was quite close to the spinal cord, or the cord itself might be injured by the nerves having been pulled out by their roots. Three clinical types were recognised: the upper arm, the lower arm, the whole arm—the first being by far the commonest. In treating the palsy he always put the arm up with right-angle abduction and full external rotation of the shoulder, flexion of the elbow to a right angle, full supination, and if necessary dorsi-flexion of the wrist. He used a splint made of tin, and twice daily the arm was taken down for massage and manipulations. The paper discussed the length of time after which operation should be attempted and the procedures to be followed, considerable attention being devoted to the treatment of subluxation of the shoulder.

Mr. **PLATT** dealt particularly with the type of lesion present in cases of birth paralysis. He pointed out that up to 1913 the conception of birth paralysis as a supraclavicular injury held undisputed sway. Since that date investigations of various American and continental authors had thrown some doubt on the correctness of this theory. At the present time, he said, there were two schools. The first considered that all cases of birth palsy were due to supraclavicular lesion of the plexus, while the second school thought there was a primary injury of the shoulder-joint capsule, with secondary involvement of branches of the brachial plexus in close relation to the joint. He pointed out that there was a certain amount of evidence in favour of the inclusion, under the heading of birth palsy, of two distinct types of lesion. Spontaneous recovery occurred in the vast majority of these cases, only a few needing exploration of the plexus. Posterior subluxation of the joint dominated the whole clinical picture of birth paralysis, and presented a problem for treatment in the majority of cases which presented themselves to members of the society. Out of 23 cases he had seen personally there was spontaneous recovery in 20. He advocated conservative treatment in all cases for at least 12 months, the arm being fixed in the standard posture, with relaxation of the affected muscles. Exploration of the plexus should be reserved for cases which presented no recovery after this period had elapsed, and which showed the definite muscle atrophy characteristic of a complete nerve lesion. The posterior subluxation of the joint could be avoided in all cases if the standard position of splinting were adopted. In 17 operations the condition was reducible by manipulations, and in only 6 was open operation needed after the method advocated by Mr. Fairbank.

Mr. **ROWLEY BRISTOW** did not agree with operating in three months, at which period it was operating for diagnostic purposes. He believed in delaying operation until the very last, for at least a year or 18 months. He had found the electrical reactions of but little service to him in these cases.

Mr. **R. C. ELMSLIE** spoke of the need for orthopædic surgeons to make up their minds on this subject. The nerve theory seemed to him to fall in very well with clinical observations in tracing and following these cases. The cases of birth palsy seen in early infancy fell, clinically, into three groups: those which recovered very quickly, in many cases without treatment; those recovering more slowly, from three to twelve months; and those which either did not reccover at all, or else only partially. He believed the last-named scarcely existed, they were so very few. Those three groups fell in very well with three presumed pathological conditions: (1) that in which there was injury to the nerve not involving rupture of axis-cylinder; (2) in which the nerve injury involved axis-cylinder rupture; (3) a condition of injury of axis-cylinders, with degeneration of their ends. Cases of subluxation of the shoulder he regarded as nerve lesions, with a tendency to recover more or less rapidly, the slowly recovering cases ending in contracture. In these cases he always put the arm in the standard position. He thought the functional loss of the use of the arm was mostly due to lack of external rotation, and for that reason he had used external rotation in the abducted position. He thought highly of Mr. Fairbank's operation.

Mr. **G. R. GIRDLESTONE** advocated the complete exposure of the brachial plexus with division of the clavicle, placing thus the whole plexus under observation; this method also resulted in more mobility of the ends.

Mr. **AITKEN** expressed his agreement with the principles laid down by Mr. Elmslie as to treatment; but he had never yet performed the open operation for subluxation or extreme internal rotation. He discussed fifth and sixth nerve root hæmorrhages.

Mr. **W. H. TRETHOWAN** gave a short demonstration on the use of silk to replace crucial ligaments; he considered the method promised well for arthroplasty in the knee.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Incidence of Tetanus in 1918.

STATISTICS of the Service de Santé for the war period are being gradually published. The incidence of tetanus for 1918 was markedly lower for hospitals within and without the army zone than in the early days of the war. This improvement is attributed partly to the earlier and more systematic injection of serum and its provision even at casualty clearing stations. It was also due in part to the more speedy evacuation of the wounded, better surgical technique, and more systematic removal of all foreign bodies. Serum injection has not only diminished the number of cases of tetanus, but also has so modified its form as to retard and localise its appearance. The experience gained in the course of the last year of the war has also improved the technique for the inoculation of the same soldiers when surgical interference again became necessary.

Tumours of the Posterior Cranial Fossa.

The Société de Neurologie of Paris has received an interesting communication from Dr. Christiansen, of Copenhagen, on the results of 23 operations for this condition. All the patients were at first treated for cerebral compression and had a serous meningitis, producing isolated symptoms which led to a wrong diagnosis of the position of the tumour in nearly every case. According to Dr. Christiansen, even Bárány's functional tests are liable to fail. In a third of the cases the diagnosis of the otologists was proved wrong. Incidentally the operative results were lamentable. Four-fifths of the patients died and a large proportion of those who survived remained invalids. The trans-labyrinthine method of operation used is irrational, because the diagnosis of a tumour in the ponto-cerebellar angle in an early stage is often impossible inasmuch as a good view of the field of operation cannot be obtained, and lastly, because the facial nerve, which is not usually affected at the onset of the disease, is necessarily cut in this method. It is better to confine operative interference to a simple decompression in order to let out serum, and not to attempt removal of the tumour except in those cases in which symptoms are unrelieved by the decompression.

The Extension of the Faculty of Medicine.

The accommodation in the existing buildings of the Faculty of Medicine being no longer adequate for teaching purposes, 5½ of the 8½ million francs voted by Parliament for its extension have been allocated to the purchase of a new site in the rue de Vaugirard. The remaining 3 million francs will be used to enlarge the hospital services connected with clinical instruction. The purchase includes the two Jesuit colleges already in existence on the site; these buildings are large, well lighted, and already adapted for teaching purposes. The smaller was used during the war as a hospital, financed by the Government of Brazil, and fitted out regardless of cost. Rumour suggests that the Brazilian Government may present the fittings to the Faculty, and, if so, it could be used for clinical teaching purposes as it stands. The larger college, till now used as a military hospital, is to be made into an institute of hygiene and experimental medicine and surgery. The only disadvantage is the distance of the new annexe from the main Faculty buildings, but no suitable site could be found nearer.

The Closing of the School of Re-education.

A school for the re-education in suitable professions and trades of those crippled in the war was founded in July, 1916, and after over three years' work closed its doors on Oct. 31st. The school during this period trained altogether 3000 men for some 20 diverse occupations, and a considerable number of them found employment direct from the school. A wealthy American (Mr. E. T. Stotesbury, of Philadelphia) was responsible for its maintenance, and it was run on admirable lines under the medical direction of Major Hubert Kresser, with the lay assistance of M. Louis Asscher and Mr. Walter Berry. Over and above those pupils who were placed in remunerative employment, there are others who are banding themselves together in a coöperative productive society comprising different trades, and it is confidently hoped that the venture will prove successful.

Milk Shortage.

Paris is more short of milk than at any time during the war. The diminution of supply is influenced by much the same circumstances as in your country, with the additional factor of the destruction of cattle in the regions invaded by the enemy. The dry summer, causing a rise of prices in animal foodstuffs; the prevalence of cattle disease; the high prices obtained for certain luxurics derived from the constituents of milk; and the greed of certain profiteers, are a few of the conditions which have created the present anxious situation. The authorities are coping with the situation by forbidding the consumption of fresh milk and cream in cafés, and possibly the provision of milk in whatever form in such places will have to be stopped. Cream cheese is so popular and expensive a delicacy that the manufacturers thereof are able to outbid the milk-shops, and some regulations to prevent its manufacture and sale should be made.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENTS.)

Bengal Public Health.

A RESOLUTION of the Government of Bengal on the recommendations of the Public Services Commission regarding the Sanitary Department states that the question of a well-organised public health service is of the first importance. The municipal boards of the Presidency have already appointed qualified medical officers of health or sanitary inspectors. A medical officer of health will shortly be added to the staff of each district board. There will thus be the nucleus of a trained public health service. The appointment and recruitment of this staff, on which depends the sanitary progress of Bengal, raises, says the resolution, three important questions—namely, the manner of selecting and appointing of public health officers, their status and conditions of services, and the sources of recruitment for higher posts. In reference to the first the Governor-in-Council contemplates the formation of an Advisory Board of Health composed entirely of experts, and containing a strong Indian element. Regarding the second, it has been proposed that there should be in each province a general cadre from which local bodies should, through the medium of the Advisory Board of Health, obtain their medical officers, whose appointment, promotion, suspension, or dismissal should rest with this advisory board. Regarding the third, facilities should be provided to enable natives of India to obtain diplomas in public health and instruction in hygiene without going to Europe. Courses in public health have already been established to help the recruitment of trained sanitarians.

Housing in Madras.

The public health of the city of Madras in recent years has been by no means satisfactory. Despite the vigorous and vigilant measures adopted by the health officer of the corporation no perceptible improvement has been established, and the average death-rate is not only exceedingly high but far higher than it ever was in the past. Apart from the epidemic outbreaks, the growing increase in population and want of adequate number of proper and sanitarily built houses to meet this growing demand has had a prejudicial effect on the city's health.

Labourers' Dwellings in Ootacamund.

The Municipal Council of Ootacamund has decided that in view of the unsatisfactory conditions under which many of the servants and labouring classes are now housed, and in view of the recent outbreak of influenza and the prolonged prevalence of small-pox, its first and imperative duty is to make provision for housing at least 500 of these classes in sanitary dwellings situated in localities where they are most needed.

The Governor of Bengal has opened new waterworks at Goalando.

Oct. 25th.

ST. MARY'S HOSPITAL.—The past and present students' annual dinner will be held on Friday, Jan. 9th, 1920, at 7 for 7.30 P.M., at the Connaught Rooms, Great Queen-street, London, W.C. The chair will be taken by Sir Almroth Wright, K.B.E., C.B.

MEDICINE AND THE LAW.

The Legalisation of Abortion.

THIS summer a Bill, introduced by Dr. Welti, passed its first reading before the senior council of the canton of Basle city. The Bill contained the following provisions: Abortion shall be without penalty, in matrimonial pregnancy if both partners are willing, in extra-matrimonial with the consent of the female one, provided that the fœtus is not older than three months, and that the procedure is carried out by a qualified medical man. Labhardt,[1] discussing this measure at a meeting of the Basle Medical Society, raised the following objections to it. First, that as drafted it does not favour abortion only on social or economic grounds, but opens the door to the practice in the absence of good reason. Secondly, the risk to the mother, even in the most skilful hands, is real, so that the practitioner is forced to take upon himself no slight personal responsibility. Thirdly, abortion might be induced repeatedly, perhaps twice or thrice a year, in the same woman, leading inevitably to uterine disorders and disturbance of the general health. Fourthly, the difficulty of determining whether or no the three months' limit had been passed. Fifthly, the encouragement to sexual licence. And lastly, the likelihood that Basle would become the resort of undesirable foreigners from all parts seeking abortion, so that the prestige of the local medical profession would suffer. The author adds that a referendum of 59 Swiss patients at a women's hospital resulted thus: for, 5 married and 5 single; against, 41 married and 8 single.

The question of abortion for non-medical reasons has an interesting history. Ancient Greece and Rome allowed it; Aristotle spoke for it, and the Roman law laid down that a fœtus became a human being only at birth. Christianity, on the other hand, strongly condemned it, probably following old Jewish ideas. In modern times, although not overtly, action, and perhaps ethical feeling, have, as a fact, reverted somewhat to the classic view. The feminist movement on the continent has been known to favour it, making the claim that the products of conception, being contained in the woman's body, were as such her exclusive property, and should be under her exclusive control. Dr. Welti's measure is obviously dictated by the economic difficulties under which Europe at present labours as the result of the war, but the medical and medico-legal objections set out above appear to us to be undeniable.

A Question of Privilege and of Prudence.

In an action recently tried by the Lord Chief Justice, Miss M. R. Maunders, a nurse, sued Mr. C. Ingleton, a member of the Sheppey rural district council, for slander. The defendant was at that time a member of the board of guardians and the plaintiff had been superintendent nurse at Sheppey Union Workhouse Infirmary. In 1914 she remained there as nurse under the military authorities in what became a military hospital managed by the board of guardians. In 1917 a question was raised by the guardians as to Miss Maunders having attended an officer's wife in her confinement, in consequence of which she resigned her appointment, and a few months later Mr. T. Wigglesworth, medical officer to the Sheppey board of guardians and to the district council, being well acquainted with her capacity and the work she had done, asked her to take charge of the council's isolation hospital. The evidence given showed that the plaintiff had not obtained the three years' hospital certificate, but held a midwifery certificate obtained in 1912. It was also suggested there had been complaints of lack of discipline among the military patients at the infirmary and an altercation between herself and the master. At a meeting of the district council in January, 1918, in a discussion arising out of the plaintiff's appointment by Mr. Wigglesworth to the isolation hospital, the defendant was alleged to have used the words, "She is not a fit and proper person to take charge of the fever hospital." The following questions were put to the jury by the Lord Chief Justice: (1) Are the words defamatory? Answer: Yes. (2) Has the plaintiff satisfied you that the defendant was actuated by malice? Answer: No. His lordship, in the absence of malice, held that the occasion was privileged, and entered judgment for the defendant, with costs.

---

[1] Zeitschrift für Sexualwissenschaft, October, 1919.

The Everitt Divorce Case.

In this case the wife of Major S. G. Everitt sued for a judicial separation from her husband on the ground of his alleged cruelty, and Major Everitt petitioned for a divorce from his wife, alleging that she had committed adultery with Mr. J. L. Whatley, a medical practitioner who had attended her professionally and had also been on terms of social intimacy with her and with her husband. The case ended on Oct. 31st in the jury finding that Major Everitt had not been guilty of cruelty, and that neither Mrs. Everitt nor Mr. Whatley had been guilty of adultery, and in the dismissal of both petitions accordingly. It is not necessary to recapitulate either the evidence upon which Mrs. Everitt sought for a judicial separation from a husband many years older than herself, with whom she had undoubtedly had unhappy relations for some time, or upon the evidence adduced to prove that the wife had been unfaithful; but it should be mentioned that Mr. Justice Shearman pointed out in his summing up that there was evidence that the co-respondent had been possibly foolish and indiscreet in the frequency of his visits, but that there was an absence of anything clandestine about his conduct, and no evidence leading directly to the question at issue, as, for example, of kissing or of affectionate letters. In these circumstances we may congratulate Mr. Whatley and the Medical Defence Union, which conducted his case, upon the result of a long and anxious trial, and a verdict which exonerates him completely from one of the most serious accusations that can be brought against a medical man. At the same time the prolonged ordeal to which this medical practitioner was subjected is not without useful lesson. It is impossible to ignore the fact that there was imprudent conduct, not rendered less so by the disparity of age and lack of harmony existing between Major and Mrs. Everitt. Indeed, at the close of the trial an application was made to deprive Mr. Whatley of his costs, on the ground that his conduct was responsible for his position in the suit. This was refused by the learned judge, who held that the co-respondent, having been exonerated by the jury, was entitled to the usual result of such a verdict, and even if it had been granted it would have implied no more than that his conduct had been rash and unwise. In the medical profession, however, rashness and imprudence are out of place. The three learned professions—medicine, the law, and the church—bring their members in the exercise of their functions into contact with many persons of the other sex, closer and more intimate than they would enjoy merely as social friends or neighbours. This is particularly the case in medical practice. No one would wish to deny to medical men, young or old, the friendship and social intercourse freely open to others, nor to see them leading dour and austere lives. At the same time there is a certain dignity expected, or may we say demanded, from every member of a learned profession, which he must exercise if he wishes to be regarded as taking his calling seriously.

Prescriptions and Profiteering.

The decision of the Divisional Court on the question of law arising out of the prices quoted by Messrs. Boots Cash Chemists (Southern), Ltd., and Mr. Coulter, a druggist, for the dispensing of a prescription is one of some importance. The court held, to put it briefly, that when medicine is made up in accordance with a prescription and handed to a purchaser in return for a price, the transaction is a sale coming as such under the Profiteering Act, 1919, being the sale of a drug or "medicinal preparation," to which the Act is applied by an Order of the Board of Trade of Oct. 14th, 1919. The argument put forward on behalf of the druggists was that the Wood Green Profiteering Committee had no jurisdiction to consider the complaint as to an alleged unreasonable charge, because the making up of a prescription was in its nature a service rendered and not a sale. As to this, the Lord Chief Justice said, in his judgment, that if the court were to give effect to it, the result would be to make the Profiteering Act of no value whatever. If that argument were allowed to prevail the Act could only have a very limited application, because there were few articles sold the price of which did not include something for services rendered. This, of course, was no reason why the court should decide against the applicants. The case must be judged on the natural meaning of the words of the Act, and he had no doubt, on the natural meaning of the words of the Act, that the sale of a bottle of medicine made up from a prescription was the sale of an article. This judgment, it is to be observed, is final and not liable to revision on appeal to any higher court. Any change in the law making any special exemption of charges for prescriptions from investigation by profiteering committees would have to be by Act of Parliament, or rather by a fresh Order of the Board of Trade, modifying the one referred to, which, to give it in full, applies the Act to "all drugs (excluding quinine sulphate, which is controlled) and medicinal preparations, including tooth-powders, talcum powder, and fuller's earth." The result of the judgment is to enable a profiteering committee to go into the cost of, and the charge made for, any medicine "sold," whether by a druggist or by a medical man who makes up his own prescriptions. The committee need not condemn the price as unreasonable merely because there is a substantial difference between the price of the materials and that asked of the purchaser, and, no doubt, committees, as a rule, will be found anxious to act justly towards the vendor of the "medicinal preparation" as well as to the public, in the interest of which they have been brought into being. It is possible, however, that they may not fully appreciate the question involved, which cannot be summed up by saying that a fixed percentage upon the cost price of the drugs when sold to the compounder should suffice for his profit. The question is one which affects the public intimately, for it is to the public interest that prescriptions should be prepared by thoroughly efficient persons, and anything like vexatious proceedings and harassing restrictions may have the effect of seriously diminishing the numbers of those willing to dispense at all.

URBAN VITAL STATISTICS.

(Week ended Nov. 15th, 1919.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at 16,500,000 persons, the annual rate of mortality, which had been 13·7, 12·9, and 13·4 in the three preceding weeks, rose to 13·9 per 1000. In London, with a population slightly exceeding 4,000,000 persons, the annual death-rate was 14·2, or 0·9 per 1000 below that recorded in the previous week, while among the remaining towns the rates ranged from 6·0 in Cambridge, 7·6 in Norwich and in Warrington, and 7·7 in Tottenham, to 21·5 in Hastings, 22·1 in Sunderland, and 23·2 in Exeter. The principal epidemic diseases caused 232 deaths, which corresponded to an annual rate of 0·7 per 1000, and comprised 73 from diphtheria, 68 from measles, 52 from infantile diarrhœa, 20 from whooping-cough, 14 from scarlet fever, and 5 from enteric fever. Measles caused a death-rate of 1·7 in Derby, 1·8 in Tynemouth, 2·2 in Sunderland, and 2·6 in Gateshead. The deaths from influenza numbered 74, against 71 and 56 in the two preceding weeks, and included 22 in London, 4 each in Manchester and Salford, and 3 each in West Ham and Bradford. There were 2678 cases of scarlet fever and 1478 of diphtheria under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, against 2540 and 1433 respectively at the end of the previous week. The causes of 35 deaths in the 96 towns were uncertified, of which 7 were registered in Birmingham, 4 in Liverpool, and 3 each in London, Manchester, and Sunderland.

Scotch Towns.—In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2,500,000 persons, the annual rate of mortality, which had been 11·1, 12·4, and 13·1 in the three preceding weeks, fell to 12·6 per 1000. The 282 deaths in Glasgow corresponded to an annual rate of 13·1 per 1000, and included 14 from infantile diarrhœa, 7 from measles, 5 from diphtheria, and 3 from scarlet fever. The 77 deaths in Edinburgh were equal to a rate of 11·9 per 1000, and included 3 from diphtheria.

Irish Towns.—The 105 deaths in Dublin corresponded to an annual rate of 13·5, or 0·8 per 1000 above that recorded in the previous week, and included 5 from infantile diarrhœa and 1 each from measles and scarlet fever. The 147 deaths in Belfast were equal to a rate of 19·1 per 1000, and included 5 from scarlet fever and 2 each from measles and infantile diarrhœa.

A NEOLITHIC SKELETON.—Prehistoric remains recently unearthed in Wiltshire have been deposited at the British Museum for expert examination. Together with portions of a human skeleton, belonging to the neolithic period, are a good specimen of a flint spearhead and fragments of a crudely ornamented urn of a red non-fictile ware.

MEDICAL PRESENTATION.—By public subscription Dr. F. M. Blumer, the new Mayor of Stafford, has been presented with a large silver tray bearing the following inscription: "Presented by friends and colleagues of Dr. Frederick Milnes Blumer, B.A., M.B., C.M. Edin., on his relinquishing the position of medical officer of health for Stafford, after 33 years' meritorious service, 1886-1919, and as a mark of appreciation of his untiring efforts for the well-being of the inhabitants of the borough." The presentation was made before a large and representative gathering in the Borough Hall on Nov. 10th.

Correspondence.

"Audi alteram partem."

PREVENTION OF VENEREAL DISEASE.

To the Editor of THE LANCET.

SIR,—In the long essay by Dr. Douglas White on theory and experience in this matter, published in THE LANCET of Nov. 8th, there is much of the former, but very little of the latter; and this practically consists in a statement of Colonel L. W. Harrison's views contained in a space of not much over a paragraph. The rest of the four columns set forth only the opinion of the writer and, perhaps, of others who agree with him, and it is notable that in the beginning he employs the method, not uncommon in controversy, of giving his own interpretation of the statements of those opponents from whom he elects to quote. Thus, in making an extract from what he names an "influential letter" to the *Times* of Jan. 2nd, 1919, he boldly affirms that the sentence "extraneous considerations can have no place in *sanitary* problems" means that "social ethics and *sexual disease* are independent problems." I do not propose to occupy space in correcting this obvious misinterpretation of the words of another writer whose name is not given by Dr. White; but will give only one other example of what seems to me the over-assumptive and somewhat predicatory method of Dr. White's preliminary dialectic. He says in his opening paragraph that "science is the elucidation of principles which govern physical, physiological, and social processes." This is a very imperfect definition or even description of "science." But let that pass. But how a *method of inquiry* can "interdigitate" with what it inquires into is an insoluble riddle. Dr. White's line of argument seems unduly directed all along towards distracting his reader's attention from the main point and to showing that the advocates of prompt personal disinfection deny that there is any immorality attaching to sexual promiscuity. He must, however, be well aware that what those advocates contend is that to stem the tide of venereal infection much more is absolutely required—and that of a purely medical nature—than moral instruction, however intelligently and persistently offered.

It is abundantly clear that the real point at issue between the honorary secretary of the National Council for Combating Venereal Diseases and those who advocate immediate self-disinfection is whether Colonel L. W. Harrison, the Adviser on Venereal Disease to the Army Medical Service and member of the National Council, is right or wrong in the attitude he now apparently takes in the matter of the medical prevention of venereal infection; and I base this statement to a great extent on the last paragraph of Dr. White's article, headed "Conclusion." He says there that "if the Army Medical Department were prepared to give a full analysis of their experiences they would throw invaluable light on the road we have to travel," &c. I think that such an analysis, provided it included a strict and full account of the exact method and scale on which the instructions to soldiers and the facilities afforded for self-disinfection were carried out, much more light could be thrown on what was really done in this matter than is at present available; but I doubt much that any fresh light would be thrown on the main question between immediate and delayed disinfection. What has stood in the way of obtaining valuable sets of statistics on a large scale, or more than a few records of any thorough and wide trial of disinfection in the army or elsewhere, has been the primary influence of a prevalently hazy and incomplete conception of what the moral side of this great question really is. This has helped largely to render most army records of little use on account of the necessarily vague and jejune character of the available reports. High authorities have done their best to stifle or discourage the medical disinfectant procedure, and even such reports as do show the high efficacy of self-disinfection coupled with proper instructions, have been conveniently set aside, as is well known, and irrelevantly called "exceptional."

With one remark made by Dr. White concerning moral teaching in this context I quite agree. "Morals (by which I assume he means teaching of morals) have been found wanting." "But," he adds, "they have never been tried intelligently; never up to the other day, as it were, has there been a serious attempt to give deliberate and rational instruction to the youth of this country on sexual ethic or hygiene." This is doubtless a very deplorable truth. But all "morals," to be taught effectually, must be properly taught to the *young* early. It is the early moral teaching and experience and example which mainly mould the moral character of the adult. Are Dr. White and those who think with him going to wait for the results of better teaching of children before they stir themselves to do all in their power to prevent contemporary and unteachable adults from continuing to poison others and causing fresh instalments of already poisoned infants to be born, to suffer, and to die, or, mayhap, to be "cured" by "early treatment," while they neglect or discourage the use of means in which Dr. White admits there is nothing immoral?

I am, Sir, yours faithfully,

Nov. 13th, 1919. H. BRYAN DONKIN.

To the Editor of THE LANCET.

SIR,—There are three principal groups of contagious diseases—the surgical fevers (septicæmia, tetanus, gangrene, and the rest), various skin diseases, and the venereal diseases. The problem of disinfection, of prevention, presented by these three groups differs in no way, except that, owing to the shape, size, and position of the penis, the delicacy of the pathogenic organisms, and the fact that the time and manner of infection may almost always be anticipated, disinfection is particularly easy and certain in the case of the venereal diseases. Two methods of preventing contagious disease are in vogue—disinfection with all possible speed after exposure to infection, and disinfection delayed for one, two, or more hours. As far as I am aware, delayed disinfection is practised only in the case of the venereal diseases, and then only by men who are ignorant of how to apply quick disinfection, or by those who have "moral" objections to its employment, or by those who are compelled by superior authority not to employ it. It is remarkable that the people who object to quick disinfection on moral grounds are precisely those who are convinced that it is valueless on medical grounds. It is equally remarkable that whenever (any time within the last ten years) and wherever (Japan, India, South Africa, England) quick disinfection has been practised and the active disinfectants ordinarily used in surgical practice have been employed, the result has always been almost perfect—better far than those achieved by surgeons who prepare patients for operation. It is even more remarkable that these results, which may be verified to the last detail from official records, are never quoted by people (even by people who have official access to the records) who on moral grounds are convinced that quick disinfection is wicked. The British Army furnishes a series of excellent samples. My space is limited, and I need only quote one.

In a large area served by a single venereal diseases hospital both quick and slow disinfection have been extensively practised. For quick disinfection nothing more was found necessary than to tell the men to swab themselves with permanganate of potash (or any other active antiseptic) immediately after exposure. No "packets" were necessary, but the men were given the antiseptic if they asked for it. At the time of my last inquiry, of all the hundreds who had passed through the hospital nearly *every* man had practised slow disinfection and not *one* had practised quick disinfection. At a later period the method of quick disinfection was more extensively applied in this area. Subsequently almost the only cases of disease that occurred within it arrived with men joining station from outside the area and bringing their infections with them.

A Question of Morals.

I wish, someone, Mr. E. B. Turner for choice, would explain the difficult morals of this business to me. Both in the case of quick and slow disinfection the soldier knows the disinfectants are ready for him, and for what purpose; in any case he is led to believe that the means of prevention are effective and the best that science can devise; in the one case he is told the truth, but not in the other; yet it seems it is immoral to tell him to disinfect at once, but quite moral to tell him to disinfect after an hour or two. I wonder what would be the legal position of a doctor who gave that sort of advice in the case of the surgical fevers. Personally I think he should be hanged. In connexion with this ethical aspect of the problem there is a point which appears to me of extreme importance. Children learn about sex and acquire their moral tone from other children. Most men remember the freedom, even the obscenity, of school-boy discussion. All that children learn from adults is reticence and secrecy. Children therefore are the real teachers of sexual morality, such as it is. After the twig has been bent, after the moral attitude, whatever it be, has hardened, these children, now men and women, are preached at by other adults. But there is the widest difference between real teaching and mere preaching. The latter is usually a mere waste of breath. I am sure if Mr. E. B. Turner and I preached at one another for a month, each could not alter the other's moral altitude, however dreadful it might seem. But it is precisely the preachers who insist, on the one hand, that children shall not be taught, and, on the other, that nothing effective shall be done to prevent their being poisoned later in life. Now, I do not discuss whether children should be taught, but such is my morality, or lack of it, that I do insist that this poisoning is abominable. The fault belongs primarily to the preachers.

In 1906 Metchnikoff published an account of experiments which demonstrated that syphilis could be aborted by the early inunction of calomel. The medical world rang with the discovery, and 10 years later 20 millions of fighting men were being protected by it. In the latter year the Royal Commission on Venereal Diseases issued its report. All that this remarkable Commission had to say of Metchnikoff was that he had inoculated monkeys. Colonel L. W. Harrison gave evidence before it and advised increased facilities for moral lectures and for treating the already infected. It was calculated that there were at that time about 3,000,000 people actually suffering from syphilis in the United Kingdom and, since gonorrhœa is four or five times more common, a good many more millions suffering from gonorrhœa. The Royal Commission accepted his advice and handed the blessed work to the N.C.C.V.D., which has ever since been trying to empty the Atlantic with a teacup decorated with a text. But was ever disease stayed by preaching or abolished by curing?

"*Venereal Ablution Rooms.*"

In 1916 the amount of venereal disease in the army had grown to such vast proportions that the authorities, constrained by the dire need of men, established "venereal ablution rooms"—"early treatment centres"—in which were stored solution of permanganate of potash in pails and calomel cream in pots, and to which the men were supposed to resort after exposure. I understand a bargain was made; the preachers, "influential people," agreed not to raise trouble for the harassed Government provided the packet system was not introduced. In 1917 it was demonstrated to the authorities, who had every means of testing the evidence, that venereal disease, still enormously prevalent, could be almost, if not quite, abolished by advising the men to swab themselves, immediately after exposure, with permanganate of potash, or any other active antiseptic. It was agreed that quick disinfection should be introduced, but delay occurred, and inquiry revealed the amazing fact that the authorities were waiting for the delivery of 4,000,000 bottles and 1,500,000 tubes of calomel ointment. We who were concerned in the matter protested that the tubes were unnecessary, for permanganate had been proved sufficient; that the bottles were unnecessary, for the men had shown themselves willing to find their own bottles; that the bottles and tubes introduced the packet system and gave a handle to the enemy; that delay was unnecessary, for all that was required was a simple order to medical officers to teach quick disinfection; that the need was urgent, for there was a shortage of trained and mature soldiers, and the German offensive was impending; that the expense was unnecessary, for ample disinfectants were already present in every medical inspection room. However, the authorities insisted on transferring the permanganate and calomel from the pails and pots to bottles and tubes. I understand Colonel Harrison was in charge of the arrangements. At last the bottles and tubes arrived and were distributed—*preceded by instructions to use the chemicals in the old inefficient way.* Conceive the imbecility of the whole procedure! I have in my possession a large poster in unbeautiful orange and black exhorting soldiers never to "delay for more than an hour"—inviting them to delay for at least an hour. The "influential people," presumably the N.C.C.V.D. and its clerical backers, had got wind of the affair and had intimidated the authorities. We begged and implored the latter to disregard them and fight the matter openly. We insisted that if the whole truth were made known the nation would sweep the preachers and their tools aside as decisively and with more abiding contempt than it had already swept aside the far less guilty conscientious objectors. Our efforts were unavailing, the authorities were not looking for trouble. The German offensive broke with the results we know. At that time there were, convalescent or undergoing treatment, enough Allied troops to have furnished not an army corps, but a great army, complete almost from trumpeter to G.O.C. Had the authorities possessed the courage of their convictions most of these men would have been in the fighting line.

Quick Disinfection.

As far as I am aware, Colonel Harrison has always opposed quick disinfection. Mr. Wansey Bayly says he advocated it in Edinburgh. The statement is a surprise to me, and I am inclined to believe that what was advised was slow disinfection, but practised as quickly as possible after a moral interval, say an hour or more after exposure—long enough to give the microbes a sporting chance for their lives. Moreover, Colonel Harrison advocates not the active disinfectants used in surgical practice, but calomel, a very slow and feeble antiseptic. Yet, again, he considers self-disinfection dangerous—at a time when, apparently with his approval, the whole British Army is practising it, but slowly. I am sorry to allude to Colonel Harrison by name, but Mr. E. B. Turner quotes him as an authority, and he is continually being quoted by the N.C.C.V.D. and others. It is time to make it clear that he is the very last person who can be accepted as an authority by those who have practised quick disinfection. To the best of my knowledge he has not the smallest personal experience of it. Nearly all the evidence is in his hands, however, and all he has to say of it is "that a definite reduction was attained owing to the energy, wisdom, and tact of the medical officers." It is curious, nevertheless, that the wise, energetic, and tactful officers should all employ this one method.

The Need for Publicity.

I wonder if Mr. E. B. Turner and Dr. Douglas White now understand why the opponents of the N.C.C.V.D. are not eager to meet that body in secret conference. *Timeo Danaos et dona ferentes.* There has been too much secrecy already. If the future is to be made safe, publicity must be shed not only on the present but also on much in the past. Moreover, the contrast in ethical ideals is too sharp, and there is a certain feeling of horror felt, not only by the preachers but for the preachers. Lastly, what have we to gain by a conference? The N.C.C.V.D. is impotent. If we choose to make an item of sanitary information public, it cannot silence us. We have not the least objection to its moral lectures; on the contrary, we should like to see them attended not only by the converted but also by the unconverted. We have not the least objection to its early treatment centres; on the contrary, though we hope to make their work very light, we ardently desire that every syphilitic who escapes our net will attend them.

I am, Sir, yours faithfully,

Southsea, Nov. 16th, 1919. G. ARCHDALL REID.

To the Editor of THE LANCET.

SIR,—In view of the attention which has been drawn to the subject of the prevention and treatment of venereal disease, it may be of interest to your readers to see a copy of the Memorandum which was unanimously adopted at the quarterly meeting of the National Council for Combating Venereal Diseases at the Central Hall, Westminster, on Nov. 10th. The Council affirmed their view that the passage of this Memorandum did not involve any change of policy, and they are as firmly opposed as ever to any general distribution of prophylactic packets to the members of the civil community.

(1) The prevention of venereal diseases is a large sociomedical problem. In the direct line of attack ample facilities for treatment and instruction to the public—both social and hygienic—occupy the first place. Concerning the further question of personal disinfection, after risk taken, our attitude is as follows:—

(2) It is no part of our policy to conceal the truth, and we have always acknowledged the value of cleansing and disinfecting materials applied early and thoroughly in diminishing the risk of disease.

(3) Abstention from exposure to infection is the only certain safeguard against the ordinary risk of disease; continence is to be encouraged by every means and on every ground, both social and hygienic.

(4) No person who has indulged in promiscuous intercourse can be sure that he is not infected, and every such person is, therefore, bound in duty to him- (or her-) self and to society to seek means of cleansing at the earliest moment.

(5) For this purpose a thorough local application of soap-and-water is of great value, followed (if possible) by the use of such disinfectants as may be recommended by a medical practitioner.

(6) While such applications, if properly used, do sensibly reduce risk of disease, if applied within four hours after exposure, they afford no certain security. They do not in the slightest degree prevent the contraction of syphilis on other parts of the body (e.g., lips, face, or hands) than those disinfected. These applications are not suitable for treatment of the disease when once contracted.

(7) The case of women must not be ignored. Satisfactory self-disinfection by them is practically impossible, and skilled medical attention at the earliest possible moment is absolutely necessary.

(8) No one should be urged to arm himself in advance with a prophylactic packet.

(9) It must be insisted on that the question of chemical disinfection is only one aspect of the problem of combating venereal disease.—I am, Sir, yours faithfully,

DOUGLAS WHITE,
Honorary Secretary, the National Council for Combating Venereal Diseases.

Southampton-row, W.C.1, Nov. 19th, 1919.

A LIVING FOREIGN BODY IN THE LARYNX.

To the Editor of THE LANCET.

SIR,—In your issue of Nov. 8th (p. 841) there is a reference to an interesting account by Dr. Barthès of a case of lodgment of a leech within the larynx, and a discussion as to the best method of removing such an obstacle to respiration, with arguments in favour of the employment of general rather than local anæsthesia.

In his inimitable style, Dr. Shipley describes in "The Minor Horrors of War," the occurrence of cases of this type, and points out how far back into history those living in the East have had a dread of swallowing leeches. He quotes Mr. Masterman, who, as medical officer in Palestine, had much experience in removing these pests from the air-passages by means of cocaine, which paralyses the leech and causes it to relax its hold. My friend, the late Dr. Mackinnon, who practised for many years in Damascus, has told me with what ease he had, by means of the cocaine spray, been able to paralyse leeches in the larynx, after which they were immediately coughed up; and to my knowledge they have thus been disposed of—to the surprise of the surgeon—in several cases in which their presence was not suspected, and a cocaine spray was being used with a view to laryngoscopy. If I remember rightly, Mr. T. P. Legg removed a fine specimen in Malta when we were there together in 1915.

With so considerable an experience on the part of British observers who are familiar with the condition it may perhaps be concluded that removal by cocainisation is the best and simplest procedure, and that a general anæsthetic is not required. I am, Sir, yours faithfully,

Manchester, Nov. 11th, 1919. WILLIAM THORBURN.

A CASE OF FILARIA LOA.

To the Editor of THE LANCET.

SIR,—Mr. R. R. James's notes on a case of filaria loa (subconjunctival) in your issue of Nov. 15th reminds me of a similar case in 1917 in an auxiliary hospital at Harrogate, of which I made the following notes. Captain M., who had served in the Cameroons, stated that he had been bitten on the back of the neck some nine months previously by a mangrove fly. About six months later he noticed peculiar local swellings, which appeared periodically in various parts of his body. This was diagnosed as many different diseases until he reached a large base hospital, where filariasis was finally discovered to be the cause of the sudden, œdema-like swellings. He was sent to England, where on several separate occasions, small wriggling movements had been seen under the skin, and attempts had been made to remove the suspected parasite. One had been removed successfully from the shoulder; other attempts were not so successful, all movements suddenly ceasing at commencement of operations for removal, with total disappearance of the object of search. On this occasion he complained of movements in his left upper eyelid, and was emphatic in his statement that a "worm" was there, which he desired me to "cut out." On careful inspection short, almost regular, and fairly rhythmical movements could be seen simulating the wave of a pulse. An attempt at palpation caused the movements to suddenly cease, and although we waited several minutes they did not return. The patient profferd the suggestion that my manipulations had "driven the worm away." A few hours later he again felt the movements. This opportunity was seized and I wasted no time but cut through the skin over the site of the centre of movement into the subcutaneous tissue; but a fleeting glimpse of something suddenly disappearing was my only reward. We waited patiently for some 10 minutes, when a faint movement was again visible at the base of the incision I had made. A quick thrust with a pair of fine pointed forceps was successful in seizing one extremity of the parasite, which was then gently but forcibly withdrawn. It proved to be a typical female specimen of *Filaria loa*, and measured just a shade over two inches in length.

I am, Sir, yours faithfully,
EDGAR J. TYRRELL.

Pope's Head Alley, Cornhill, E.C., Nov. 15th, 1919.

THE SOCIETY OF MEMBERS OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

To the Editor of THE LANCET.

SIR,—The annual general meeting of the Fellows and Members will take place at the College, Lincoln's Inn Fields, W.C., on Thursday, Nov. 27th, at 3 P.M. Tea and coffee are served immediately after the meeting. We beg to inform you that the following resolutions will be sent in on behalf of the society:—

1. "That this Thirty-Fourth Annual Meeting of Fellows and Members again affirms the desirability of admitting Members to direct representation on the Council of the College, which as now constituted only represents those Members who also hold the Fellowship; and that it does so in order that the constitution of the Council of the Royal College of Surgeons of England shall be in keeping with modern ideas of true representation."

This will be moved by Dr. Brindley James, the President of the Society, and Dr. F. W. Collingwood.

2. "That as the Royal College of Surgeons is composed of about 19,000 persons, of whom nearly 18,000 are engaged in general practice, this Annual Meeting requests the President and Council to nominate at least two Members in general practice to represent the interests of general practitioners in the management of College affairs."

Dr. Finucane, Dr. R. Dunstan, and Dr. Redmond Roche will speak thereon.

3. "That the President is hereby invited to make a statement to this meeting as to the views of his Council on the subject of the second resolution."

Dr. A. K Barrett and Dr. Lewis Lewis will speak.

All correspondence, and annual subscriptions (2*s.* 6*d.*) and donations should be sent to Yours faithfully,

SIDNEY C. LAWRENCE,
Honorary Secretary.

61, Wellington-road, Bush Hill Park, Enfield, Nov. 3rd, 1919.

MANOR HOUSE HOSPITAL.

To the Editor of THE LANCET.

SIR,—With reference to the announcement in your issue of Nov. 15th, as to the resignation of four out of the five members of the medical staff, we, the undersigned, being the members concerned, feel it our duty to lay certain facts before you. The incidents that led up to our resignation were: firstly, the springing upon us of a so-called "Hospital Constitution" (of the existence of which we had no knowledge at the time of our appointment); and secondly, the impossibility of inducing the Committee of Management to reconsider or relax this constitution. The reconstituted staff of this hospital was formed in July last, and the first intimation we had of any attempt on the part of the Management Committee to dictate to us on the question of the election of officers for the Medical Staff Committee was contained in a letter from the secretary to the hospital, dated Sept. 12th, 1919.

The relevant part of this letter reads as follows:—

"It is considered necessary for the senior surgeon of the hospital to be vested with authority to take action in contingent circumstances that are bound to arise. In the past the senior surgeon has been chairman of the Staff Committee, and it was in the belief that the same procedure would be followed, that Mr. —— was appointed to the Management Committee as the head and mouthpiece of the hospital staff. It is hoped to build up other hospitals upon the model of the Manor House, and my committee will be relieved to hear that your committee has arranged itself upon these constitutional lines."

Regarding this as an unwarranted encroachment upon our privilege, the senior surgeon was not appointed, notice being given of our action.

We ought to mention that prior to the receipt of the above letter the medical staff, in committee, had made certain recommendations, among them being that there should be two representatives from their number on the Management Committee, it being understood that the senior surgeon was "ex-officio" a member. To this recommendation the hospital secretary wrote (Sept. 4th) that one of us (Dr. Melville) had been unanimously appointed as an additional member of the Management Committee. At a meeting of the Management Committee, held on Oct. 9th, a written constitution was produced, and a copy of this, together with a covering letter from the secretary, dated Oct. 11th, was sent to the secretary of the Medical Staff Committee. The extract from the above letter reads as follows :—

"It would appear that some members of your committee are in ignorance of the constitution of this hospital, although its salient features were indicated in my letter of Sept. 12th, and I am instructed to forward the same to you in writing. My committee are not prepared to depart from this constitution, which has existed since the opening of the hospital, and I am to request your committee to conform to its regulations. I am to add that the Committee of Management was unanimous in its resolutions."

The following is a copy of the "Hospital Constitution":—

"1. There shall be a Medical Staff Committee, whose duties shall be to consider questions relative to the medical affairs of the hospital, and report thereon to the Committee of Management. 2. The Staff Committee shall be composed of the active members of the staff of the hospital, subject in respect to each particular office, to the ruling of the Committee of Management. 3. The senior surgeon of the hospital shall be the medical representative on the Committee of Management, and, as such, chairman of the Staff Committee. 4. The Staff Committee shall meet at least once a month, three members forming a quorum. 5. The secretary of the Staff Committee shall convene meetings, issue agendas, keep minutes, and report, as necessary, to the Committee of Management."

This document was duly considered by us, and the Management Committee were pressed to meet the medical staff in the hope of coming to some agreement. This meeting took place but failed in its object, with the result that the only possible course left was for us to hand in our resignations. This step we took, and our resignations were accepted. We have no wish to open a controversy, or to do other than place on record our reasons for the step we considered necessary; it was no easy matter for those of us on the active staff to sever our connexion with a hospital in the work of which we were interested, but to permit a constitution, such as the above, to pass unchallenged was to surrender the unquestionable privilege of a hospital staff committee—namely, the right to perfect freedom of action in its own particular sphere, both in regard to personnel and cognate matters; loyalty to one another and to our profession demanded such action on our part.

We are, Sir, yours faithfully,

(Signed) STANLEY MELVILLE,
Honorary Consultant to the X-ray and Electrical Departments.
B. WHITCHURCH HOWELL,
Assistant Surgeon.
G. MURRAY LEVICK,
Director of the Electrical and Physic-therapy Departments.
W. P. TINDAL ATKINSON,
Radiologist.
Nov. 15th, 1919.

GENERAL MEDICAL COUNCIL: SCOTTISH ELECTION.

To the Editor of THE LANCET.

SIR,—Will you allow me the courtesy of your columns to thank the registered medical practitioners of Scotland for electing me again as their representative on the General Medical Council, and to say that I shall spare no effort to merit this renewed expression of their confidence.

I am, Sir, yours faithfully,

Edinburgh, Nov. 18th, 1919. NORMAN WALKER.

THE IRISH PUBLIC HEALTH COUNCIL.

In a recent issue of THE LANCET there appeared a letter signed "Irish Medical Practitioner," criticising the constitution of the Irish Public Health Council. A correspondent writes with regard to this letter :—

"In some very important matters your correspondent is not accurately informed. The Chief Secretary for Ireland, as Minister of Health for this country, had the power under the Ministry of Health Act, as it applied to Ireland, to nominate the three registered medical practitioners of the Council without previous reference to any Irish medical organisation representative of the profession. He, however, instead of exercising his statutory right, requested that the 'Irish Medical Committee' should forward him a list of medical practitioners from whom he would make a selection. From the list forwarded by the Irish Medical Committee he made two of the three non-official medical appointments on the Council. The third member, though not nominated by the Irish Medical Committee, is President of the Royal Academy of Medicine in Ireland, an ex-President of the Royal College of Physicians, and a Member of the General Medical Council. The Irish Medical Committee is constituted on the most democratic basis. It is elected by the entire Irish medical profession—irrespective of membership of any medical association; therefore, you will see, in the circumstances, that your correspondent was very wide of the mark when he stated in his letter that the Irish profession had no voice in the selection of the medical representatives on the Irish Public Health Council. As Medical Commissioner of the Local Government Board (Ireland) the Irish Poor-law medical officers found Dr. Bigger, now chairman of the Irish Public Health Council, a very sympathetic administrator, who always gave them, so far as was within his power, the fullest advantages of any legislation with which they were concerned. His appointment as chairman of the Irish Public Health Council was received with general satisfaction by the Irish medical practitioners."

Medical News.

ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND.—At a meeting of the Comitia of the Royal College of Physicians of London on Oct. 30th, and of the Council of the Royal College of Surgeons of England on Nov. 13th, diplomas of L.R.C.P. and M.R.C.S. were respectively conferred upon the following 79 candidates who have passed the Final Examination in Medicine, Surgery, and Midwifery of the Conjoint Examining Board and have complied with the necessary by-laws :—

William James McBain Allan, Guy's Hosp.; Frederick Thomas Allen, St. Thomas's Hosp.; George Frederick Baxter, Westminster Hosp.; Grace Mary Beaven, St. George's Hosp.; William Harvey Bennett, Manchester Univ.; Edward Jocelyn Bilcliffe, St. George's Hosp.; Charles Martin Billington, Cambridge Univ. and St. Thomas's Hosp.; Alice Bloomfield, Edinburgh Univ.; Max Richard B[illegible]ë, Kingston (Ont.); John Vernon Cannadine Braithwaite, Guy's Hosp.; Percy Croad Brett, St. Thomas's Hosp.; Hubert Brookman, Middlesex Hosp.; Alexander Rae Campbell, Dalhousie Univ.; John Douglas M[illegible]gor Cardell, St. Thomas's Hosp.; Marjorie Carnsew Chappel, Royal Free Hosp.; Oscar Theodore John Christensen do Hegartier Clayre, Copenhagen Univ. and St. Bart.'s Hosp.; Enid Margaret Mary Cobb, St. Mary's Hosp.; Harris Cohen, Cardiff, and Westminster Hosp.; Henry Nathan Warner Collins and Redgewell George Dansie, King's Coll. Hosp.; Sarah Helen Davies, Royal Free Hosp.; Alfred Kay Day-Lewis, Guy's Hosp.; John Paul de Silva, London Hosp.; William Herbert Dixon, Guy's Hosp.; Hugh Donovan, Birmingham Univ.; Keith Mitchell Keltley Duff, Guy's Hosp.; Gwilym Pennant Evans, St. Mary's Hosp.; Victor Norman Fenton, Cambridge Univ. and London Hosp.; William Devereux Forrest, Durham Univ.; Dorothy Winifred Gowers, Royal Free Hosp.; Cyril Griffith-Jones, Cambridge Univ. and St. Bart.'s Hosp.; Ernest Alphonse Hardy and Herbert William Hardy, Charing Cross Hosp.; William George Hay, Guy's Hosp.; Henry Lewis Helmann, Univ. Coll. Hosp.; Eric Perrin Hicks, Cambridge Univ. and St. Bart.'s Hosp.; Frank Bedo Hobbs, Cambridge Univ. and St. Thomas's Hosp.; Harry Cunliffe Hopkinson, Cambridge and Manchester Univ.; Mabel Marian Ingram, Royal Free Hosp.; John Anderson Iswariah, Madras Univ. and Univ. Coll. Hosp.; Shankar Ramchandra Joglekar, Bombay Univ. and Univ. Coll. Hosp.; Robert Blake Poole Lansdown, Cambridge Univ. and Guy's Hosp.; Louis Lavine, Reginald Cyril Bell Ledlie, and Henri Toussaint Le Vieux, Guy's Hosp; Frederick George Lewtas, Cambridge Univ. and St. George's Hosp.; Norman James Macdonald, Cambridge Univ. and St. Bart.'s Hosp.; John Stephen Moore, St. Thomas's Hosp.; George Younger Olivor, Cambridge Univ. and London Hosp.; Sibyl Gertrude Overton, St. Mary's Hosp.; William Griffith Owen, London Hosp.; Jacobus Cornelis Pauw, London Hosp.; Wilfrid Walter Payne, Guy's Hosp.; Hugh Walter Pigeon, McGill Univ.; Eleanor Margaret Reece, Royal Free Hosp.; Arthur Hywel Richards, St. Mary's Hosp.; Samuel Rose, Guy's Hosp.; Malcolm Sackles, Middlesex Hosp.; Edwin Roland Sarra, Cambridge Univ. and London Hosp.; Ruth Mary Scutt, St. Mary's Hosp.; Cecil George Douglas Siggs, Guy's Hosp.;

James Victor Alexander Simpson, Middlesex Hosp.; David Fox Standing, Birmingham Univ.; *Condren Maurice Strong, Manitoba Univ.; William Stanley Russell Thomas, Cambridge Univ. and Guy's Hosp.; Raphael Thursz, King's Coll. Hosp.; William Guna Tilleke, Cambridge Univ. and Univ. Coll. Hosp.; Ruth Catherine Townshend, Royal Free Hosp.; George Marston Trist, Charing Cross Hosp.; Donald Leslie Tucker, Cambridge and Edinburgh Univ.; William Walsham, St. Mary's Hosp.; William Edward Mandall Wardill, Durham Univ.; Effie Adela Wharton, St. George's Hosp.; Alfred Clarence Samuel Whiteway-Wilkinson, Univ. Coll. Hosp.; Margaret Aileen Williams, Birmingham Univ.; Tudor Williams, Middlesex Hosp.; Claude Bawden Wilson, Cambridge Univ. and Univ. Coll. Hosp.; Maurice Lindsay Young, Cambridge Univ. and St. Thomas's Hosp.; and Thomas Fernando Zerolo, St. Bart.'s Hosp

* M.R.C.S. diploma conferred previously.

Literary Intelligence.—The third edition of "Electrical Treatment," by Dr. Wilfred Harris, which is announced for early publication by Messrs. Cassell and Co., has been carefully revised, and now includes the electrical treatment of shell shock and other war neuroses.

Queen's University Services Club.—The first dinner of the Queen's University Services Club, the membership of which is now up to 74 graduates and 102 undergraduates—i.e., a total of 176—who took part in the late great war, was held in Thompson's Restaurant, Belfast, on armistice night, Colonel Thomas Sinclair, the President, in the chair.

Old Epsomian Club.—The annual meeting and dinner (10*s.* 6*d.* without wine) of the club will be held in the Oak Room of the Trocadero Restaurant on Thursday, Dec. 11th, Mr. S. Maynard Smith in the chair, the annual meeting at 6 p.m., the dinner following at 7.30. The list of addresses of members of the club is to be reprinted, and it is desired that all members who may see this notice will write signifying their present address and whether they intend to be present at the dinner. Communications are to be addressed to Mr. E. M. Corner, 37, Harley-street, London, W. 1, or Mr. R. Farrant, Westminster Hospital, London, S.W. 1.

Central Midwives Board.—A meeting of the Board was held at Queen Anne's Gate Buildings, Westminster, on Nov. 12th, when a letter was considered from the medical superintendent of the Kensington Union Infirmary, proposing to treat cases of pregnant women suffering from venereal disease in the infirmary, and saying that for the pregnant women so suffering he was arranging to have a separate block and a separate staff of nurses. The Board saw no objection to the proposal, provided that the conditions mentioned were strictly observed, but considered that pupils should be trained chiefly on non-venereal cases.—The Chairman approved the following as setting forth the Board's views with regard to applications from institutions contemplating the training of pupil midwives: "Any institution which contemplates training pupil midwives for the certificate of the Central Midwives Board should communicate its intentions *before* it invites or receives pupils. If it fails to do so, and trains pupils, it renders itself liable to difficulties with pupils so accepted in the event of the refusal of recognition by the Board. If it notifies to the Board its intention of training, the Board may (if it thinks all the arrangements promise well) advise the institution to commence or to continue training, and to re-apply at a later date. When this second application is made the Board may (if it is satisfied as to the training) recognise the training carried on since the commencement."—A letter was read from a registered practitioner complaining of the instruction given to pupil midwives in connexion with cases of antepartum hæmorrhage, and suggesting that the Board should instruct teachers not to teach midwives to do things upon which medical opinion is divided. The Board decided that the registered practitioner be thanked for his letter, and that he be reminded that the examiners hold in their hands the character of the teaching, inasmuch as it is their duty to reject candidates whose training appears to them to be unsatisfactory.—A letter was considered from the secretary of the Midwives Institute drawing the Board's attention to the prosecution of Louisa Jones, a midwife, at the Marylebone police-court, for not notifying the local sanitary authority of an alleged case of ophthalmia neonatorum as required by Article 6 of the Public Health (Ophthalmia Neonatorum) Regulations, 1914, and asking the Board to make representations to the Ministry of Health with a view to getting the said article repealed and brought into line with the Rules of the Board. The Board decided that the facts in the case of the St. Marylebone Borough Council *v.* Louisa Jones be brought to the notice of the Ministry of Health with the view of suggesting the desirability of bringing the Public Health Regulations and the Rules of the Central Midwives Board into harmony.—At a special meeting held on the following day several midwives were struck off the Roll for infraction of the Rules.

Lancashire and Westmorland Tuberculosis Society.—The next meeting of the society will be held at 3 p.m. on Nov. 28th at the Public Health Laboratory, York-place, Manchester, when a discussion on "Infection and Predisposition in Relation to Tuberculosis" will be opened by Professor Sheridan Delépine. A resolution will be moved extending the work of the society so as to include Cheshire. The attendance of tuberculosis officers and other medical practitioners interested is invited. Full particulars from the honorary secretary, Dr. G. Jessel, County Tuberculosis Dispensary, Leigh, Lancs.

Donations and Bequests.—By the will of the late Mrs. Maria Louisa Medley, of Devon and London, the testatrix has left a sum of £17,000 and land and buildings at Beaworthy, known as the Winsford Cottage Hospital, founded by her in memory of her late husband, on trust to be carried on as a cottage hospital and convalescent home. Her collection of George III. and other old silver, a Gobelins tapestry suite, and jewellery are to be sold by trustees, the proceeds to be divided equally between the West London Hospital, Hammersmith-road, and the Dreadnought Hospital, Greenwich.

The late Mr. G. M. Soper.—Gerald Morgan Soper, L.R.C.S., M.R.C.S., died at his residence, at Dartmouth, Devon, on Nov. 3rd, from pneumonia. The deceased was the only son of the late Mr. R. W. Soper, M.R.C.S., of Dartmouth. After holding resident appointments at the South Devon Hospital, Plymouth, and the Royal Albert Hospital, Devonport, he practised in Dartmouth, was surgeon to the local hospital, held several public appointments, and was a popular supporter of local sport. He was greatly overworked during the period of the war, and no doubt this undermined his constitution. He was only 42 years of age at the time of his death.

The Chadwick Trust and Naval and Military Sanitation.—The Chadwick trustees have resolved, under the powers conferred upon them by the scheme which they administer, to award, in the year 1920, a Chadwick gold medal and a prize of £100 to the naval and military medical officer respectively in the British service who during the past five years of war shall be deemed to have distinguished himself the most in promoting the health of the men in the Navy and Army. The nomination to the trustees for such presentation will, as provided by the trust, be made by the Directors-General of the Naval and Military Medical Services respectively.

Royal Medical Benevolent Fund.—At the last meeting of the committee, held on Nov. 14th, 17 cases were considered and £212 voted to 15 of the applicants. The following is a summary of some of the cases relieved:—

Widow, aged 82, of M.R.C.S. Eng. who practised at Lambeth and died in 1890. Left unprovided for with one daughter, now aged 49, whose does secretarial work, but is at present out of employment. Applicant receives £10 from dividends and £30 a year from another charity. Was helped by the Fund many years ago. Voted £10.—Daughter, aged 65, of M.R.C.S. Eng. who practised at Albrighton, near Wolverhampton, and died in 1868. Total income £56 a year. Rent £36 paid by friends. Takes in a boarder at 21*s.* a week when possible, but at present without one. Cannot manage owing to the high cost of living. Was helped by the Fund many years ago. Voted £10. Daughter, aged 70, of M.D. Edin. who practised at Devonport and died in 1886. Applicant endeavours to make a living by letting rooms, from which source she is usually enabled to pay the rent, £24. She receives £15 from dividends, and £30 from brother, but the brother's help must decrease owing to his ill health. Voted £12 in 12 instalments.—Widow, aged 56, of M.D Edin. who practised at Newcastle and died in 1896. Applicant earns £50 a year as a temporary clerk and daughter earns £99 a year, and provides clothes for mother. Pays £21 a year rent. Suffers from ill-health. Relieved five times, £60. Voted £12 in 12 instalments.—Widow, aged 55, of M.B. Aberd who practised at Watlington, Oxon, and died in 1912. Applicant is quite unable to work. Only income 10*s.* a week from sister. Pays 5*s.* a week rent. Relieved four times, £46. Voted £12 in 12 instalments.—Daughters, aged 55 and 47, of L.S.A. Lond. who practised at Sydenham, and died in 1903. Their joint income is £69, and they also let rooms when possible; rent £51. Both applicants suffer from ill-health. Relieved 11 times, £137. Voted £18 in 12 instalments.—Widow, aged 38, of L.R.C.P. Edin. who practised at Edinburgh and died in 1916. Was left with four children, now aged 13 to 5, all living with applicant. She receives £95 from dividends and £25 by letting rooms; rent and rates £33. Relieved three times, £42. Voted £18 in 12 instalments.—Widow, aged 48 of L.R.C.P. & S. Edin. who practised at Walthamstow and died in 1916. Has no income. She earns something by her own efforts, and pays £13 a year rent, which is provided by pecuniary help from friends. Applicant obliged to apply for assistance owing to inability to obtain employment. Relieved four times, £30. Voted £12 in 12 instalments. M.R.C.S. Eng., aged 50, married, who practised at Birmingham. Entirely incapacitated owing to suffering from disseminated sclerosis. Applicant's wife earns an average of £13 a year by making shell jewellery, and relations pay £26 a year. Rent £6 for cottage in Wales. One son, who is a foundation scholar at Epsom College. Relieved three times, £70. Voted £26 in 12 instalments.

Subscriptions may be sent to the acting honorary treasurer, Dr. Samuel West, at 11, Chandos-street, Cavendish-square, London, W. 1.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—An ordinary meeting of the Council was held on Nov. 13th, Sir George H. Makins, the President, being in the chair, when diplomas of Membership were granted to 78 successful candidates.—It was resolved, in accordance with the recommendation of the Finance Committee, that the fee payable upon the first time of admission to the Primary Examination for the Fellowship be increased from 5 guineas to 8 guineas, and be reckoned as part of the fee payable upon admission to the Fellowship, and that this alteration should take effect after the examinations for the Fellowship to be held in May, 1920.—It was determined, in accordance with the suggestion of the Committee of Management, to suspend the requirement that candidates for the Licence in Dental Surgery should produce a certificate of having performed dissections at a recognised medical school during not less than 12 months.—Sir Charles Ballance was elected a member of the Committee of Management in the vacancy caused by the retirement of Sir George Makins.—It was resolved to purchase a collection of human hair illustrating racial differences which formerly formed part of the Barnard Davis collection.—Sir George Makins and Sir John Bland-Sutton were re-elected representatives of the College on the Board of Scientific Societies.—Mr. H. J. Waring reported that it had been found possible to secure two subjects for the next Final Examination for the Fellowship, and that the Court of Examiners had accordingly been able to make arrangements for the examination in operative surgery to be carried out in a modified form, under which each candidate would be required to perform one operation and would also be tested with the aid of instruments and the living model.—The following resolution was carried:—

> "The Council of the Royal College of Surgeons of England learn with satisfaction that the control of unclaimed bodies of deceased persons in England and Wales has been transferred to His Majesty's Minister of Health. They would respectfully urge that the shortage of subjects for the education and examination of medical and dental students in London and the Provinces may engage the sympathetic attention of the Minister at an early date."

The resolution was directed to be sent to the Minister of Health.

A REUNION DINNER IN NOTTINGHAM. — On Nov. 13th a successful dinner was given by the doctors of Nottingham city and county to those of their colleagues who had served during the late war. A company of 120 sat down at the Victoria Hotel, under the chairmanship of Mr. A. R. Anderson.

In proposing the toast of "The Guests" Mr. Anderson cordially welcomed them back, saying: "The medical profession during the war has suffered severe losses both on land and sea, but we have been very fortunate because of all our men who left the district only one lost his life on active service, Lewis Moysey, whose untimely death we so deeply regret. Although Moysey played the part and died the death of a hero, it seemed to me that he disappeared amid the fog and turmoil of the war with as little notice as a leaf now falling from the trees; yet he was conspicuous among men in many respects. Educated at Repton, Cambridge, and St. George's Hospital, he began practice in Nottingham in 1900, and remained here until he went to the war. Keen as he was on medicine he might also have been accurately described as a geological specialist. He had a museum at his house, well known in geological circles, which was several times visited by experts from the British Museum. He had written a book on 'The Fossils of the Notts and Derby Coal Field.' He first described a fossil which bears his name, and which has found a home in the British Museum. In addition to this he was a distinguished sportsman. He was one of the best, if not *the* best figure skater in England. He won the medal in the first class at St. Moritz, and was selected to give an exhibition of figure skating before the late King Edward. He was a well-known tennis player, a good cricketer, a fair shot, and a keen fisherman. When the war broke out Moysey was over military age, but after repeated applications, which were at first unsuccessful on this account, he obtained a commission at the end of 1914. He served in England, and after many endeavours to get to the front he was appointed to a hospital ship in 1917. His ship, the *Glenart Castle*, was torpedoed on the night of the 26th of February, 1918, when he lost his life by drowning. In addition to his other accomplishments he was known to be a strong swimmer, probably he went down while endeavouring to save others. He left a widow but no children. Let us then do homage this evening to the memory of this all-round sportsman, of this learned and honourable and gallant gentleman, who never hesitated for a moment when his country called, and who gave up his life in its service." [An obituary notice with a portrait of Captain L. Moysey, R.A.M.C., appeared in THE LANCET of March 30th, 1918, p. 486.] Mr. Anderson concluded by allusion to the arduous times which those who remained behind went through.

A well-organised musical programme terminated a successful medical dinner.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Nurses Registration (No. 2) Bill.

DR. ADDISON, the Minister of Health, has introduced a Bill in the House of Commons to provide for the registration of nurses. The text of the Bill, which was read for the second time on Tuesday, Nov. 18th, is now published.

HOUSE OF LORDS.

Rats and Mice Bill.

The Rats and Mice (Destruction) Bill was read a second time.

HOUSE OF COMMONS.

WEDNESDAY, NOV. 12TH.

Spirits for Influenza.

Captain O'GRADY asked the Prime Minister whether he was aware that the result of basing the issue of spirits from bond on the year 1916 was that the returned soldier had no title to share in the distribution, and found great difficulty in getting supplied; whether he was aware that potent doses of spirits were the best prophylactic against influenza, and that many people perished last winter for the want of supplies; and whether he would now allow those who were in a position to deliver larger quantities to do so without reference to the datum year.—Mr. BONAR LAW replied: The question of the supply of whisky is under consideration, and I hope to be able to announce a decision shortly.

Release of Dispensers.

Mr. TOOTILL asked the Secretary for War whether he was aware that Quartermaster-Sergeant Brown, No. 91,920, acting as dispenser, Royal Army Medical Corps, 20th Stationary Hospital, Constantinople, was entitled to demobilisation, together with several other men acting as dispensers, but could not get released until their places had been filled by substitutes; whether dispensers were being sent out to relieve these men; and whether he would take whatever action is necessary to secure their early return and demobilisation.—Mr. CHURCHILL replied: The despatch by specific dates from their overseas stations of all men demobilised has been authorised, subject to the necessary shipping being available, and it is hoped that all such men, including the man referred to in the question, will arrive home at an early date.

Demobilised Medical Practitioners.

Major FARQUHARSON asked the Secretary for War if he would give the total number of medical practitioners who had been demobilised since April 1st, 1919.—Mr. CHURCHILL replied: The total number of medical officers demobilised since April 1st, 1919, is 4823.

Medical Officers Detained Abroad.

Major FARQUHARSON asked the Secretary for War if he would state how many medical practitioners holding temporary commissions in the Royal Army Medical Corps, the Royal Army Medical Corps, T.F., and the Royal Army Medical Corps, S.R., respectively, were still detained under the terms of their contracts in Mesopotamia, India, and Egypt respectively; and did the numbers given include any officers in respect of whom special recommendation bad been made for early release by the Ministry of National Service prior to April, 1919.—Mr. CHURCHILL replied: I am not in a position to give separate figures for the several categories of officers referred to in the first part of the question, but the total figures are as follows: Mesopotamia, 173; India, 152; Egypt, 244. These totals include the following, in respect of whom a special recommendation for early release was received from the Ministry of National Service prior to April, 1919:—

	Temporary commissions.	Territorial Force.	Special Reserve.
Mesopotamia ...	9	—	1
India	12	1	2
Egypt	6	2	1

The figures are only approximate, as a large number of officers are at present embarking for the United Kingdom from the countries in question.

Medical Man's House Requisitioned.

Mr. RAWLINSON asked the First Commissioner of Works if he would state what rent was being paid for the doctor's house and premises, No. 60, St. Andrew's-street, Cambridge, now occupied by the Ministry of Food; whether the premises were larger than were necessary for the purposes of the Ministry; whether the Office of Works had secured premises at a lower rent suitable, in the opinion of their advisers, for the requirements of the Ministry of Food; and whether, having regard to the importance of a doctor being again resident in that part of Cambridge and to the need of the premises for medical and surgical purposes, he would without delay restore the premises to the medical tenants.—Sir A. MOND replied in a written answer: As the premises were requisitioned no rent is being paid, but compensation will, of course, be made when an application from the owners is received. Smaller premises would not meet the requirements of the Ministry of Food, but I am endeavouring to obtain alternative accommodation, and the premises will be vacated as soon as this is found.

THURSDAY, NOV. 13TH.

Mentally Deranged Soldiers in Pauper Asylums.

Mr. HOUSTON asked the Pensions Minister whether he was aware that discharged soldiers suffering from mental derangement produced by wounds or shell shock were at present inmates of the pauper lunatic asylum at Rainhill, Lancashire; whether he could state by what authority they were sent there and treated as pauper lunatics; and whether he could arrange that such men shall be transferred from the Rainhill pauper lunatic asylum to suitable hospitals or homes where they would receive special treatment with a view to their recovery.—Sir L. WORTHINGTON-EVANS replied; I am aware of the fact stated in the first part of the question. The men to whom the honourable Member refers are, however, not treated as pauper lunatics, but as private patients, the cost of their maintenance and of the special privileges which private patients enjoy being borne by the Ministry of Pensions.

Mr. HOUSTON: But does my right honourable friend realise the distress and the humiliation that this supposed stigma of pauperism inflicts upon men and their relatives, and will he take effective measures to dispel this belief?—Sir L. WORTHINGTON-EVANS: I hope my honourable friend's question will help to dispel it, and I am glad to repeat that they are not treated as pauper patients at all, but they are treated as private paying patients and they are paid for out of Pensions Funds.

Mr. HOUSTON: But the fact that they are sent to a pauper lunatic asylum gives the impression that they are so treated.—Sir L. WORTHINGSON-EVANS: That is a superficial impression which I hope will be removed. It is not possible for the Ministry of Pensions to start asylums all over the country, and if we do not use those already existing friends of the men will be deprived of visiting places near their homes.

Mr. HOUSTON: But does my right honourable friend realise that the object of my question is to remove this strong impression?—Sir L. WORTHINGTON-EVANS: I am obliged to my honourable friend.

Support of the Blind in Ireland.

Mr. DONALD asked the Chief Secretary to the Lord Lieutenant of Ireland if he would state when the Government proposed to introduce legislation in support of the blind in Ireland.—Mr. MACPHERSON replied: I trust that this matter may be dealt with in the contemplated Irish Education Bill.

Special Bedding and Clothing of Tuberculous Cases.

Sir HERBERT NIELD asked the Pensions Minister whether he would reconsider the existing provisions of Circular 169, together with Correction Slip 19, dealing with the question of special bedding and clothing of tuberculous cases; whether, having regard to the communications which had passed between him and the County of Middlesex War Pensions Committee on the subject, he could hold out any reasonable expectation of the modification of the conditions with respect to overcoats and underclothing of men while undergoing medical treatment; whether he was aware that surgical appliances for artificial limbs caused clothing to wear out more rapidly than might otherwise be the case; and, in the tuberculous case which has arisen, would he consider the urgent need for the man to be protected from chills and damp when, as the result of exposure to the elements necessitated by this mode of treatment, the one and only suit he might possess became wet.—Sir L. WORTHINGTON-EVANS replied in a written answer: I am aware that the present regulations with regard to the supply of special bedding and clothing have given rise to some complaint, and I have the matter under consideration.

Medical Referees at Hastings.

Mr. R. YOUNG asked the Minister of Pensions if the War Pensions Committee for Hastings were appointing additional doctors to act as medical referees; whether in these appointments he would advise that priority be given to medical men who had served in the services abroad, and whose practices had thereby suffered; and that in these cases where the medical man was not on the panel under the National Health Insurance Acts this would be favourably considered as an additional reason for appointment, provided that in all cases medical qualifications were equal to other applicants.—Sir L. WORTHINGTON-EVANS replied in a written answer: The answer to the first part of the question is in the negative. Local committees are, in fact, not empowered to appoint medical referees. With regard to the remainder of the question, it is the practice of the Ministry to give preference to medical men who have served abroad, with a second preference to medical men who have served at home, and, subject to these preferences, to appoint men who have not had service, and amongst them doctors not on the panel are preferred as likely to be able to devote more time to the work.

MONDAY, NOV. 17TH.

Demobilised Medical Officers.

Brigadier-General CROFT asked the Secretary for War whether his attention had been called to the fact that there were numerous medical officers who, by joining the army, sacrificed their practices; and whether steps were being taken to ensure that employment as far as possible should be given to demobilised temporary medical officers.—Mr. CHURCHILL answered: Every sympathy has been shown to the officers referred to by my honourable and gallant friend, and instructions were issued some time ago to military commands that when the part-time services of civil medical practitioners are required every endeavour should be made to employ those demobilised officers who had served overseas. I understand also from the Ministry of Health that endeavours are made to give preference, as far as possible, to ex-service candidates for appointments under local authorities.

Medical Service in Mesopotamia.

Mr. PERKINS asked the Secretary for India whether he was aware that several regular officers of the Indian Medical Service now in Mesopotamia had served there continuously for four hot seasons, while some of them had not been on furlough for nine years, and what arrangements had been made for their speedy relief.—Mr. MONTAGU answered: There are, I am afraid, a number of officers in the Indian Medical Service whose leave is overdue. This unfortunate state of affairs, to remedy which no effort is being spared, is not peculiar to Mesopotamia. If the honourable Member refers specifically to Indian Medical Service officers in civil employment in Mesopotamia he will be glad to hear that it is hoped to replace them before long.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

J. D. Bangay to be Surgeon-Lieutenant.

Surg.-Cmdr. G. G. Borrett to be Surgeon-Captain (retired).

ARMY MEDICAL SERVICE.

Temp. Major-Gen. Sir Berkeley G. A. Moynihan, K.C.M.G., C.B. (Major, R.A.M.C., T.F.), relinquishes his temporary commission on re-posting.

Col Sir W. H. Horrocks, K.C.M.G., C.B. (retired pay), relinquishes the temporary rank of Brigadier-General on ceasing to be re-employed.

Col. C. W. R. Healey, C.M.G., retires on retired pay.

ROYAL ARMY MEDICAL CORPS.

Lieut.-Col. C. W. H. Whitestone is placed on retired pay.

Lieut.-Col. and Bt. Col. L. W. Harrison, D.S.O., K.H.P., retires on retired pay.

Major and Bt. Lieut.-Col. F. D. G. Howell, D.S.O., M.C., relinquishes the temporary rank of Lieutenant-Colonel.

The undermentioned relinquish the acting rank of Lieutenant-Colonel: Major and Bt. Lieut.-Col. F. W. Lamballe (on ceasing to be specially employed); Majors J. E. H. Gatt, A. W. A. Irwin, R. J. Franklin; Capts. J. B. A. Wigmore, J. W. O'Brien, M.C.; Temp. Capt. C. J. West, O.B E., and reverts to the acting rank of Major.

To be acting Lieutenant-Colonels: Major and Bt. Lieut.-Col. R. B. Ainsworth, D.S.O. (whilst specially employed); Majors E. T. Potts, C.M.G., D.S.O., A. J. Williamson (whilst specially employed); Capt. D. C. G Ballingall, M.C.

The undermentioned relinquish the acting rank of Major: Capts. W. T. Graham, O.B.E, C. G. G. Keane; Temp. Capts. B. Knowles, M.C., H. C. Gibson (on re-posting). On ceasing to be specially employed: Capt. R. B. Phillipps; Temp. Capts. R. K. Robertson, S. A. W. Munro, M.C., W. M. Oakden, W. E. Graves

To be acting Majors: Capt. A. P. O'Connor, M.C.; Temp. Capt. R. H. Stevens. Whilst specially employed: Capt. and Bt. Major W. L. Webster; Capt. R. S. Cumming, M.C.; Temp. Capt. E. J. Maxwell.

The undermentioned Majors to be acting Lieutenant-Colonels whilst commanding Medical Units: L. A. A. Andrews, C. M Drew, D S.O.

Major W. J. S. Harvey, D.S.O., relinquishes the temporary rank of Lieutenant Colonel.

Major W. J. E. Bell, D S.O., relinquishes the acting rank of Lieutenant-Colonel on re-posting.

Temp. Capt. O. de B. Marsh, O.B.E., to be acting Major.

Temp. Capt. W. F. Abbott relinquishes the acting rank of Major on ceasing to be specially employed.

Temp. Capts. G. H. Wood and R. S. Dickie to be Captains.

Late temporary Captains to be temporary Captains: J. D. Judson, G. J. Arnold, D. L. Lindsay.

Temp. Lieut M. Cahill to be temporary Captain.

J. C. J. Callanan to be temporary Lieutenant.

Officers relinquishing their temporary commissions: Temp. Lieut.-Cols. P. W. G. Sargent, C.M.G., D.S.O. (Lieut., R.A.M.C., T F.), H J. Hargrave (Lieut.-Col., T.F. Res.), J. W. H. Brown; (retaining the rank of Lieutenant-Colonel), H. C. Marr. E. G. Coward (on ceasing to be employed with the Huddersfield War Hospital), R. L. Joynt; Temp.

Majors (acting Lieut.-Col.) D. K. McDowell, C.M G. (granted the rank of Lieutenant-Colonel), R. Standish-White (retains the rank of Major), F. N. Holden (on account of ill-health) (retains the rank of Major), W. B. Cozens (retains the rank of Major). Temp. Capt (acting Lieut.-Col.) A. N. Bruce (granted the rank of Lieutenant-Colonel).

Temp. Capt. and Bt. Major A. E. Giles retains the Brevet rank of Major.

Temporary Captains granted the rank of Major: D. G. Wishart, J. Gibson, A. P. Saint, A. L. Krogh, C. E. Dukes, O B.E., E. A. Lindsay (acting Major) O. C. G. Shields (acting Major), M B.E., O. de B. Marsh, O.B.E., A. T.W Forrester, J. H. Bankes, A. W. Tabuteau, J. Morrison, G. Richardson, H. W. Turner, W. F. Morgan, G. McNeill (acting Major), F. C. Lees.

Temporary Captains retaining the rank of Captain: W. W. Pearse, G. H. Alabaster (on account of ill-health contracted on active service), F. J. Cleminson, H Topham, R. S. Roper, T. P. Greenwood (on ceasing to be employed at the Notts County War Hospital), W. G. T Story, F. J. McGlade, M. Cahill, E. W. N. Wooler, J. Jenkins, J Spears (on account of ill-health contracted on active service), D. P. Blair, J. R. Dickson, D. C. M. Page, M.C., A. G. Christian, R. I. Wolfe, H. M. Anderson, R. C. McMillan, A. B. Appleton, C. Lundie, J. P O'Hea, C. M. Jones, J. N. J. Hartley, O.B.E., R. S. Snowie H. G. Janion, M.C., E. H. Shaw, J. Harvey, W. A. Russell, G. M. Brown, O. Pitt, W. L M. Day, A. H. Style, G W. L. Kirk, M. Douglas, F K Marriott, M.C., F. D. Nicholson, G. B. Burwell, M.C, A. J. M. C. Morrison, G. W. Rea (acting Major), A. Newton-Brady, F. W. Falconer, E. W. G. Young, H. M. Gilmour, G. Milne, J. M. Land, A. S. Carter, A. G. Bryce, J E. A Underwood, H. C. M. McManus, J. F. C. Haslam, D. A. Chalmers, E. A. T. Green, J. N. F. Fergusson, H. W. Scott-Wilson, D S. MacBean, H. E Gamleu, A. H. Davies, J. G. Scott, D. D. Pinnock, J. D. Batt, M.C, W. H. G. Patrick, R. A. Morrell, H. C. Duffy, T. O. Robson, A. J. O'Leary, C. F. O. White, J. L. Waller, J. Fanstone, J. W. Gilbert, M.C., S A. Burn, H. G Joyce.

Temporary Lieutenants retaining the rank of Lieutenant: M. D. B. Tonks, S J. Healy, J. Dwan, A L. Lynch.

SPECIAL RESERVE OF OFFICERS.

Captains to be acting Majors whilst specially employed: J. A. Stewart, M.C., H. D Gardner.

Capt. A. H. Habgood, D.S.O., relinquishes the acting rank of Major on ceasing to be actively employed.

Capt. S. R. Armstrong, O.B.E., relinquishes the acting rank of Major.

Lieutenants to be Captains: C. O. Anderson, S. E. Critchley, A. Eidinow, W. S. Herman, C. P. Hines, C. G. J. Rayner, E. E. R. Spurway, L. Handy, A. Abelson, C. B. Dyson.

TERRITORIAL FORCE.

Major (acting Lieut.-Col.) W. R. N. Smithard relinquishes the acting rank of Lieutenant-Colonel on ceasing to be specially employed.

Capt. J. W. Simpson relinquishes his commission on account of ill-health contracted on active service, and retains the rank of Captain.

Capt. (acting Major) H. J. Gorrie, O.B.E., relinquishes the acting rank of Major on ceasing to be specially employed.

Capt. C. G. Strachan, M.C., to be acting Major whilst specially employed.

Capt. (acting Lieut.-Col.) H. N. Barnett relinquishes the acting rank of Lieutenant-Colonel on ceasing to be specially employed.

4th Scottish General Hospital. Lieut.-Col. (Bt. Col.) A. Napier, having attained the age limit, is retired, and retains his rank with permission to wear the prescribed uniform.

1st Western General Hospital: The undermentioned officers are seconded for duty with Alder Hey Special Military Surgical Hospital: Capts. T. R. W. Armour (acting Major), J. L. Roberts, T. P. McMurray.

TERRITORIAL FORCE RESERVE.

Lieut.-Col. Sir R. Ross, K.C.B., K.C.M.G., from 1st Western General Hospital, to be Colonel.

Capt. H. A. Thomson, C.M.G., from 2nd Scottish General Hospital, to be Colonel.

Capt. Sir B. E. Dawson, G.C.V.O., C.B., from 2nd London General Hospital, to be Captain, and is granted the honorary rank of Major-General.

ROYAL AIR FORCE.

Medical Branch.—Capt. J. A. Giles to be acting Major whilst employed as Major.

Flight Lieut. G. Cranstoun to be acting Squadron Leader whilst employed as Squadron Leader.

Capt. G. W. Harbottle is transferred to the unemployed list.

The undermentioned Flying Officers to be Flight Lieutenants: S. A. Clark, S. R. E. Davies, J. Gorsky, V. I. Levy, K. F. D. Waters.

The undermentioned are transferred to the employed list: Capts. N. Rumboll and H. C. Cox.

Capt. Q. M. Gray relinquishes his commission on account of ill-health, and is permitted to retain his rank.

Dental Branch.—Flying Officer F. B. Stradling to be Flight Lieutenant.

S. G. Smith is granted a temporary commission as Lieutenant.

INDIAN MEDICAL SERVICE.

The King has approved the relinquishment of temporary rank in the Indian Medical Service of Capt. L. S. Machado.

The undermentioned temporary Captains, R.A.M.C., relinquish their commissions on transfer to the Indian Medical Service: R. A. Leembruggen and L. Blake, M.C.

TERRITORIAL FORCE DECORATION.

The King has conferred the Territorial Decoration upon the undermentioned officers of the Territorial Force: Col. (temp Major-Gen.) Sir R. Jones, K.B.E., C.B., Lieut.-Cols. R. R. Sleman, V.D., W. Thorburn, C.B., C.M.G., C. H. Hawkins, C.B.E., D.S O., W. Howorth (Bt. Col.), Major (acting Col) T. Kay, D.S.O., Majors J. G. Martin, R. C. Stack, W. M. Mackay, J. B. McBride, M. B. Ray, D.S.O., R. Lindsay, W. C. Murray.

THE HONOURS LIST.

The following awards are announced:—

Distinguished Service Cross.

Surg. Lieut. WALTER FRANCIS RAPHAEL CASTLE, R.N.—For distinguished services during the action off Onega on Oct. 1st, 1919, in attending to the wounded under heavy enemy fire.

Surg. Lieut. ALAN ANDREAS COCKAYNE, R.N.—For distinguished services under fire as medical officer of the *Zoraster*, *Venture*, and *Emile Nobel* in action off Fort Alexandrovsk on May 21st, 1919.

The name of Surg. Lieut.-Cmdr. G. G. Vickery, O.B.E., R.N., is mentioned in despatches.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Monday, Nov. 24th.

ODONTOLOGY (Hon. Secretaries—G. Paton Pollitt, W. Kelsey Fry, J. Howard Mummery): at 8 P.M.

Paper:

Mr. J. Howard Mummery: The Dental Follicle and its Relation to Pathological Conditions.

Demonstration of Microscopical Slides at 7 30 P.M.

Tuesday, Nov. 25th.

MEDICINE (Hon. Secretaries—W. Cecil Bosanquet, J. H. Thursfield): at 5.30 P.M.

Paper:

Dr. G. Graham: Arthritis in Dysentery: Its Causation, Prognosis, and Treatment.

Friday, Nov. 28th.

STUDY OF DISEASE IN CHILDREN (Hon. Secretaries—E. A. Cockayne, H. C. Cameron C. P. Lapage): at 4.30 P.M.

Dr. Eric Pritchard: (1) Hypertrophy of Pylorus with other associated Hypertrophies; (2) Hypertrophy of Lower End of Œsophagus with Papilloma of Cardia.

Cases will be shown.

EPIDEMIOLOGY AND STATE MEDICINE (Hon. Secretaries—William Butler, M. Greenwood): at 8.30 P.M.

Paper:

Colonel William Hunter, C.B., M.D.: The Epidemiology of Typhus Fever in Serbia.

Dinner will be provided at the Welbeck Palace Hotel at 7 P.M. (price 7s.). It is specially requested that those intending to dine will send names to Dr. Major Greenwood, Lister Institute, Chelsea, S.W. 1, not later than Wednesday, Nov. 26.

MEDICAL SOCIETY OF LONDON, 11, Chandos-st., Cavendish-sq., W.

Monday, Nov. 24th.—Discussion on the Treatment of Malaria, to be introduced by Lieut.-Col. S. P. James, I.M S. Followed by Dr. G. N. Pitt, Col. A. Castellani, Major W. Byam, R.A.M.C., Dr. G. W. Ward, and Dr. W. H. Willcox, C.B., C.M.G.

ILLUMINATING ENGINEERING SOCIETY, House of the Royal Society of Arts, John-street, Adelphi, W.C.

Tuesday, Nov. 25th.—5 30 P.M., Address: The President: The Work of Lambert.—The Hon. Secretary: Report on Progress.—New Developments in Photometry and High Candlepower Lamps, &c.

HUNTERIAN SOCIETY, at the School of Oriental Languages, Finsbury-circus, E.C.

Wednesday, Nov. 26th.—9 P.M., Paper:—Col. A. H. Tubby, C.B., C.M G.: Some Surgical Experiences of the War in the Near East.

MEDICO-LEGAL SOCIETY, 11, Chandos-street, Cavendish-square, W.

Thursday, Nov. 27th.—8 30 P.M., Inaugural Address:—Dr. R. H. Wellington (President). Paper:—Dr. A. P. Gibbons: Suggested Reforms in the Workmen's Compensation Act.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.

Thursday, Nov. 27th.—3 P.M., Annual Meeting of Fellows and Members.

ROYAL INSTITUTE OF PUBLIC HEALTH, in the Lecture Hall of the Institute, 37, Russell-square, W.C.

Course of Lectures on Housing Problems and Town Planning in Relation to Public Health.

Wednesday, Nov 26th.—4 P.M., Lecture V.:—Dr. N. Raw, C.M.G., M P.: Housing in Relation to Tuberculosis and other Infectious Diseases.

Course of Instruction for Candidates as Tuberculosis Officers, General Practitioners and others. Bacteriological Demonstrations will be given in the Laboratories of the Institute, and visits arranged to Sanatoriums, Tuberculosis Dispensaries, &c.

Thursday, Nov. 27th.—5 P.M., Lecture VIII.:—Dr. J. Watt: Sanatorium Treatment of Pulmonary Tuberculosis.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.

Wednesday, Nov. 26th.—4.30 P.M., Lecture:—Dr. D. Grant: Tuberculous Laryngitis and Diseases Simulating It.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, W.C. 1.

MEDICAL SCHOOL.

Monday, Nov. 24th.—2–3.30 P.M., Out-patient Clinic: Dr. Collier. 3.30 P.M., Lecture:—Dr. Saunders: Myopathies.

Tuesday, Nov 25th.—2–3.30 P.M. Out-patient Clinic: Dr. Grainger Stewart. 3.30 P.M., Ward Cases: Dr. Risien Russell.

Wednesday, Nov. 26th.—2 P.M., Lecture:—Mr. Armour: Surgery of the Spinal Cord. 3.30 P.M., Lecture:—Mr. Scott: Tumours of the Auditory Nerve.

THURSDAY, Nov. 27th.—2–3.30 P.M., Out-patient Clinic: Dr. Farquhar Buzzard. 3.30 P.M., Lecture:—Dr. Saunders: Personal Muscular Atrophy.

FRIDAY, Nov. 28th.—2–3.30 P.M., Out-patient Clinic: Dr. Gordon Holmes. 3.30 P.M., Ward Cases: Dr. Aldren Turner.

Fee for Post-Graduate Course £5 5s. C. M. Hinds Howell, Dean.

NATIONAL HOSPITAL FOR DISEASES OF THE HEART POST-GRADUATE COURSE, Westmoreland-street, W.

MONDAY, Nov. 24th.—11 A.M., Out-Patients: Dr. Goodall. 2 P.M., In-patients: Dr. Moon.

TUESDAY.—2 P.M., Out-Patients: Dr. R. Wells. 2.30 P.M., In-patients: Dr. Gibbes.

WEDNESDAY.—2 P.M., Out-patients: Dr. Moon. 5.30 P.M., Lecture:—Dr. R. Wells: Angina.

THURSDAY.—10 A.M., In-patients: Dr. Hamill. 2 P.M., Out-patients: Dr. Price.

FRIDAY.—2 P.M., Out-patients: Dr. Gibbes. 2.30 P.M., In-patients: Dr. Wells.

SATURDAY.—10 A.M., Out-patients: Dr. Hamill.

VICTORIA HOSPITAL FOR CHILDREN POST-GRADUATE COURSE, Tite-street, Chelsea, S.W.

MONDAY, Nov. 24th.—4.30 P.M., Lecture:—Mr. C. J. Marshall: Congenital Talipes.

TUESDAY.—4.30 P.M., Lecture:—Dr. J. W. Carr: Congenital Pyloric Stenosis.

WEDNESDAY.—3 P.M., Dr. J. M. H. Macleod: Demonstration of Skin Cases in Out-patient Department.—Dr. Melville: Demonstration in X Ray Department.

THURSDAY.—4.30 P.M., Lecture:—Mr. W. F. Fedden: Hernia.

FRIDAY.—4.30 P.M., Lecture:—Dr. Helen Ingleby: Congenital Morbus Cordis.

SATURDAY.—11 A.M., Lecture:—Sir Humphry Rolleston: Jaundice in the Newly-born.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE CLINIC.

TUESDAY, Nov. 25th.—4.30 P.M., Lecture:—Dr. C. Moore: Disordered Action of the Heart.

Communications, Letters, &c., to the Editor have been received from—

A.—Dr. F. P. Atkinson, Bexhill-on-Sea; *Archives of Radiology and Electrotherapy*, Lond.

B.—Dr. H. W. Bayly, Lond.; Dr. J. Blomfield, O.B.E., Lond. British Drug Houses, Lond., Director of; Capt. H. H. C. Baird, D.S.O., Lond.; Dr. V. Borland, Lond.; British Instructional Films, Lond.; Board of Agriculture and Fisheries, Lond.; Mrs. R. Brown, Lond.; Bibliothèque et Musée de la Guerre, Paris, Secrétaire-Général.

C.—Dr. E. R. T. Clarkson, Lond.; Children's Country Holidays Fund, Lond.; Croydon General Hospital, Sec. of: Messrs. Cassell and Co., Lond.; Cycle and Motor Cycle Manufacturers and Traders' Union, Lond. Mrs. D. E Cowell, Croydon; Sig E. Cortassa, Genoa; Dr. C. Chidell, Folkestone; Chadwick Trust, Lond., Sec. of; Chicago School of Sanitary Instruction; Conjoint Board of Scientific Societies, Lond.: Dr. H. P. Cholmeley, Forest Row; Mr. E. M. Corner, Lond.; Mr. A. P. I. Cotterell, Lond.; Rev. Dr. Carr, Pevensey.

D.—Dr. W. A. Daley, Bootle; Dr. V. Dickinson, Lond.; Sir H. B. Donkin, Lond.; Dr. A. Distaso, Cardiff.

E.—Mr. A. Edmunds, C.B., Lond.

F.—Messrs. Freshfields and Leese, Lond.; Mr J. G. Forbes, Lond.; Dr. A. R. Fraser, Aberdeen; Dr. H. Fraser, Brighton.

G.—Mr. E. J. Geary, Warrington; Mr. G. E. Gask, C.M.G., Lond.; Dr. S. R. Gloyne, Lond.

H.—Miss E. M. M. Hume, Lond.; Dr. J. Haddon, Denholm, Hawick; Dr. F. G. Hopkins, Cambridge; Dr. Oliver Heath, Lond.; Harveian Society of London.

I.—Illuminating Engineering Society, Lond.; Irish Medical Committee, Dublin, Sec. of.

J.—Prof. F. Wood Jones, Lond.; Mr. J. R. Jarrett, Trawsfynydd.

K.—Dr. J. Kirkland, Lond.

L.—Lancashire and Westmorland Tuberculosis Society, Hon. Sec. of; Dr. C. Lillingston, Gorleston; Dr. G. C. Low, Lond.; Mr. R. Lake, Lond.

M.—Dr. I. Moore, Lond.; Sir D. MacAlister, K.C.B., Glasgow; Mr. G. Mayall, Bolton; Dr. S. Melville, Lond.; Dr. C. Muthu, Wells; Mr. J. Morrell, Shelton; Dr. E. D. Macnamara, Lond.; Thomas M'Lean's Gallery, Lond.; *La Médecine*, Paris, Secrétaire-Général; Dr. D. M. MacLeod, Evesham.

P.—Surg.-Lieut.-Comdr. R. J. G. Parnell, R.N.; *The Publishers' Circular*, Lond., Editor of; Dr. S. Pickard, Lond.; Panel Committee for the County of London, Sec. of.

Q.—Mr. J. H. Quastel, Lond.

R.—Sir A. Reid, K.B.E., Southsea; Royal Medical Benevolent Fund, Lond., Sec. of; Royal College of Surgeons of England, Lond., Sec. of; Royal Institution, Lond.; Royal Society of Arts, Lond.; Prof. J. A. Rivière, Paris; Prof. H. Roger, Paris.

S.—Dr A. G. Shera, Eastbourne; Mr. F. B. Shawe, Fulneck; Dr. L. Samuels, Manchester; Mr. W. H. Stamp, Lond.; Dr. G. D. Sherwood, Eastbourne; The Stratford Company, Boston; Dr. J. F. Scrimgeour, Lond.; Dr. W. B. Sanders, Otley; Society of Apothecaries, Lond., Master and Wardens of.

T.—Mr. L. L. Thain, Gloucester; Mr. H. Tilley, Lond.; Dr. E. J. Tyrrell, Lond.; Mr. E. B Turner, Lond.; Sir W. Thorburn, K.B.E., C.B., C.M.G., Manchester.

U.—University of London, Academic Registrar of.

V.—Mr. R. M. Vick, C.B.E., Lond.; Village Centres Council, Lond., Sec. of.

W.—Dr. H. Williamson, Lond.; Dr. J. Watson, Jersey; Dr. A. M. Webber, Nottingham; Messrs. John Wright and Sons, Bristol; World Trade Club, Lond.; Dr. J. D. Wynne, Norwich.

Communications relating to editorial business should be addressed exclusively to the Editor of THE LANCET, 423, Strand, London, W.C. 2.

RECENT outbreaks of foot and mouth disease have led to the issue by the Ministry of Health of a Memorandum to local authorities urging strict vigilance. The Memorandum is accompanied by a description of the early stages of the disease in the animal, issued by the Board of Agriculture and Fisheries.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutio and others possessing information suitable for this column, a invited to forward to THE LANCET *Office, directed to the Su Editor, not later than 9 o'clock on the Thursday morning of eac week, such information for gratuitous publication.*

BLAIR, MARY A., M.D. Lond., has been appointed Medical Officer to th Post Office, for the female staff in the Westminster Division of th South-Western District.

BOYD, W., L.R.C.P. & S. Edin., Medical Officer to Banbridge Unio Workhouse Infirmary.

GARROW, R. P., M.D. Aberd., Assistant Medical Officer of Healt Ealing.

HEATON, TREVOR B., B.M., Lee's Reader in Anatomy at Oxford.

MCKENNA, T. H., Certifying Surgeon under the Factory and Worksho Acts for Forkhill.

Vacancies.

For further information refer to the advertisement columns.

Aberdeen Royal Hospital for Sick Children.—Jun. H.P. and S.

Aylesbury Royal Buckinghamshire Hospital.—H.S. £200.

Bradford Children's Hospital.—H.S. £180.

Bristol Eye Hospital.—Hon. S. Hon. Asst. S.

Bristol General Hospital.—Cas. H.S. £175.

Cambridge, Addenbrooke's Hospital.—H.P. £130.

Cancer Hospital (Free), Fulham-road, S.W.—Surg. Regis. £100.

Cardiff, Glamorgan County Council.—County M.O. £1000.

Carlisle, Cumberland County Council.—Three Asst. County M.O.'s £450.

Central London Ophthalmic Hospital, Judd-street, W.C.—Asst. S Path. £75.

Chester City and County.—Asst. M.O.H. £400.

Darlington Union.—M.O. and Pub. Vac. £350.

Derby, Royal Derby and Derbyshire Nursing and Sanitary Associatio Two Hon. Obst. P.'s to Nightingale Nursing Home.

Dudley County Borough Education Committee.—Asst. School M.O and M.O.H. £500.

Dumfries, Crichton Royal.—Asst. P. £350.

Elizabeth Garrett Anderson Hospital, Euston-road, N.W.—Femal H.P., Obstet. Asst., and Two H.S.'s. £50. Hon. Anæs. £10 10s Hon. Asst. Obstet.

Finsbury Dispensary, Brewer-street, Goswell-road, E.C.—P. £50.

Gloucestershire Royal Infirmary and Eye Institution.—Asst. S.

Great Northern Central Hospital, Holloway, N.—Res. M.O.

Grosvenor Hospital for Women, Vincent-square, Westminster, S.W. Asst. Gynæc.

Hereford County and City Mental Hospital.—Sen. Asst. M.O. £400.

Huddersfield Royal Infirmary.—Sen. H.S. and Asst. S. £200 and £150 respectively.

Hull Royal Infirmary.—H.P. £200.

Johannesburg, South African School of Mines and Technology.—Prof. of Veterinary Anat. £800.

King's College Hospital, Denmark-hill, S.E.—Path. Registrar. £400.

King's College Hospital Medical School, Denmark-hill, S.E.—Lecturer in Forensic Medicine and Toxicology.

Leamington Spa, Warwickshire United Districts.—M.O.H. £700.

Lightburn Joint Hospital, Shettleston, near Glasgow.—Res. Phys. Supt. £350.

Liverpool Eye and Ear Infirmary, Myrtle-street.—Hon. Asst. S. and Hon. Path.

London Panel Committee, 51, Chancery-lane, W.C.—Asst. Med. Sec. £200.

London Temperance Hospital, Hampstead-road, N.W.—Hon. Dent. S.

Manchester, Booth Hall Infirmary for Children.—Med. Super. £650.

Manchester City Education Committee.—Female Asst. School M.O. £450.

Manchester Northern Hospital for Women and Children, Park-place, Cheetham Hill road.—H.S. £150.

Meathop, Grange-over-Sands, Westmorland Sanatorium and Home.—Second Asst. M.O. £250.

Miller General Hospital for South-East London, Greenwich-road, S.E.—Res. M.O. £350.

Newport Education Committee.—Dentist. £400.

Northallerton, North Riding of Yorkshire County Council Education Committee.—Asst. Sch. M.O.'s £500.

Northamptonshire Sanatorium. Interim Med. Super. £400.

Nottingham General Hospital.—H.S. £150.

Oldham Royal Infirmary.—Ophthal. S. £50.

Paddington Green Children's Hospital, London, W.—Radiographer.

Plymouth, Borough of.—Res. M.O. at Udal Torre Sanatorium, Yelverton. £350.

Port Elizabeth, Municipality of.—M.O.H. £900.

Portsmouth Education Committee.—Asst. Sch. M.O. £500.

Portsmouth Royal Hospital.—H.S. £150.

Prince of Wales's General Hospital, Tottenham, N.—Hon. Asst. P., Hon. P., Hon. Asst. Ophth. S., and Hon. Asst. S.

Queen Mary's Hospital for the East End, Stratford, E.—Hon. Asst. P.'s.

Reading, Berkshire Education Committee.—Asst. Sch. Med. Insp. £400.

Royal Chest Hospital, City-road, E.C.—Clin. Assts.

Royal Free Hospital, Gray's Inn-road, W.C.—Clin. Assts. Asst. P. M.O.'s in Charge of Electro-Therapeutic, &c., Depts.

Royal Free Hospital and London School of Medicine for Women.—Pathologist and Direct. of Path. Studies. £700.

Royal Waterloo Hospital for Children and Women, S.E.—Hon. P.

St. Bartholomew's Hospital.—Chief Assts. to Medical and Surgical Non-Professorial Clinical Units. £200. Chief Assts. for Diseases of Eye, Throat, and Nose. £50.

St. Marylebone Infirmary. Con. P., S., Gynæc., Oph. S., Neurol., Dermat., Bact. and Advising Sanitary O., £100; P. to X Ray Dept., £150; Dent. S., £50

St. Peter's Hospital for Stone, &c., Henrietta-street, Covent Garden, W.C.—Jun. H.S. £75.
St. Thomas's Hospital, S.E.—P.
Salford Royal Hospital.—Cas. H.S. £100.
Samaritan Free Hospital for Women, Marylebone-road, N.W.—Registrar. £50.
Sheffield Royal Hospital.—Res. Asst. Cas. O. £120.
Singapore. Straits Settlements, Health Department.—Asst. Health O. $4800-$5400.
Southwark Borough.—Female Asst. M.O.H. £400.
Stafford, Staffordshire General Infirmary.—H.S. £250. H.P. £200.
Surrey, Virginia Water, Holloway Sanatorium (Hospital for the Insane). Jun. Asst. M.O. £300.
Swansea County Borough.—Asst. M.O. £450.
Taunton and Somerset Hospital.—Sen. and Jun. H.S.s. £200 and £150.
University College Hospital, Gower-street, W.C.—Surg. Registrar. £250. Hon. Radiologist.
University of Birmingham.—Female Demon. in Anat.
University of London.—Chair of Physiology. £800.
Ventnor, Isle of Wight, Royal National Hospital for Consumption and Diseases of the Chest.—Asst. Res. M.O. £200.
Victoria Hospital for Children, Tite-street, Chelsea, S.W.—Sen. Res. M.O. £250
Wakefield, West Riding Asylum.—Junior Asst. M.O. £400.
Walsall General Hospital.—Female Jun. H.S. and Anæs. £175.
Watford Urban District Council Maternity and Child Welfare Centre.—Female M.O. £250.
Wolverhampton and Staffordshire General Hospital.—H.S. £200.

Births, Marriages, and Deaths.

BIRTHS.

Jobson.—At Beechwood, Epsom, on Nov. 12th, the wife of J. Stanley Jobson, M.B., F.R.C.S., of a daughter.

Pirrie.—On Nov. 11th, at the Dispensary, Newcastle-on-Tyne, the wife of Ivan Miller Pirrie, M.C., M.B., B.S., of a daughter.

West.—On Nov. 15th, 1919, at 7, Crawford-gardens, Cliftonville, the wife of Henry O. West, M.D., of a son.

MARRIAGES.

Blaikie—Campbell.—On Nov. 12th, at Meerut, India, Captain Cuthbert James Blaikie, R.A.M.C., to Helen Dorothea Campbell, Q.A.I.M.N.S., India, daughter of Colonel J. C. Campbell, late R.E.

Grove White—Rolland.—On Nov. 12th, at St. Columba's, Pont-street, Captain James Herbert Grove White, M.D., I.M.S., to Frances Katherine, second daughter of the late J. H. W. Rolland, of Gledhow-gardens, S.W.

Stevens—Paul.—On Nov. 11th, at St. Peter's Church, Southsea, Surgeon-Lieutenant John Greet Stevens, R.N., to Kathleen Rosalie, eldest daughter of Engineer Captain Oliver R. Paul, O.B.E., R.N.

Weston—Murray.—On Nov. 14th, at All Souls' Church, Langham-place, Brevet-Major T. A. Weston, M.B., R.A.M.C., to Muriel Zica, daughter of the late Mr. Thomas Murray, Buenos Aires, and Mrs. Murray.

DEATHS.

Acworth.—On Nov. 13th, at her residence, Buckland-crescent, Hampstead, N.W., Mary S. Acworth, M.D.

Hewitt.—On Nov. 8th, at Newlands House, Tooting Bec Common, David Basil Hewitt, L.R.C.P. & S.I., J.P., late of Northwich, Cheshire, aged 76.

Lawrence.—On Nov. 9th, at Lyndhurst-road, Exeter, Henry Cripps Lawrence, M.D., aged 78.

Riley.—On Nov. 16th, at his residence "Sandringham," Exeter-road, Bournemouth, James Riley, M.R.C.S., L.R.C.P., aged 85.

Venn.—On Nov. 13th, at a nursing home in Harrogate after four days' illness, Albert John Venn, M.D., of the Junior Carlton Club, London, in his 80th year.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

BOOKS, ETC., RECEIVED.

Appleton, D., and Co., London and New York.
Diseases of the Ear. By E. B. Dench, M.D. 5th ed. Pp. 740. 30*s*.

Arnold, Edward, London.
The British Interned in Switzerland. By Lieutenant-Colonel H. P. Picot, C.B.E. Pp. 212. 10*s*. 6*d*.
A Physician in France. By Major-General Sir Wilmot Herringham, K.C.M.G., C.B. Pp. 293. 15*s*.

Baillière, Tindall, and Cox, London.
A Dictionary of Treatment. By Sir William Whitla, M.D., M.P. 6th ed. Pp. 1083. 25*s*.
Manual of Tropical Medicine. By A. Castellani, M.D., and A. J. Chalmers, M.D. 3rd ed. Pp. 2436. 45*s*.

Bale, John, Sons, and Danielsson, London.
Text-book of Chemistry: Inorganic and Organic, with Toxicology. By R. A. Witthaus, M.D. 7th revised ed. By R. J. E. Scott, M.D. Pp. 478. 20*s*.
Autobiographical Reminiscences of Sir Herman Weber. Written privately for the family. With annotations and a list of his medical writings by his son, F. P. Weber.

Bell, G., and Sons, London.
Hygiene of Town Planning and Vegetation. By P. S. G. Duhash, D.Sc. With Introduction by Hon. Sir John Cockburn, M.D. Pp. 128. 3*s*.

Butterworth and Co., Calcutta and London.
Practical Physiological Chemistry for Indian Medical Students. By C. C. Caleb, M.B. Pp. 252. Rs. 6.

Cassell and Co., London, New York, Toronto, and Melbourne.
The Welfare of the School Child. By J. Cates, M.D. Pp. 154. 5*s*.

Chapman and Hall, London. **J. Wiley and Sons**, New York.
Chemical Calculation Tables for Laboratory Use. By Professor Horace L. Wells. 2nd ed. 6*s*. 6*d*.
Vital Statistics. By Prof. G. C. Whipple (Harvard). Pp. 517. 18*s*. 6*d*.
Bacteriology and Mycology of Foods. By F. W. Tanner, M.S., Ph.D. Pp. 591. 28*s*.
Food: A Text-book for Classes in Household Science. By Mary T. Dowd and Jean D. Jackson. Pp. 173. 6*s*.

Churchill, J. and A., London.
A Manual of Midwifery. By T. W. Eden, Major, R.A.M.C. Pp. 747. 24*s*.
Post-Mortem Manual. By C. R. Box, M.D. 2nd ed. Pp. 372. 8*s*. 6*d*.
Venereal Disease: Its Prevention, Symptoms, and Treatment. By H. W. Bayly, M.C. Pp. 152. 10*s*. 6*d*.
Inguinal Hernia. The Imperfectly Descended Testicle and Varicocele. By P. Turner, M.S. Pp. 104. 9*s*. 6*d*.
An Atlas of Dental Extractions. With Notes on the Causes and Relief of Dental Pain. By C. E. Wallis, M.R.C.S., L.D.S. 2nd ed. Pp. 26 + plates. 5*s*.

Constable and Co., London.
The Philosophy of Conflict and other Essays in War Time. (Second Series.) By Havelock Ellis. Pp. 300. 6*s*. 6*d*.

Dent, J. M., and Sons, London and Toronto.
A Complete System of Nursing. By A. Millicent Ashdown. Pp. 746. 12*s*. 6*d*.

Eagle, Star, and British Dominions Insurance Company, London.
Baby from Bud to Blossom. By Mrs. J. L. Hewer. With forewords by Dr. Addison, Dr. Eric Pritchard, and Lady Leslie Mackenzie. Pp. 218.

Eveleigh Nash Company, London.
A Plea for the Treatment of Cancer without Operation. By Robert Bell, M.D. Pp. 75. 2*s*. 6*d*.

Fischer, S., Berlin.
Das Erleben. By A. Koelsch. Pp. 389.

Frowde, H., and Hodder and Stoughton, London.
Immunity and Health: Function of the Tonsils and Other Sub-epithelial Lymphatic Glands. By K. H. Digby, B.S. Pp. 130. 8*s*. 6*d*.

Gurney and Jackson, London. **Oliver and Boyd**, Edinburgh.
Organic Chemistry for Students of Medicine. By James Walker, F.R.S. 2nd ed. Pp. 332. 10*s*. 6*d*.

Heffer, W., and Sons, Cambridge.
Groundwork of Surgery (for first year students). By A. Cooke, M.B., B.Ch. Pp. 183. 7*s*. 6*d*.

Johnston, W. and A. K., Edinburgh.
American Frohse Life-size Anatomical Charts. 7 plates, 42 in. by 64 in. Single plates, £1 10*s*.

Kimpton, Henry, London.
Plastic Surgery: Its Principles and Practice. By J. S. Davies, M.D. Pp. 770. 42*s*.
The Peritoneum. By A. E. Hertzler, M.D. Vol. I., Structure and Function in Relation to the Principles of Abdominal Surgery. Pp. 379. Vol. II., Diseases and their Treatment. Pp. 870. 50*s*. complete.
Symptoms of Visceral Disease: A Study of the Vegetative Nervous System in its Relationship to Clinical Medicine. By F. M. Pottenger, M.D. Pp. 328. 21*s*.
Geriatrics. By M. W. Thewlis, M.D. With Introductions by A. Jacobi, M.D., and I. L. Nascher, M.D. Pp. 250. 15*s*.
A Text-book of Urology. By V. C. Pedersen, M.D. Pp. 992. 36*s*.
Roentgen Interpretation. By G. W. Holmes, M.D., and H. E. Ruggles, M.D. Pp. 212. 15*s*.
Cerebro-spinal Fluid in Health and Disease. By A. Levinson, M.D. With foreword by L. Hektoen, M.D. Pp. 232. 18*s*.
The Venereal Problem. By E. T. Burke, M.B. Pp. 208. 7*s*. 6*d*.
Psychiatric-Neurologic Examination Methods. By Dr. A. Wimmer. Authorised Translation by A. W. Hotsholt, M.D. Pp. 177. 10*s*. 6*d*.

Laurie, T. Werner, London.
Efficiency Ideals: A Short Study of the Principles of "Scientific Management." By Thiselton Mark, D.Lit., B.Sc. 2*s*. 6*d*.
Letters to a Young Man on Love and Health. By Walter M. Gallichan. 4*s*. 6*d*.

Livingstone, E. S., Edinburgh.
Handbook of Skin Diseases. By F. Gardiner, M.D. Pp. 160. 6*s*.
Manual of Diseases of Children. By J. Burnet, M.D. 2nd ed. Pp. 416. 8*s*. 6*d*.
Handbook of Anæsthetics. By J. Stuart Ross, M.B., and others. Pp. 214. 7*s*. 6*d*.

Simpkin, Marshall, Hamilton, Kent, and Co., London.
Cuba: The Land of Opportunity. By G. C. Musgrove. Pp. 103. 1*s*.

THE LANCET: SUBSCRIPTION RATES.

Inland	One Year	£1 16 0
	Six Months	0 18 0
	Three Months	0 9 0
Abroad	One Year	£2 0 0
	Six Months	1 0 0
	Three Months	0 10 0

Subscriptions may commence at any time, and are payable in advance. Cheques and P.O.'s (crossed "London County Westminster and Parr's Bank, Covent Garden Branch") should be made payable to Mr. Charles Good, The Lancet Offices, 423, Strand, London, W.C. 2.

ADVERTISEMENT RATES.

Books and Publications Official and General Announcements Trade and Miscellaneous Advertisements	Four lines and under ... ... 4*s*. 0*d*.

Every additional line, 9*d*.
Quarter Page, £2. Half a Page, £4. Entire Page, £8.
Special Terms for Position Pages.

Notes, Short Comments, and Answers to Correspondents.

PUBLIC HEALTH AND HOSPITAL WORK IN INDIA IN 1918.

(*Concluded from p. 906*)

The Punjab.

AN immense amount of work was done in the dispensaries in the Punjab, where 4,957,555 patients were treated, of whom 88,386 were in-patients. There was less fever than in the previous year, but under the heading of "other infective diseases" there was an increase from 9360 cases in 1917 to 215,284, chiefly due to a virulent outbreak of influenza in October and November. Colonel R. C. Macwatt, I.M.S., Inspector-General of Civil Hospitals, states that "the figures furnish no index of the magnitude of the epidemic, which accounted for at least three-quarters of a million deaths." 15,845 cases of pneumonia were treated, of whom 2357 were in-patients, 599 of these latter being fatal. Fortunately there was considerably less malaria (611,523 cases compared with 1,006,866 cases in 1917), and "had it not been for the wave of influenza, the health of the province would have been unusually good." It is worthy of note that Assistant Surgeon Rai Sahib Mathra Das, of Moga dispensary in Ferozepore district, performed 7217 "selected operations" (an average of 20 every day throughout the year); 4391 were for cataract.

North-West Frontier Province.

In the North-West Frontier Province the births fell from 32·1 per 1000 in 1917 to 30·6 in 1918, the lowest ratio recorded during the past five years, and lower than in any other province in India; in Bannu district the ratio was only 25·5. As, however, more male births were registered than female, Major H. Crossle, I.M.S., chief medical officer, considers that the apparent decrease is due in part to inaccurate registration. The death-rate of 70 3 per 1000 is to be compared with 29·48 in 1916, and 24·15 for the quinquennium, 1911–1915. Of the total 143,506 deaths, 105,632 occurred in the last three months of the year, chiefly from influenza, the deaths from this cause numbering 93,831. There were two outbreaks in July and August, the second being the more severe. Energetic measures were taken. Temporary dispensaries were opened, the entire vaccination staff were provided with medicines, gargles, &c., and employed on itinerating duties in their districts, the vaccinating work being temporarily suspended. Schoolmasters were also of great service in distributing medicines. Segregation, where it can be carried out, is a sure safeguard. The inhabitants of the village of Samsai, in the Khyber Agency, prohibited all intercourse with their neighbours, and so escaped, although influenza prevailed in the surrounding villages.

In the jails of this province the health was, on the whole, good, except for influenza. The admissions to hospital were at the rate of 1077 per 1000, the daily sick 34, and the deaths 55·75 per 1000. There were 698 cases of influenza, with 63 deaths, exactly half the total number of deaths from all causes.

Central Provinces and Berar.

In the Central Provinces and Berar the jail population suffered severely from influenza; 1574 out of the 2810 total admissions to hospital, and 121 out of the 186 total deaths were due to this disease. The total admissions were in a ratio of 749·2, and the total deaths 49·46, per 1000. Lieutenant-Colonel C. H. Bensley, I.M.S., Inspector-General of Prisons, has taken great interest in the future welfare of the prisoners under his charge and in helping them to obtain employment after their release. Little can be done in the way of teaching them trades, as most of them belong to the agricultural classes, but he proposes to introduce the weaving industry, and would like to teach new and up-to-date methods of agriculture. The report on the lunatic asylum for the Central Provinces, under charge of Lieutenant-Colonel A. Buchanan, I.M.S., at Nagpur, for 1918, shows on the whole a satisfactory condition in the health of its inmates; the mortality ratio was 8·50 per 1000, being lower than the average for the preceding six years (9·39), and lower than the corresponding average in any of the other eight Indian asylums. The daily average number of inmates was 377. Of the 32 deaths that occurred, 9 were from tuberculous disease. Special wards have been opened for such cases, and it is hoped that the mortality from this cause will be markedly lessened. Colonel C. R. M. Green, I.M.S., the Inspector-General of Civil Hospitals, Central Provinces, refers to the fallacious conclusions that may be drawn from comparisons of mortality in different asylums in any one year, and states that "a better basis for comparison is the average mortality for a number of years, because if the mortality is very high in one year it follows that there are less of the weakly left to die in the succeeding years." Everyone will agree that comparisons of figures for any one year may be fallacious, and that the average for a number of years should be taken in preference (for most purposes); but although "there are less of the weakly left to die" at the end of any one year, there may be numerous admissions of patients, weakly or the reverse. The population of the asylum is probably variable in regard to this factor; the reason for taking a series of years as a basis of comparison is in order that all conditions that are variable may be, as nearly as possible, averaged. The Nagpur district was severely affected by influenza; in the asylum the course of the epidemic was remarkable. As in other places, there were two phases: first, there were 47 attacks (all among the 298 male inmates), of which 38 occurred on August 6th and 7th, the fever being distinctly of the three-day type; there were no deaths. In the second phase, from Sept. 30th to Nov. 19th, there were 61 attacks, all among the staff and their families, with 3 deaths; none of the female inmates (78) were attacked either time.

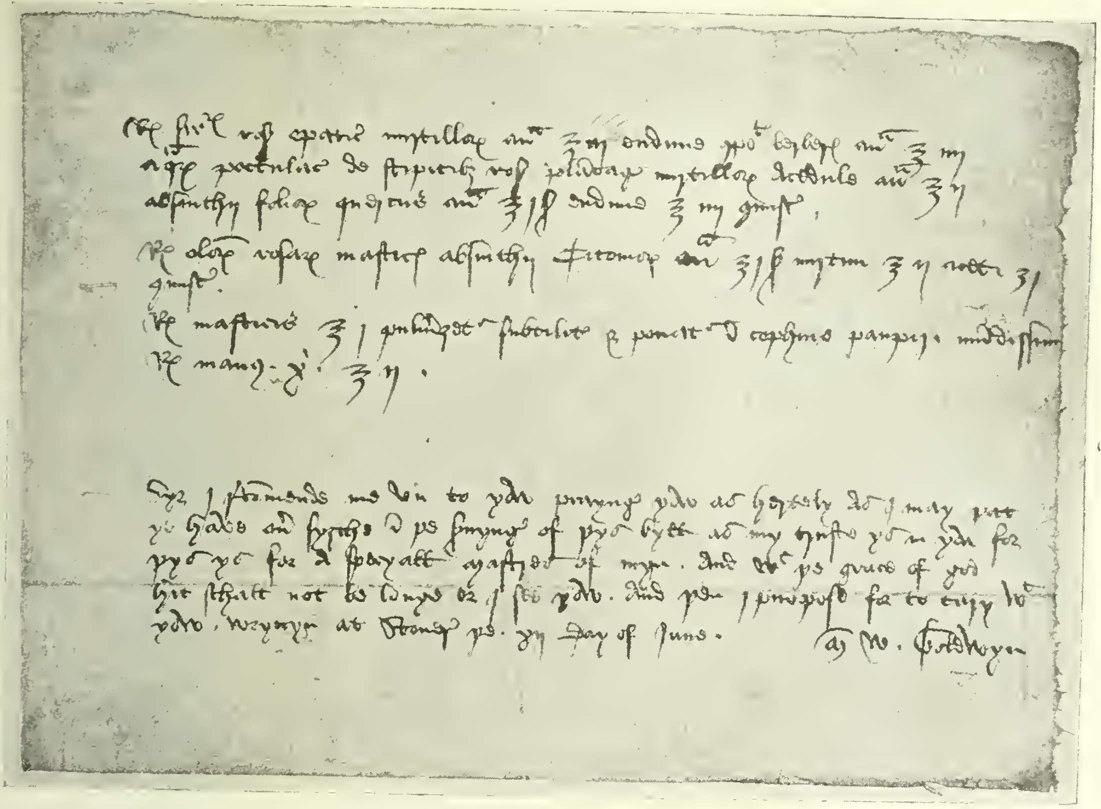
Burma.

In the province of Burma the birth-rate in 1918 was 33·01 per 1000, as compared with 36·25 in 1917; some of this decrease is considered to have been due to interference with registration, owing to the widely prevailing sickness and bereavement. The increase in the death-rate was very marked, this being 39·59, as compared with 25·28, the average for the previous five years; of the total deaths registered, 388,906, the actual increase over the quinquennial average was 139,938, "this enormous excess" being mostly due to the influenza epidemic, commencing in July and lasting until December. The small district of Kyauksè in Upper Burma had a death-rate of 61·74, in Mandalay district the ratio was 57·75, and in Rangoon 52·54 per 1000; this high mortality was almost all due to influenza. The disease "was undoubtedly brought to Rangoon by details of troops returning from leave, or on transfer from India, and such details probably carried it quickly to cantonments in distant parts of Burma"; religious festivals and fairs with their large assemblages and subsequent dissemination of infection had a wide-spread influence. "In all towns and districts, as in Rangoon, the epidemic took on a mild form, and mortality was low for the first few weeks, until a violent and fatal phase was assumed with suddenness." This points to what has been called a progressively increasing power of infection. The economic effects were "very disastrous and far-reaching; whole village populations suffered simultaneously, and many were decimated." The real mortality cannot be exactly computed, but Lieutenant-Colonel C. E. Williams, I.M.S., the Sanitary Commissioner, considers that a rate of 14·10 per 1000 "may be accepted as approximately the influenza death-rate in registered areas in Burma," while, allowing for the heavy mortality in unregistered areas, the total deaths from influenza and its complications were not less than 200,000 during 1918. The case mortality was low in the jails, the highest ratio being 4·1 per cent. at Mandalay Central jail. The case mortality at two hospitals in Rangoon was 21·33 and 33·3 per cent. respectively; in the latter instance (339 cases with 113 deaths) the patients were low-caste Indians, labourers, and immigrants, often physically exhausted and underfed. The effect of quinine prophylaxis is indicated by a return furnished by Lieutenant-Colonel C. A. Stone, R.A.M.C.: of 256 men taking 7½ gr. daily, 9·8 per cent. were attacked; of 265 men taking 15 gr. twice weekly, 6·8 per cent.; and of 273 taking no quinine, 18·68 per cent. were attacked; while of 75 malaria cases under continuous treatment before the introduction of influenza 5·3 per cent. only contracted the disease.

In the report on hospitals and dispensaries in Burma Colonel P. C. H. Strickland, I.M.S., Inspector General of Civil Hospitals, states with regard to 199 small-pox cases treated at the Rangoon Contagious Diseases Hospital, that out of 112 vaccinated cases 78 had modified, one discrete, and 33 confluent small-pox (12 being fatal); of 81 non-vaccinated adults 22 had modified and 59 confluent (25 being fatal); of 6 unvaccinated children 5 had modified and 1 confluent, and all recovered. The percentage of deaths among the vaccinated was 10·71, among the unvaccinated 28·73.

A FIFTEENTH-CENTURY PRESCRIPTION.

THE Stonor Letters and Papers, which have been edited by Mr. C. L. Kingsford from the originals at the Public Record Office, and which will shortly be published by the Royal Historical Society, include two letters (reproduced here by the courtesy of the Society) from William Goldwyu, who was a physician of repute in the reign of Edward IV. In one of them he sends four prescriptions to be made up by John Byrell, an apothecary of



Bucklersbury, it would seem for the wife of Sir William Stonor, of Stonor in Oxfordshire. The document is of peculiar interest, as probably a unique instance of a prescription written by a physician for a specific patient and sent to be made up by the apothecary. In the letter written a few days later, Goldwyn asks Lady Stonor to send him a buck for the marriage of a special friend of his, and in a postscript asks her to speak to her husband for the £16 which were due to him, no doubt as his fee for attendance.

The prescriptions were most probably intended for the second Lady Stonor, and the year will then be 1480. In printng the prescriptions it has seemed best to mark the expansions by the use of italic letters; "ana" represents the Greek ἀνά (to the amount of), which is still used in modern prescriptions in the form āā; "epatice" is either the common liverwort or the hepatica; "olorum" is presumably n error for "oleorum"; "cicomorum" means wild figs; 'manus Christi" is apparently a drug, but does not seem o be identifiable; "acedule" is also obscure. "℞," of course, s our present form for "Recipe."

William Goldwyn, in his will dated June 2nd, 1482 (P.C.C., Logge), describes himself as "maister of art and Bacheller of fesyk"; he directed that he should be buried in the Chapel of the Hospital of St. Thomas Acon, to which he bequeathed ll his "books of fesyk to be chayned in the common Library or evermore." John Berell, "apotecary," was one of his executors. The will was proved on June 8th, 1482. John Berell, grocer, occurs in 1473 and 1487, and John Berell, unior, apothecary, in 1472.

[*The Prescriptions.*]

℞. Sir*roporum* ros*arum*, epatic*e*, mirtillor*um*, anª ℥iij. ndiuie, compot. berheris, anª ℥iiij. aq*uarum* pocculat*arum* le stipiti*bus* ros*arum*, pla*n*tag*inis*, mirtillor*um*, acedule, naª ℥ij. absinthii, folior*um* quercus, anª ℥jss. endiuie ℥iiij. ommisc*eantur*.

℞. olor*um* rosar*um*, mastic*is*, absinthii, Cicomor*um*, naª ʒj. mirtini ʒ. aceti ʒj. commisc*eantur*.

℞. masticis ℥j. pulu*e*rizet*ur* subtilit*er* et ponat*ur* *in* cophino aupiri mu*n*dissimi.

℞. man*us* ch*ris*ti ʒij.

[*The Letter.*]

Syr, I recommende me unto yow, prayng yow as hertely s I may that ye have over sygthe in the servyng of thys yll, as my truste ys in yow: for thys ys for a specyall Mastres of myn. And with the grace of God hit schall not e longe or I see yow. And then I purpose for to tary with ow. Wrytyn at Stoner the xij day of June.

Mr. W. Goldwyn.

To John Bvrell the eldur, Poticary, Duellyng in Bucklers ury, be thys byll delyverde.

THE STATE IN RELATION TO CHRONIC DISEASE.

UNDER this title a Chadwick Public Lecture was delivered on Thursday, Nov. 13th, at 5.15 P.M., at the rooms of the Medical Society of London, Chandos-street, W., by Dr. R. O. Moon. After remarking on the general improvement of public health during the past 50 years, largely as the result of Chadwick's labours, the lecturer uttered a warning against the dangers of the specialism which isolates departments of knowledge. Political economy and medicine should he regarded as parts of sociology. In the opinion of the lecturer, too static a view is taken of chronic diseases. They overlap and flow into one another and their apparent definiteness, fostered by nomenclature, is fallacious. While science analyses, the State should integrate. "The first duty of the State, in connexion with disease," he said, "is prevention." This duty was well recognised by the Royal Army Medical Corps in the war, though many activities were hampered by inelastic regulations. The primary duties of the State with regard to prevention are: (*a*) to secure a pure water-supply; (*b*) to supply unadulterated food and good milk; (*c*) removal of dust and smoke; (*d*) house and town planning; (*e*) restriction of the consumption of alcohol.

Proceeding, Dr. Moon said the chronic diseases at present dealt with by the State were insanity and tuberculosis. There was a great need for hospitals or special houses for borderland cases. The exaggerated idea of the infectivity of "consumption," which possessed the public mind, had to be combated. Post-sanatorium treatment for the tuberculous should be amply provided. He dwelt on the importance of civic efficiency to the nation and pointed out ways of dealing with inefficiency resulting from circulatory disorders and epilepsy. Similar work to that which was being done by employment bureaus for disabled soldiers should be applied to all citizens suffering from chronic disease. Doctors recommended "light work," but there was difficulty in defining it, and medical men should become familiar with the amount of work involved in various forms of industrial and agricultural occupations.

In conclusion, the lecturer pleaded for closer coöperation between Pensions Committees, Labour Exchanges, and the medical profession.

After the lecture Sir James Crichton-Browne presented the Chadwick gold medal and prize for excellence in municipal engineering and hygiene to Mr. P. S. J. Bovey, a matriculated student and prize-winner in the Engineering Section at University College. Mr. Bovey was introduced to the Chairman by Mr. Matthews, Chadwick Professor of Municipal Engineering in University College. A gold medal has been annually offered by the Chadwick Trustees for competition by the engineering students of this college for twenty years, and only one year has there failed to be a winner.

The remaining lecture of the Chadwick autumn programme for this year, on "Causes of Infant Mortality," will be given by Dr. Joseph Cates, of St. Helens, at the Hampstead Town Hall, Haverstock-hill, on Thursday, Dec. 4th, at 8 P.M., Sir William J. Collins, Chairman of the Chadwick Trustees, presiding. Admission is free to all Chadwick Lectures.

A HANDBOOK FOR EX-OFFICERS.

A PAMPHLET by Captain H. H. C. Baird, D.S.O., has just been published (price 3*d.*) by the Imperial Ex-Services Association, 34, Grosvenor-place, London, S.W. 1. Its object is to put ex-officers, widows, dependents, and nurses into touch with the many organisations, official and unofficial, from which benefits may be obtained. It is estimated that on the books of the Ministry of Pensions there are 33,000 officers, 9600 widows, 900 nurses, 9100 children of officers, and 5600 other dependents, and there can be no doubt that through ignorance of their rights many of these are not obtaining all the help to which they are entitled. The pamphlet, which consists of eight pages only, forms a concise index, with references, to other publications and associations from which full details may be obtained, and it will be found most useful by many besides those principally concerned.

CHILDREN'S COUNTRY HOLIDAYS.

IN memory of Miss Beatrice Chamberlain, who was a zealous worker for the Children's Country Holidays Fund, a fund is to be created for increasing from a fortnight to a month the country holidays of certain especially delicate children. Nearly £420 has been raised, partly through the Memorial Committee and partly from Miss Chamberlain's old school-fellows. Much of this has been received in very small amounts, and it is significant that in one school of which Miss Chamberlain was a manager, 2*s.* 10*d.* was raised by the pennies of the children. It is desired to close the fund at an early date, and those who have not yet sent in their subscriptions are asked to do so as soon as possible. These should be marked "Beatrice Chamberlain Memorial Fund," and can be sent to the chairman of the Children's Country Holidays Fund, 18, Buckingham-street, Strand, W.C. 2.

PUBLIC HEALTH AT SHANGHAI IN 1918.

SHANGHAI lies in latitude 31° 15″ N., and has an estimated population of 659,000 Chinese and 21,000 resident foreigners, chiefly Japanese, British, Portuguese, American, and German. The death-rate among Chinese in 1918 was 12·8 per 1000, the lowest ratio yet recorded except in 1906, when it was 12·3; among foreigners the ratio was 16·5, lower than in the preceding year (20·7), but higher than in 1915 and 1916 (15·4 and and 14·0 per 1000). There had been a recrudescence of small-pox in 1917, due to accumulation of non-immune material from outside Shanghai, which led to an increase in vaccination in 1918, the total operations numbering 26,315. Dr. Arthur Stanley, the health officer, remarks that "China is no place for the unvaccinated. Since the beginning of the war there had been an unusual influx of foreigners who had not taken the very necessary precaution of vaccination before they embarked from their homelands for China. Several severe cases among such arrivals were infected on the very day they landed." He recommends that vaccination be repeated every three years, as there is so much small-pox in the country. There has happily been no cholera since 1912. Typhoid fever caused 21 deaths among the non-Chinese, and antityphoid inoculation is recommended on first arrival, especially for young people. Cerebro-spinal fever appeared in Hong-kong in epidemic form at the beginning of the year; a careful watch was kept for the disease in Shanghai, but only 13 cases occurred, all sporadic. The pandemic prevalence of influenza reached Shanghai at the end of May, but subsided by the end of June; there were 152 deaths among Chinese and 3 among foreigners; again, from the last week in September to the middle of November there was prevalence, with 266 deaths among Chinese and 6 among foreigners. There was, as in 1917, a complete absence of plague and plague-infected rats, though in the north-west of China there were threatenings of epidemic prevalence; 16,181 rats were found dead, and examined, in Shanghai, with a negative result in every case. Tuberculosis caused 1237 deaths among the Chinese and 60 deaths among non-Chinese; it was hoped that the section of the isolation hospital available for foreign cases of this disease would be available early in the present year. Since the opening of the Pasteur Institute in 1899 662 cases have been treated, with a mortality of 8, or 1·21 per cent., among those who underwent complete treatment; in 1918 58 persons were treated, with 3 deaths; in each of these 3 cases the patient was not brought for treatment until some days had elapsed. Shanghai is well provided with isolation hospital accommodation, a new pavilion having been opened last year, with many improvements. With regard to the disposal of house refuse from the city there have been difficulties, especially due to the great increase in population; the refuse amounts to about 130,000 tons annually, used either as manure or for raising low land. Mosquito reduction is carried out systematically. There is abundant evidence in this report that sanitation at Shanghai is in extremely capable hands.

PUBLIC HEALTH AT HONG-KONG IN 1918.

A REPORT, signed by Mr. M. Fletcher, Colonial Secretary, on the Blue-book for 1918, states that the estimated total population at the middle of the year was 561,500, but this total includes the New Territories; and, as the birth and death figures do not include those from that area (with the exception of New Kowloon), the population for the purpose of calculating those rates is estimated at 548,000, of whom 13,500 are non-Chinese. The corrected birth-rate for the year was 4·4 per 1000 among the Chinese community and 22·1 per 1000 among the non-Chinese community, as compared with 6·9 and 20·8 in the year 1917. The death-rate for the year was 29·6 per 1000 among the Chinese community and 19·5 among the non-Chinese community, as compared with 23·7 and 14·00 for 1917. The number of deaths from malaria (398) showed a decrease on the previous year (416). The deaths from plague numbered 251, as compared with 35 in 1917. Small-pox deaths numbered 26, all Chinese. There were 3169 deaths from respiratory diseases, as compared with 2248 in 1917, and 51 of these were among the non-Chinese community. Pulmonary tuberculosis claimed 118 Chinese and 6 non-Chinese victims, whilst other forms of tuberculosis represent an additional 616 deaths, making a total of 740, or 5·4 per cent. of the total deaths among the community. Beri-beri was responsible for 804 deaths, as compared with 654 during 1917 and 517 in 1916. During the past few years circulars have been distributed to all the large employers of coolie labour calling their attention to the fact that beri-beri is produced by the consumption of white rice as the staple article of diet without a sufficiency of other foods, and advising that beans should be supplied with the rice when fresh meat or fresh fish cannot be afforded. In the early part of 1918 there occurred a severe epidemic of cerebro-spinal meningitis, which caused some 968 deaths. In consequence of this outbreak the Government of the Straits Settlements prohibited for some months the immigration of coolie labour from Hong-Kong into Singapore. In the Civil Hospital, which contains 150 beds in 19 wards, 3677 in-patients and 14,480 out-patients were treated during 1918. In the Tung Wa Hospital, for Chinese only, which contains 323 beds, 6562 patients were accommodated. The new Kwong Wa Hospital for Chinese in the Kowloon Peninsula received 2336 patients.

LETTERS FROM AN EIGHTEENTH CENTURY DOCTOR.

SOME letters dating from the eighteenth century have been purchased by "Sir Patrick Dun's Library" and are printed in full in their report to the Royal College of Physicians of Ireland. The writer of the letters was Sir Edward Barry, Bart., a famous physician who, after studying medicine at Leyden under the great Boerhaave, graduated there in 1719. He practised for a time in Cork and after a distinguished career in Ireland eventually became President of the King and Queen's College of Physicians and later a Fellow and a Censor of the College of Physicians of London, where his success, according to Dr. Johnson, was less pronounced. The three letters, dated 1737, and addressed to Barry's friend and patron, Lord Orrery, with incisive and not over-charitable wit, may fill in some gaps in contemporary medical history. A case of myositis ossificans is the chief novelty described.

NURSES AND WAR SERVICE PENSIONS.

THE Ministry of Pensions has issued a statement for the guidance of nurses entitled to compensation for injury or disease due to active service.

A nurse who has been discharged or demobilised from any of the services and is in receipt of retired pay (or gratuity in lieu of retired pay) for a disability due to or aggravated by war service is entitled to assistance from the Ministry of Pensions, and any nurse who is suffering from a disability which she believes to be due to or aggravated by war service is entitled to have her claim considered. In all cases communication should be made in writing to the Secretary, M.S. 2 (Officers), Ministry of Pensions, 14, Great Smith-street, London, S.W. 1.

Nurses are advised to obtain medical evidence of the present condition of their disability and, when possible, some evidence of its causation or aggravation by service where this has not been established. These documents should be forwarded with the application. Should advice be required merely on a question of retired pay or medical treatment the nurse is recommended to apply to the Officers' Friend, Ministry of Pensions, Westminster House, London, S.W. 1.

An Analysis
OF
PHYSICAL DEFECTS AMONG THE GENERAL MALE POPULATION,
BASED UPON 10,000 RECRUIT EXAMINATIONS.

By JOHN D. COMRIE, M.A., B.Sc., M.D., F.R.C.P. Edin.
LECTURER ON HISTORY OF MEDICINE AND ON CLINICAL MEDICINE, UNIVERSITY OF EDINBURGH.

THE following account gives a summary of the physical condition and defects found in 10,000 recruits examined by the writer while President of No. 1 Area Recruiting Medical Board. This number was chosen for analysis partly because one can see at a glance by shifting the decimal point two places to the left the percentage represented by the various figures, and, on the other hand, if multiplied by 100 the defects are shown in their incidence per million of population. Another reason for recording this particular 10,000 is that this series of examinations extended from August, 1916, when the Military Service Acts had come fully into operation, up to May, 1917, just before the Review of Exceptions Act made any appreciable lowering in the general physique of recruits examined. During this period the recruits who were called for examination represented the average citizen.

THE CATEGORIES OR GRADES OF DEFECT.

For the first time in the history of Britain there occurred an opportunity to observe on a large scale the prevalence of various defects which do not necessarily bring the public for medical advice to hospital or to their insurance doctors. As No. 1 Area (the Royal Scots) comprised both an agricultural and industrial population in the counties of Edinburgh, Haddington, Linlithgow, and Peebles, with the suburban population of small towns like Bathgate, Peebles, Haddington, North Berwick, Prestonpans, it offers a fair sample of the country generally.

It may be stated at once that only some 20 per cent. of the male population between 18 and 41 years of age were found free from noteworthy physical defect; so that in time of peace, when the Army can afford to choose none but the physically perfect, only about one-fifth would be available for recruiting into the Army. In time of stress such as the European War, where the period of service was limited, when the soldier laboured only for short intervals with long periods of rest, when the need for special effort was clamant, and when particularly public spirit should have gone far to override slight physical discomfort, many of these minor defects could be disregarded. In the particular area under consideration over two and a half times that proportion were found fit for general service during the period stated. While the relative figures fluctuated from time to time as different classes, employments, and conditions of men were called up, the percentages over the whole 10,000 were as follows: Category A, 51·5; B 1, 14·4; B 2, 5·8; B 3, 0·6; C 1, 6·5; C 2, 5·9; C 3, 6·0; Postponed, 4·9; Rejected, 4 4.

It may be explained that Category A included those men who, though not necessarily free from slighter defects, were of good strength, sound constitution, and after training were capable as soldiers of using arms and of such exertion as carrying full kit on a long route march. The man in Category B 1 was supposed to be fully fit for service abroad, but for some reason, such as advancing years or more marked physical defects, was suited only for garrison duty involving shorter marches of, say, five miles. The man in Category C 1 was essentially of the same type as the man of B 1, though, being not quite so fit, he was relegated to home service (later to service in France or at home). Men of B 2 and C 2 categories were considered fit only for labour and were not expected to march, while those in B 3 and C3 were fit only for sedentary work. These categories bear the following relation to the "grades" introduced afterwards (end of 1917) by the Ministry of National Service: Grade I. = Category A; Grade II. = Categories B 1 and C 1; Grade III. = Categories B 2, C 2, B 3, and C 3; Grade IV. = Rejected.

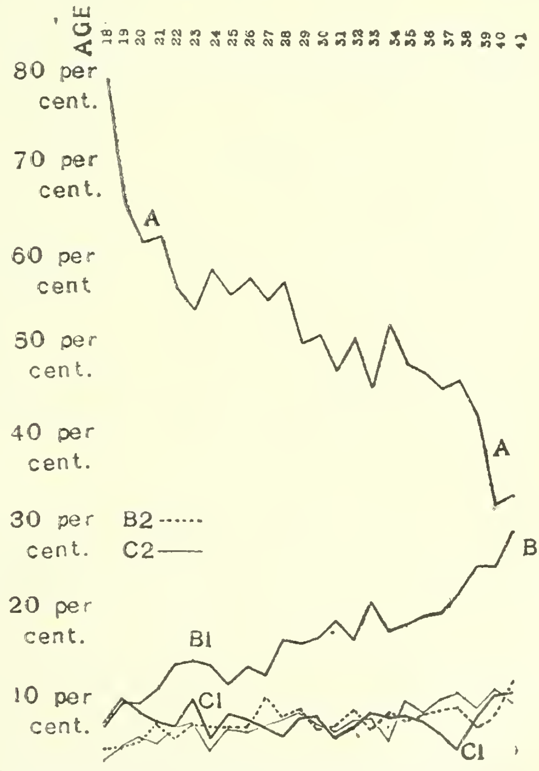
The difference between A men and the 14·4 per cent. of men not fit for more than garrison service abroad (B 1) was accounted for to the extent of 10 per cent. by the following classes of defect: Eye conditions impairing vision, 2 2 per cent.; deformities of the feet restricting marching power, 1 6 per cent.; hernia, varicose veins, mild cardiac conditions, obesity and dyspepsia, and stiffness associated with middle age, each 1 per cent.; painful testicular conditions—e.g., varicocele, 0·7 per cent.; and ear defects, 0·6 per cent.

The 4·4 per cent. of rejected men were considered unfit for any form of service chiefly by reason of: serious disease of the heart and blood-vessels, 1·5 per cent.; tuberculosis, 1 1 per cent.; deformities of the bones, joints, &c., 0 8 per cent.; and epilepsy with mental dullness, 0 5 per cent.

The Relation of Defect to Age.

The number of recruits was almost three times as great at age 18 as at any other age, and the numbers between age 20 and age 30 were only about three-quarters of those from 30 to 40 years. This fact is probably accounted for by the greater voluntary enlistment of the younger men in the earlier days of the war.

The ratio of men fit for general service to those in the other categories was much greater in the earlier years. The percentage of A men fell rapidly from 77 6 at age 18, to 52·1 at age 23; then more gradually to 50 6 at age 34; and rapidly again to 30 7 at age 40. The numbers of men in Category B 1 were to a certain extent complementary to those of Category A; and the percentage of B 1 men rose steadily from 5·7 at age 18 to 27·8 at age 41. The percentage of men in Category C 1 was found practically the same at all ages. The percentage of men in the lower categories fluctuated very little, but showed a gradual rise, starting with 2 to 3 per cent. at age 18 and being trebled by age 41. These points are brought out well in the accompanying chart.



Percentages of men fit for different categories as age increases from 18 to 41.

The following figures are given for the purpose of comparison:—

	10,000 recruits of No. 1 Area in 1916–1917. Per cent.	Whole of Great Britain in April, 1918. Per cent.
Grade I. (Cateory A)	51·5	55·9
Grade II. (Categories B 1 and C 1) ...	20·9	19 8
Grade III. (Categories B 2, C 2, B 3, C 3)	18·3	19·2
Grade IV. (Rejected)	4·4	5·1
Postponed	4·9	—

These figures, taken from the subsequent grading of recruits by the Boards of the Ministry of National Service, have been supplied by the Assistant to the Chief Commissioner of Medical Services for that Ministry.

PHYSICAL DEFECTS CLASSIFIED BY BODILY REGIONS.

Heart and Blood-vessels.

Non-organic cardiac abnormalities were present in 3·4 per cent. (338 cases) and valvular defects in 2·4 per cent. (243 cases) out of the 10,000. *Tachycardia*, with a pulse-rate over 100 at rest, formed the most frequent cardiac abnormality, 2 per cent. of all recruits (198 cases) showing this rapidity without any apparent organic derangement. At least 1 case in every 20 of rapid pulse was attributable to excessive cigarette smoking, and twice as many were associated with a history of acute rheumatism, influenza, or some other febrile attack, having in several cases lasted since an attack some years previously. It is to be noted that in all these cases the recruit was quite unaware of the rapidity, and several instances were met of men with pulse-rate of 130 or 140 who were doing constant and severe work as miners at the coal-face. Of these men with rapid pulse 59 having an average pulse of 110, appeared quite fit for Category A; while 31, with an average pulse of 118, but no other defect, were placed in B 1. Rather more were placed in low categories, and 9 were rejected altogether for tachycardia. *Palpitation*, with consciousness of the heart's action and some feeling of fluttering, choking, or oppression, but no sign of organic disease, was present in 37 cases; several of these were probably gastric in origin. *Irregularity*, without evident disease, of which the most definite type was the occurrence of extra systoles (7 cases), was present in 49 cases. The causes were much the same as those of tachycardia; and 11 cases appeared fit for general service. Subsequent experience in France, where the writer examined about 15,000 men as they left hospital, convinced him that a pulse-rate of slightly over 100 is of common occurrence and of no moment. Further, what has been said of cigarette smoking applies also to the condition known as "soldier's heart," in which overaction and dilatation were apt to be indefinitely prolonged even by moderate use of tobacco, and disappeared speedily when this was discontinued.

Mitral systolic murmurs were found in over 2 per cent. of all recruits. In one-fourth of these it was evident, from the variation of the murmur with respiration, from its situation away from a valve area, and from the absence of any cardiac symptoms or of embarrassment on severe exertion, that the murmur was accidental or had origin outside the heart altogether. The majority of these cases were placed in Categories A and B 1. On the other hand, 78 cases of mitral systolic murmur showed the definite symptoms and signs of a fully-established regurgitation at this valve, and these cases were either rejected altogether (37) or were classified as fit for sedentary work only, C 3 (41). There remained between these extremes 71 cases in which a definite and persistent systolic murmur was present, accompanied by few, if any, symptoms. These cases were regarded as attributable either to a temporary dilatation or to the slight endocardial nodular thickening which one frequently finds on post-mortem examination in persons who have during life had no cardiac complaint. Such a minute defect in the valve can have no practical effect on the course of the circulation, and to hold that a recruit should be rejected simply for the presence of a murmur and slightly leaking valve is to ignore the facts of hydro-dynamics and physiology embodied in the development of compensatory extra power in the heart muscle. In the doubtful cases the functional capacity of the heart to overtake extra work was tested by observing the effect on the pulse and respiration of making the recruit go through various violent exercises. As a result these cases were classed as follows: A. 17; B 1, 18; B 2, 13; B 3, 5; C 1, 10; C 2, 10. *Mitral presystolic murmur* was well marked in 40 cases, of which most had symptoms and were totally rejected. *Aortic murmurs* indicative of regurgitation at this valve were present in 50 cases, and these were all rejected on account of the difficulty of estimating the deterioration which has taken place in the heart's capacity, and the liability to sudden stoppage. Nevertheless, many of the men with aortic incompetence and hypertrophied heart had no knowledge of anything amiss and were doing steady laborious work. *Congenital heart disease* with cyanosis was present in 2 cases.

Varicose veins were found in approximately 5 per cent. of all recruits (492 cases), being infrequent below the age of 25 years. While a division into slight and severe cases is, of course, arbitrary, about 300 cases fell into the former and 190 into the latter group. Of the slighter cases most had no symptoms of discomfort and appeared fit for categories A and B 1. The severer cases were placed in categories for labour or sedentary work or permanently rejected. Of these 28 cases were accompanied by ulcer, 25 showed a tendency to eczema, and in 3 extensive phlebitis and thrombosis had occurred. It is noteworthy that discomfort and disability were not proportioned to the degree of dilatation in the veins. Many men with extremely tortuous veins expressed themselves as able to walk 20 or 30 miles without ill-effect, and the most troublesome cases appeared to be those of single long veins with distended valve-pockets.

Respiratory System.

Bronchitis formed the commonest respiratory malady (149 cases); of these, 87 appeared to be merely the transitory effect of the Scottish winter, and were found fit for foreign service. *Asthma* was present in 128 cases, and of these 60 appeared fit only for labour or sedentary work, while 20 were entirely rejected. *Tuberculosis* of the lung was either present or showed signs (dullness, harsh breathing, &c.) of former occurrence in 107 cases; of these, 72 were recent or active, having been treated in sanatoriums, and were rejected. It should be noted that these figures do not include persons under treatment in sanatoriums or "notified" as suffering from pulmonary tuberculosis, who did not appear before the medical board, but received statutory exemption under Army Council Instruction 471 of 1916. A history of *pleurisy*, with some resultant impairment of the symmetry or movements of the chest, was elicited in 93 cases; 56 of these, however, appeared quite fit for categories A or B 1. An operation for *empyema* had been performed in 19 cases, in 9 of which recovery had been complete. *Deformities* of the chest were present in over 1 per cent. of all persons; 11 cases had marked pigeon-breast, while 27 showed the pushing backwards of the lower end of the breast-bone, to which the name "funnel-chest" has been applied; *curvature of the spine*, with resultant chest deformity, was visible in 86 cases.

Digestive System.

The *condition of the teeth* at the age of 18 was in general sufficiently good for practical purposes, though the upper incisors were frequently found in incipient decay. The state of decay became progressively worse with the advance of age, and of the 10 000 recruits 928 had artificial teeth, while another 1120 had lost half their teeth at least, and were regarded as urgently in need of dental attention. It is to be noted that the complaint of dyspepsia was by no means proportioned to the degree of dental defect. Many recruits who were quite edentulous or who possessed only a few ragged and ineffective stumps expressed themselves as eating every kind of food and denied any indigestion, while frequently persons complaining of chronic gastric discomfort had had their teeth put in excellent order without much benefit. On the other hand, a septic condition of the teeth with deposit of tartar and gingivitis was frequently associated with dyspepsia and invariably with a deteriorated physique. With regard to actual pyorrhœa alveolaris not more than three cases were noted among 16,000 recruits whose teeth I personally inspected.

Dyspepsia formed a complaint in 256 cases, definite signs or history of gastric ulcer being present in 18 cases and of duodenal ulcer in 9 cases; laparotomy for some stomach condition had been performed in 20 cases. In 126 recruits an operation had been performed for *appendicitis*, but in 27 of these the operation had not been successful either by reason of pain or hernia in the scar or return of the internal pain; doubtless examination of a later generation will reveal a greater number of operations performed and a higher proportion of apparent "cures."

Hernia was found in 3 6 per cent. (363 cases). The slight cases, consisting merely of a bubonocele readily retainable by a truss, amounted to 105, and these were passed for general service; in 12 cases only was the hernia so large as to necessitate rejection. Of those cases which had passed through an operation in adult life about one-sixth were found to have had recurrence of the hernia. The forms of hernia, other than inguinal, were much less common, there being 6 cases of ventral and 4 of femoral hernia among the 10,000 men.

With regard to less common conditions, *piles* were present and gave trouble in 158 cases, though, as a rule, the men were fit for category A or B 1; *fistula in ano*, 13 cases; *gall-stones*, 2 cases; *cirrhosis of the liver*, 2 cases.

Nervous System.

Defects connected with this system were present in over 3 per cent. of all recruits (322). *Infantile paralysis* was the most common, there being 66 cases, among which the leg was affected alone in 59, the arm alone in 5, and both arm and leg in 2. *Epilepsy* furnished in all 64 cases; when the fits were so seldom as one in several weeks the recruit was placed in a labour or sedentary category, although in 25 cases the fits were so frequent as to necessitate rejection. *Mental dullness* of a congenital type was noted in 44 cases, about one-half of these being fit for labour, the other half being rejected. *Neurasthenia* was present in 51 cases, alcoholism being also observable in many of these either as a cause or effect. *Stammering* occurred in 29 cases, mostly in men of good physique and mental attainments. Other nervous diseases occurred less frequently in the following numbers: neuritis, 15; effects of concussion, 12; disseminated sclerosis, 8; chorea, 5; locomotor ataxia, 5; general paralysis, 2; signs of meningitis, 6; hemiplegia, 6; progressive muscular atrophy, 4; dystrophy, 1; myelitis, 2; myotonia, 2. The number of total rejections for diseases of the nervous system was 76.

Goitre.

Enlargement of the thyroid gland occurred in 50 cases. The average pulse-rate was 86, and in 5 of the cases slight tremors were noted. Most of the cases originated in two districts, 24 coming from the oil-bearing northern slope between the Pentland Hills and Queensferry (*geology*, carboniferous limestone and shale) and 13 from the northern slope of the Peeblesshire and Moorfoot range of hills (*geology*, Silurian and Ordovician). The remaining 13 occurred sporadically over the area with a remarkable tendency to grouping in pairs. As to occupation, there appeared to be no special trade tendency to this affection, although 18 cases occurred among railway or shale workers and 15 among persons connected with farming. One case showed marked symptoms of Graves's disease, and in other 5 or 6 these were slighter, but the great majority were examples of simple goitre only. *Myxœdema* was noted in 2 other cases.

Genito-urinary System.

Bright's disease was present in 56 cases, and 22 of these were sufficiently severe to obtain rejection, most of the others being considered fit for Category C 2 or C 3. Many men complained of having had kidney trouble, but upon careful investigation most of these cases showed no albuminuria nor other symptom of nephritis, and had presumably had lumbago. *Diabetes* was found in 7 cases; *stone* in the kidney or bladder in 10 cases; *cystitis* in 14 cases. *Enuresis* formed a difficult complaint to classify, but, as a rule, it was possible to verify the recruit's statement, either by some corroborative physical evidence or independent testimony; this condition was severe in 19 cases. *Varicocele* was visible in 2 per cent. (202 cases), but in the vast majority gave no trouble whatever, and 156 cases were placed in A or B 1 category. *Hydrocele* occurred 36 times; and 52 individuals had one or both *testicles undescended*; contrary to the prevalent idea, in most instances of the last-named defect, the recruit had no discomfort, and 34 of the cases were quite fit for A or B 1 category. *Active venereal disease* was much less common than is generally supposed, and syphilis was found only 31 times, gonorrhœa 17 times, among the 10,000. No doubt many of the diseased conditions in heart, skin, nervous system, and bones were late results of syphilis, but even so the prevalence of these diseases did not amount to 3 per cent. in this area.

General Diseases.

Arthritis of a chronic or subacute type was found in 62 cases, and as a rule necessitated a low category or rejection; a history of *sciatica* was elicited in 50 cases; *myalgia* in the back, limbs, or chest formed a complaint in 203 cases, but in 156 of these it was assumed that exercise would benefit the condition, and the recruit was placed in Category A or B 1; *obesity* to an excessive degree was noted in 141 cases, and *anæmia* in 10.

Tuberculosis was found to affect 242 cases, showing itself in the lungs in 107, glands in 69 bones in 44, and various other organs in 22. (To the cases of old tuberculosis may be added 118 of the joint conditions and at least 42 of the cases of spinal curvature, thus making 402, or 4 per cent., of tuberculosis among all recruits. This does not include cases of old tuberculosis which had recovered without leaving any sign.)

Deformities.

Deformities, either congenital, developmental, or accidental, numbered 740, and formed, after circulatory disorders and tuberculosis, the most frequent cause of rejection (49 cases). In order of frequency the following deformities occurred: injuries of limbs (accidental), 272; flat-foot, 113; bunion, 103; curvature of the spine, 86; hammer toes, 84; hallux rigidus, 36; knock knee 20; club-foot, 19; and wry neck, 7 times. *Injuries of the limbs* formed the most frequent cause of reduction to a labour or sedentary category, for a man may enjoy perfect health but an accident to his right hand may render him incapable of using a rifle; thus, out of 272 cases 93 were placed in categories B 2 and C 2, 66 in B 3 and C 3, while 33 were not accepted for service. *Flat-foot*, which was present to a marked degree in over 1 per cent. of all recruits, must be regarded rather as a peculiarity of conformation than as a disability, since those affected by it fell into categories in practically the normal percentage given above—e.g., A, 46·8; B 1, 21·2; B 2 8·8, &c. In a few cases only did the flat-footed man complain of severe pain and walk on the outer edges of his feet; while many of the men with complete absence of the plantar arch followed pursuits like that of shepherd, involving habitual long distance walking.

Joint diseases (mostly old tuberculosis with sinuses) occurred in the following order of frequency for different joints: hip, 41; elbow, 32; knee, 25; ankle, 8; jaw, 5; wrist, 4; shoulder, 3; in all, 118. Cases in which the elbow had been excised presented a completely useless limb and were rejected, whereas those treated by rectangular fixation were mostly fit for B 2 or C 2. Cases in which the knee-joint had been excised were also very helpless. Displacement of the *semilunar cartilage* of the knee was present or a history of this was given in 77 cases, but of these 59 were fit enough for categories A and B 1. *Rickets* caused marked deformity in 16 cases.

Skin Diseases.

The skin was affected to a noticeable extent in 3 per cent. (299 cases) with the following conditions: eczema, 66; psoriasis, 63; scabies, 29; dermatitis of various types, 25; severe acne of face and back, 23; seborrhœa, 20; ulcer of uncertain origin, 17; ichthyosis, 16; sycosis, 14; general alopecia, 8; lupus, 7; verrucosis (severe), 4; lichen, 3; favus, 2; molluscum contagiosum, 2. Of these, 35 were rejected.

Ear Conditions.

Slight deafness was present in 127 cases, marked deafness in 75, and there was a discharge from one or both ears in 95 cases. History of discharge from the ear at some previous period was very commonly elicited.

Eye Conditions.

The standard of vision was latterly fixed for general service at 6/12 in the right eye, with or without glasses, and 6/60 in the left eye. For B 1 and C 1 categories the recruit required to have in the right eye 6/24, which might be reached by the help of a lens of 6 diopters or less. For the lower categories he required vision sufficient for ordinary purposes. If, therefore, a recruit could see 6/12 with the right eye unaided and had no obvious defect his vision was satisfactory and the eyes were not further examined. The number of recruits who showed refractive error sufficient to prevent their reaching the general service standard unaided was 6·6 per cent., of whom 2·6 reached it with the help of glasses, 2·5 fell to B 1 or C 1, and 1·5 fell to B 2, C 2, B3, or C 3.

Defects of the eye other than mere errors of refraction were present in 2·5 per cent. (246 cases), including 63 cases not accepted. These defects comprised: loss of eye, 55; amblyopia (with vision not more than 6/60 in one or other eye), 47; dense corneal nebulæ, 38; squint, 31; cataract, 16; optic atrophy, 11; nystagmus, 7; ptosis, 7; keratitis, 5; choroiditis, 5; retinitis, 5 (including r. pigmentosa, 2); severe conjunctivitis, 4 (including trachoma, 2); epiphora, 4; optic neuritis, 3; severe iritis, 2; scleritis, 2; aphakia, 2; vitreous degeneration, 1; retinal detachment, 1. Ocular defects of marked degree are thus present in 9 per cent. of all recruits.

CONCLUSIONS.

1. Physical defects worthy of note are present in four-fifths of the adult male population.

2. Many of these develop after the age of 18 years; thus three men out of four are fit for general military service at age 18, but only two out of four by age 23.

3. Many of the defects are preventable or curable—e.g., defective teeth in 20 per cent. of men, varicose veins in 5 per cent., hernia in over 3 per cent., deformities of limbs in 7 per cent., skin diseases in 3 per cent.

4. There appears to be great scope for improvement of the general physique of the nation by medical examination of, and attention to, children and adolescents as regards tooth, eye, and ear defects, deformities, and early diagnosis of chest diseases and of congenital defects.

A Clinical Lecture

ON

THE TREATMENT OF ANTRAL SUPPURATION.

Delivered before the Fellowship of Medicine

BY SOMERVILLE HASTINGS, M.S. LOND.,

SURGEON IN CHARGE, EAR AND THROAT DEPARTMENT, AND LECTURER, MIDDLESEX HOSPITAL.

MR. PRESIDENT AND GENTLEMEN.—Acute suppuration of the antrum of Highmore frequently occurs unnoticed; indeed, in the course of nearly every bad cold this sinus is involved. It is only, however, when there is swelling around the opening of the antrum into the middle meatus of the nose that the action of the ciliated epithelium is insufficient to drive the secretion from the antrum, so that definite symptoms occur due to the accumulation of pus or muco-pus in the antrum and consequent pain in the forehead or cheek. The condition usually clears up in a few days, although this may be made a great deal more certain by simple treatment. If the antra are carefully examined in a dark room, with a lamp in the mouth and the lips closed around it, it will be noted that the affected side of the face lights up imperfectly, and there is not the usual bright crescentic area immediately beneath the lower eyelid. Moreover, the eyeball, as seen through the pupil, will not be seen to light up and become visible in the dark as it usually does. In an acute case such as this it may not always be necessary to puncture and wash out the antrum. An inhalation of menthol will reduce the congestion of the nasal mucous membrane, which partially or completely blocks the communication between the antrum and the nose. Three or four times a day the patient should be directed to close his eyes and press on the nostril of the healthy side, and take short sniffs through the other nostril of the vapour arising from a jug of water to which a teaspoonful of 15 per cent. or 20 per cent. solution of menthol in spirit has been added. After this he should lie on the healthy side on a low pillow, so that any discharge from the antrum may flow into the nose and be blown out as it collects; he may at the same time usefully close the nostrils with the fingers while forcibly inhaling with the mouth closed, thus drawing the antral contents into the nose. After lying in this position for a few minutes the nose may be washed out with a warm alkaline lotion used as hot as can be comfortably borne. A simple mildly antiseptic nose-wash, which is isotonic for the mucous membrane, can be made by dissolving a teaspoonful of equal parts of salt, borax, and bicarbonate of soda, in a pint of warm water. Sometimes a high candle-power electric incandescent lamp, held close to the cheek, seems to assist in relieving the pain, and may be of slight assistance in restoring the mucous membrane of the infected antrum to its normal condition. If a tooth or any other cause of the condition is found, it must, of course, be dealt with. When, however, the menthol treatment fails to relieve the pain, and is not followed by an increase of muco-purulent secretions from the nose, or if there is any doubt as to the diagnosis, it is wise to puncture and wash out the antrum. This should always be carried out from the nose, and it will be found best to puncture the antrum below the attachment of the inferior turbinate with a Lichwitz trocar and cannula, which resembles a fine hydrocele trocar, except that it is rather longer. To anæsthetise the interior of the nose, I use a solution of equal parts of 20 per cent. cocaine and 1 : 1000 adrenalin. A small piece of wool held in nasal dressing forceps is dipped in the solution and is drawn gently along the inferior meatus of the nose, beneath the inferior turbinate, and this area thus rendered partially anæsthetic. A piece of cotton-wool about an inch long, and a quarter of an inch round, is now taken and held near the end by forceps and dipped in the cocaine and adrenalin solution until it is well moistened, but not dripping, and then carefully manipulated into the inferior meatus of the nose, and pressed upward and outward against the lower and outer surface of the inferior turbinate. A similar piece is now taken and placed beside it in the inferior meatus of the nose, and both are left for 15 minutes. The trocar and cannula and an ordinary Higginson's syringe are boiled, and a pint of warm lotion prepared. The salt, borax, and soda mixture previously prescribed can be quite well used. The lotion is more pleasant if it is as warm as can be comfortably borne. The packing is removed and the nose duly inspected, the trocar and cannula are then passed obliquely through the lower part of the nose, and the sharp point of the trocar made to come in contact with the inner wall of the antrum, immediately below the inferior turbinate. The obliquity of the trocar and cannula is then increased by bringing the shaft close to the anterior end of the septum nasi, and thus directing it backwards, outwards, and slightly upwards towards a point half-inch below the eyeball. It is usually best for the operator to stand up so as to hold the patient's head with his left hand and thus prevent any sudden movements, while the trocar is made to penetrate the antral cavity by a steady boring motion; care should be taken that this does not occur too suddenly, as otherwise the instrument may easily pierce the opposite wall of the sinus, and to avoid this it is useful to keep the right first finger pressed along the shaft of the trocar so that it may act as a stop. The trocar is now withdrawn and the patient directed to hold his head well forward and breathe through the mouth, while a Higginson's syringe filled with lotion is attached to the cannula. The syringing should be steady, with occasional pauses for the patient to take breath, as sudden increase or decrease of pressure inside the antrum causes pain. When the lotion returns clear it is best to blow in a little air to stir up any thick pus which may have collected in the lower part of the antrum and then wash through again. When completing the wash-out it is always wise to replace the lotion by air, which, after all, is the normal content of the antral cavity. Where a sample of the fluid contained in the antrum is required for bacteriological examination it is better to blow in air only at first till this is collected. In some acute and chronic cases, although the surgeon feels confident that the cannula is in the antral cavity and it can be felt to move within it, no fluid can be pumped in and none returns through the nose. In this case it is probable that the swelling of the mucous membrane around the normal opening from the antrum to the nose prevents fluid passing or that the normal opening is plugged by exudate. Occasionally also, especially in a traumatic case, such as one often sees as the result of war injury, a complete occlusion by adhesions may have taken place. Sometimes, again, the lotion at first flows out readily through the nose, but ceases after a few moments owing to the blockage of the exit from the antrum by fibrinous pus or exudate. In either case the Higginson's syringe should be removed, filled with air, and the antrum inflated, when the obstruction will generally be overcome. Where this fails to give the desired result I have found it best to take a second trocar and cannula and insert it immediately in front or behind the first to form an exit, and with this in position lavage can always be carried out unless the antral contents are very thick. Occasionally a very hard bony wall between the antrum and the nose causes difficulty in puncturing, and may break off the point of the trocar. In this case puncture by the stronger curved Krause's trocar and cannula, if necessary under an anæsthetic, may be necessary to settle the diagnosis. For acute antral suppuration, then, a menthol inhalation, with or without lavage of the antrum, every two or three days, in most cases results in cure. Very rarely, indeed, is the operation to be described for chronic antral disease necessary.

Chronic cases of antral disease.—Here, also, repeated puncture and washing out may occasionally result in cure, but where the disease has existed for any length of time, say, for more than three or four months, and particularly where streptococci are present, simple washing out, even though often repeated, is rarely sufficient to cure. Moreover, even after a cure is apparently obtained the next time the patient gets a cold the infection not infrequently recurs; nevertheless, in the writer's opinion, unless time is a matter of extreme importance, it is usually desirable to wash out the antrum three or four times, at intervals of a few days, before operation is undertaken, as it can be demonstrated thus to the patient that washing out is not sufficient to cure, and moreover, the discharge will usually become less offensive, with a consequent lessened risk of chest complications after operation. Where a patient is very averse to operation I have occasionally washed out the antrum many times and obtained an apparent cure, but for most chronic cases operation will be sooner or later necessary.

THE SELECTION AND TECHNIQUE OF OPERATION.

When operation is decided upon we must be a little cautious in at once promising the patient a complete cure, for although I have never known a properly selected antral operation to fail in the cure of antral disease, it is necessary to remember that antral disease may be secondary to disease of the frontal sinus or anterior ethmoidal cells, the antrum at first acting only as a reservoir for pus secreted by these sinuses. Obviously, therefore, if free drainage of the antrum is provided while disease of these sinuses still remains pus will continue to gravitate into the antrum, and discharge will collect in it. We must, therefore, be confident that there is no disease of the frontal sinuses, ethmoidal cells, or superior maxilla before promising that the antral operation will completely cure the condition.

There is another point of extreme importance in connexion with antral disease. Where other sinuses are also involved the infection of the antrum, owing to its imperfect drainage and its large size, will be usually most severe. At any rate, the pus contained in it will be much more commonly fœtid and the bacterial flora more varied. If, then, we operate on an infected antrum at the same time that we clear out the anterior ethmoidal cells we are allowing the ethmoidal region to come in contact with a very infective pus, with the result that acute inflammation of this region, and meningitis, are liable to supervene. I have not had such cases myself, but two very good surgeons have described to me fatal results of exactly this type, and I therefore make it an invariable rule never to do anything to the upper regions of the nose until I have assured myself that no antral disease is present, or, if present, dealt with it by operation. Even if the nose is full of polypi and the antrum involved, I remove sufficient of these only to allow me, by operation, to provide free antral drainage and wait for some weeks until, as the result of constant washing out of the antrum, the discharge from this sinus is no longer foul and has almost ceased before dealing with the other conditions present in the nose.

In selecting an operation for antral disease, there is still another point to be borne in mind. Whatever operation is undertaken a permanent opening for drainage should never be made into the mouth; by this I do not mean that the so-called radical operation, in which the mucous membrane of the gum is turned up to permit of access to the antrum through the canine fossa and immediately stitched down again at the conclusion of the operation, should not be performed, but I maintain there are good reasons for never establishing a permanent drain from the antrum to an infected cavity like the mouth. Everyone who has had any experience of antral work must have met with many cases in which the alveolar operation has failed to effect a cure even after years of careful syringing. Yet in these very cases the condition completely clears up within two or three months if the nasal operation be performed and the opening into the mouth allowed to close. It is difficult to find statistics as to the percentage of cases in which the alveolar operation fails, but Logan Turner and Lewis state that, as far as their results go, only 25 per cent. of chronic cases—that is, cases in which the antral disease had existed for more than five months—were cured by the alveolar method of operation. My own experience is, of course, limited, but so far I have never met with a case in which the nasal operation has failed. Surely, then, it is wiser to at once perform an operation in which the prospect of cure is wellnigh certain rather than one in which a second operation will probably be required. Secondly, the alveolar method of treatment is contrary to the fundamental principles of surgery. Where else should we think of keeping a cavity containing pus carefully corked up for 23½ hours out of the 24 for the pus to be absorbed? But this is exactly what is usually done in the case of the antrum. A vulcanite plug tightly closes the opening into the mouth, and is only removed once or twice daily to syringe out the cavity. Occasionally the vulcanite plug is made hollow, so that there is a a constant communication between the antrum and the mouth. But here the condition is even worse, for the greater part of the foul pus that drains into the mouth is certain to be swallowed. Moreover, particles of food and samples of the rich bacterial flora of the mouth are constantly passing upward into the antrum. In the nasal operation to be immediately described practically the whole of the inner wall of the antrum is removed, so that this space becomes, to all intents and purposes, a part of the nasal cavity, and whatever discharge there may be secreted by the antral mucous membrane is blown out on to a pocket-handkerchief almost as quickly as it is formed. Moreover, the antrum is now drained into a relatively aseptic cavity. It is probable that the posterior regions of the nose are free from organisms in at least 80 per cent. of ordinary healthy people [1]—some observers would raise this percentage to 92—and even where persisting nasal disease is the cause of the antral trouble the bacterial inhabitants of the two cavities will be very similar.

The *Caldwell-Luc operation.*—Perhaps the best known operation for chronic antral disease is the Caldwell-Luc or radical operation, in which a relatively large opening is made from the mouth into the antrum through the canine fossa; after turning up a flap of mucous membrane, and aided by this opening, the whole of the bony wall between the antrum and nose is removed. The buccal mucous membrane is stitched down in place at once and readily heals, usually by first intention. This operation is quite satisfactory, but in most cases is unnecessarily severe, as it is quite easy to remove the whole wall between the antrum and the nose without first making an opening into the mouth. Where, however, malignant disease is suspected or for some other reason, a careful examination of the interior of the whole of the antrum by direct division is desired, this operation is to be preferred.

The *nasal operation*, in which the whole of the antro-nasal wall is removed without first opening the antrum through the mouth, which is often associated with the name of Mickulicz, is the operation which I almost invariably perform and which I have never known to fail. I have occasionally performed it under local (cocaine) anæsthesia, but a general anæsthetic, very lightly given, so that the cough reflex is present during the whole operation, is much more convenient. A quarter of an hour before the operation the nose on the affected side is packed with a gauze strip soaked in 1 : 1000 adrenalin, care being taken that the packing fills the inferior meatus of the nose beneath the inferior turbinate. This greatly reduces the hæmorrhage, especially during the early stages of the operation, and makes it much easier for the surgeon to see what he is doing. As soon as the patient is under, the soft palate is pulled forward with a retractor and a plug of gauze, with tape attached, is pushed upward into the naso-pharynx and pressed firmly into position. The head is then slightly raised and the anterior two thirds of the inferior turbinate of the affected side is removed with punch forceps or scissors and snare. A Krause's trocar and cannula is next introduced into the nose and the antrum punctured. The trocar is withdrawn and a blunt pilot introduced, and the inner wall of the antrum broken inward towards the nose. The opening into the antrum can now be seen, and the greater part of the antro-nasal septum can be chipped away. In doing this Luc's ethmoidal forceps cutting backward and Ostrom's forceps cutting forwards will be found most useful. In enlarging the opening in a forward and upward direction care must be taken not to interfere with the nasal duct, but this is not very likely to happen if ordinary care is taken, for the bone around it is generally hard. The antro-nasal septum is for the most part formed of a very thin bone, which is easily removed, except below, where a solid ridge is found to separate the two cavities. It is essential that this should be removed as completely as possible, so that any discharge that may collect in the antrum shall run into the nose and be blown out at once. The ridge is most conveniently removed by a special burr, and this instrument is of further value in smoothing off the edges all round the lower part of the opening which has been made. The essential point in the operation is to make the opening as large as possible. The next step is to examine the antral cavity. Where necessary polypi can be curetted away, but, generally speaking, the less the lining mucous membrane is interfered with the more rapid and complete will the recovery be. No packing is required.

---

[1] StClair Thomson and Hewlett.

Recently the *Canfield-Ballinger* operation has been advised; it has been pointed out that the removal of the anterior two-thirds of the inferior turbinate decreases the area for warming and moistening the inspired air. In this operation, therefore, the antro-nasal wall is only removed below the attachment of the inferior turbinate, but the opening is carried well forward by the removal of part of the nasal process of the superior maxilla, so that the anterior angle of the antrum is well exposed. I have performed this operation a few times, but I have found that the opening into the antrum has some tendency to close, and I have never seen any serious trouble follow the removal of the anterior two-thirds of the inferior turbinate. Where operations for the cure of antral suppuration fail, and I have seen many failures, the trouble is almost invariably that too small an opening is made from the antrum to the nose, and I would most strongly urge the complete removal of the bony wall separating the two cavities.

After-treatment.—The after-treatment is very simple. On the day following the operation the antrum is washed out with a bent tube passed into it through the nose and a Higginson's syringe. Ordinary nasal lotion is used, and the patient is directed to bend his head forward and breathe through the mouth, and to at once raise his hand if the lotion passes into his pharynx. He very soon learns to pass the antral tube himself, and should syringe out the cavity twice daily. It is essential to impress upon the patient the importance of thoroughly cleansing the antrum, and not until he feels assured that this will be carried out regularly and systematically should the surgeon relax his direct supervision. By the end of three weeks or a month the discharge will have become much less, and it will in most cases be sufficient to thoroughly cleanse the antrum once daily. At the end of three months it will generally be safe to leave off syringing for longer and longer intervals until, with the complete cessation of all discharge, the case may be considered cured.

THE SCOTTISH MIDWIVES' ASSOCIATION.—At the last meeting of the Council of the Scottish Midwives' Association the question of the relations between the medical practitioner and the registered midwife was discussed. The Association had before it evidence that in Scotland medical practitioners in working-class practices availed themselves of the assistance of the "friendly neighbour" when a certified midwife could have been obtained. The Council of the Association in these circumstances have drawn attention to the advantages that would accrue to both mother and infant if the midwives enrolled at the Central Midwives Board were given proper opportunity to carry out their vocation. It is to be hoped that the Association will make public the grounds on which they consider that in Scotland the registered midwife is especially neglected, or the "friendly neighbour" preferred.

OPHTHALMIC PHYSICIANS AND THE ADVANCEMENT OF OPHTHALMOLOGY.[1]

BY RAYNER D. BATTEN, M.D., B.S. LOND.,

SENIOR SURGEON TO THE WESTERN OPHTHALMIC HOSPITAL; LATE OPHTHALMIC SURGEON, QUEEN ALEXANDRA MILITARY HOSPITAL.

THE present paper had its origin when a vacancy recently occurred on the staff of our hospital and I urged that what was really required was an ophthalmic *physician*, not an ophthalmic *surgeon*. My arguments in support of this course were met by the answer that it was "not done" at any other hospital, and, secondly, that there were no men available or educated for such a post. I was then challenged to bring the subject forward for open discussion.

Cases requiring operation or direct surgical treatment form such a small part of the whole of our work that we have to be responsible for a far larger clinic than we can personally attend to if it is to yield sufficient operative material for the study and advancement of that branch of our science. In order to cope with this difficulty large numbers of men are educated, given posts as clinical assistants, and entrusted with a large measure of responsibility. We avail ourselves of their services for years, during which they become able ophthalmic observers, but are given no training in ophthalmic surgery and no chance of learning to operate, while their training in, and knowledge of, medicine is insufficient to make them ophthalmic physicians.

Progress on Medical Lines.

Further progress in ophthalmology, as far as one can see, will be mainly on medical lines, and will require men with a physician's training and experience. Progress on surgical lines is limited and can only result from large experience. There may be another and yet another new operation for glaucoma; we can still discuss the best form of cataract extraction; and someone may some day invent a successful operation to cure detachment of the retina or conical cornea, though I doubt if success is likely to come from the surgical side in the treatment of these diseases.

On the medical side, however, there are endless possibilities which we try to tackle with our second-hand scraps of medical knowledge, picked up from such general medical information as may be current, but with no means of studying the problems from a strictly medical standpoint. Of course, we have physicians attached to our ophthalmic hospitals, but their position is that of consulting referees; they do not have patients of their own. To them we refer cases, but the result is not very satisfactory. There is divided responsibility, or more generally the responsibility rests with the surgeon, even in well-marked medical cases, since the eye-symptom is the most obvious factor. This is specially the case in hospital practice. In private practice the responsibility is more often shared, though even there the need of a physician who can grasp the full importance of the ophthalmic problem is acutely felt. In doubtful cases the physician seldom suggests a cause, and, having returned a negative to the question we have asked, the problem ceases to interest him. Where the diagnosis is obvious he shirks treatment, since the eye-symptom is the guiding factor; and where the case is transferred to the physician he is seldom in a position to study it from the ophthalmic point of view. At present our consulting physicians are not appointed for their knowledge of ophthalmology, but for their knowledge in some branch of medicine, generally with a leaning to neurology. We should still require the consulting physician for special cases, but what we require is *ophthalmic physicians*, who do their own ophthalmic work and have to live, so to speak, with their ophthalmic failures, and to study ophthalmic cases from a physician's point of view and with a physician's experience.

Special Problems for the Physician.

The need of the physician in ophthalmology seems to me so obvious, that I will not weary you with elaborating the point, but will merely mention some of the most noteworthy instances.

1. The various vascular conditions; variations in blood pressure, arterio-sclerosis, vascular degeneration, thrombosis,

---

[1] A paper read at a meeting of the Ophthalmological Section of the Royal Society of Medicine on Nov. 5th, 1919.

and all the allied conditions associated with renal, hepatic, and cardiac diseases.

2. The diseases of the central nervous system, not only those of more or less obvious central nerve disease—tabes, disseminated sclerosis, cerebral tumours, ocular paralyses—but the many obscure ocular maladies which fall between the surgical and medical sides of ophthalmology; unexplained optic atrophies; headaches of apparently visual origin, but without ocular symptoms as yet within our range of diagnosis.

3. The many toxic or septic conditions giving rise to definite ocular disease, such as irido-cyclitis, in which the present position is most unsatisfactory. At present we refer the case to the consulting physician, dentist, pathologist, and all the rest, and get a series of negative reports, and the case comes back to us for empirical treatment; whereas it ought to come back to the physician and live with him until he has found a cause. Our training and means of research are totally inadequate to the scientific investigation of medical cases. Toxic conditions, giving rise to iritis, cataract, retinal changes, in diabetes, albuminuria, syphilis, tubercle, septic and other conditions, and toxæmia from drugs, form a list too long to enumerate.

4. The various nutritional diseases, giving rise to corneal ulcers. These cases I consider peculiarly disgraceful to us, especially the children with recurrent corneal ulcers, which defy local treatment and result in permanent corneal nebulæ.

This classification by no means exhausts the medical side of ophthalmology, but may be sufficient to show how totally inadequate is our education to deal with a very large proportion of our cases. The fact that we are educated as surgeons tends to dull our keenness in and power of investigating the primary causes of certain ophthalmic problems. We are very loth to stray beyond the orbit, and our education is not wide enough to enable us to do so with profit.

Cataract and Glaucoma; Myopic Detachment of the Retina.

Take the case of cataract. Here we know that, in the ultimate result, we can operate to relieve the worst of the symptoms. We look with suspicion on any non-operative system of treating cataract. Most of these systems depend on some local application to the eye, and are not based on any investigation as to the cause. We know too well the fallacies of the results claimed for this or that system of drops "dissolving" cataracts, and we rightly avoid anything that savours so strongly of quackery.

But if we consider the extraordinary variations in the rapidity of progress in some young or middle-aged cases of cataract—how they will start rapidly, and then become quiescent, or even improve—surely there is sufficient evidence that they are due to some constitutional cause beyond our power of recognition as *surgeons*. The causation of cataract requires a more subtle investigation than we can give it.

Take again the glaucomas. I cannot see how any thoughtful man can be satisfied with either the surgical diagnosis or treatment of many of them. A proportion of them are due to anatomical causes, and are relieved or cured by surgical means. But there are a number which defy surgical treatment, and do not exhibit any anatomical cause; yet they progress, their discs show deep cupping without any evidence of increased tension, and we are driven to the supposition that they have increased tension when we are not looking. Some of the acute glaucomas, too, show a virulence for which no anatomical explanation is sufficient. While the actual treatment of the state of hypertension must remain in surgical hands, yet there are many questions in causation and treatment which require to be investigated by the physician. It is not to our credit that, glaucoma having occurred in one eye, we should be so prolific in theories and so ignorant as to its causation that we are unable to prevent its onset in the other, except by operation. Yet we rarely refer our cases of glaucoma to our physician, probably because we know he is not sufficiently familiar with the condition to be of any real help.

For many years I studied myopias, and convinced myself that they were often due to constitutional causes, taking the view that the sclerotic became soft and yielded to normal pressures. I still think so. But I gave up the subject, because I was not enough of a physician to follow it up. Here, too, the fact that we can relieve the symptoms by correcting the error of refraction lulls us into thinking that we are treating the disease; which, however, is far from the case.

Our attitude towards detachment of the retina is even more hopeless. Even if we leave out of consideration the detachments in highly myopic eyes, which, according to some, have an anatomical cause, yet still we have detachments occurring in emmetropes, or in eyes with only a low degree of myopia. A detachment having occurred in one eye, it is more than probable that it will occur in the other. Yet we are incompetent to give any advice, based on knowledge of causation, to prevent such a calamity. Our surgical treatment of these cases is, on the whole, a failure. One per cent. would be a high average of success. Surely we should do well to hand the lot to the physician, and see what he can make of them.

The Education of the Ophthalmologist.

The education of the ophthalmologist is primarily at fault. We insist in the first place that a man must pass the highest examination in general surgery, which it is true gives us an exceptional type of man, but which has practically no bearing on eyes. He wastes years in acquiring the requisite anatomical and surgical knowledge to pass this examination when his time would be better spent in acquiring some knowledge of medicine and his own specialty. It is by no means unusual to find amongst ophthalmic surgeons men who not only confess to ignorance of the medical side of ophthalmology, but who seem to glory in their detachment from medicine. At present we act as eyes to the physician, but I hold that the physician should see for himself, and he requires a larger experience than can be derived from studying only special cases.

I do not expect much support from ophthalmic surgeons on the medical side of the question, for the surgeon is an extraordinarily self-satisfied man, and generally thinks himself at least the equal of the physician on the medical side of his art, a position justified, perhaps, by the small amount of help at present given by the physician. On the surgical side, however, I hope to carry conviction.

The actual surgical work of the ophthalmologist forms only a small proportion—not more than 1 or 2 per cent.—of the whole mass of work to be done. As at present arranged, any man going in for eyes is supposed to be an "ophthalmic surgeon," and must assume himself, and be assumed to be, capable of doing any ophthalmic operation. Yet what has his training been, and what opportunity has he had of dealing with operative cases? A man may work 10 to 15 years at our leading ophthalmic hospitals and never do a major ophthalmic operation. Yet he is a highly trained ophthalmologist except in operative skill, which he must gain in the school of experience—expensive alike to himself and his patients—if he is ever to get on the staff of a hospital and become an efficient ophthalmic surgeon. In due course he will *have* to undertake his first major operation. He cannot under the present system decline. He is an ophthalmic surgeon, and he must either undertake the operation or put himself into an inferior rank and pass the case on to another.

The war has brought us many "ophthalmic specialists" who are in no way ophthalmic surgeons. In a case known to me one of them came across a case of cataract. He did not feel himself competent and got another man to "help" him with the operation. Unfortunately, he showed but little wisdom in his choice of a helpmeet. He chose a peculiarly incompetent but confident young man, who had never been trusted to do any but the simplest operations. Between them they operated, with the natural result. I have not heard what happened to the other eye.

Difficulties of Teaching Operative Work.

The question of teaching operative work is a very difficult one. It would obviously be impossible and undesirable to teach operative work to the large number of men passing through our hospitals seeking ophthalmic training. They cannot all become operators. It would be unjust to the patients and to the hospital. Ophthalmic surgery differs from all other surgery in that there is no gradual road to competence. You cannot allow a man to begin an operation say, for extraction of cataract and, if he gets into difficulties, step in and set things right. The mischief is done, and men have only two eyes. Instructing men in eye operations is a most painful proceeding, even when they have watched and helped you at previous operations. From the introduction of the speculum to its removal there is often a series of mistakes and clumsiness, even in such operations as tenotomy, advancement, or excision.

There are many distinguished ophthalmologists who are in no way fitted to be surgeons. They are either innately clumsy, over-confident, or hopelessly nervous and anxious, so that they are quite incapable of doing justice either to themselves or their patients. One of the best ophthalmologists I have known was constitutionally unfit to operate; over-conscientious, he was always unhappy at his operations, and could never do himself justice; his failures caused him acute distress and sleepless nights. Yet there was no way out for him.

It would, I think, be better for the profession if ophthalmic operations were in fewer hands. Such an arrangement would tend not only to a higher standard of operative skill, but to enterprise and progress in surgical treatment. The surgeon, being no longer required to treat cases essentially medical, would be free to devote himself with a single eye to the advancement and perfection of surgical methods, and would have in addition increased opportunity for their practice. Surgeon and patient alike would benefit. It would then be possible to have private ophthalmic hospitals, accustomed to and equipped for ophthalmic operations, instead of being dependent upon nursing-homes, where eye operations are infrequent and the nursing and equipment unsatisfactory. The present position is not fair to the public, and is not to the honour of ophthalmic surgery, nor to its profit. It would be far better for all concerned if we recognised ophthalmic physicians as well as ophthalmic surgeons.

Conclusion.

My remedies for the present conditions would be:—

1. To improve ophthalmic education.
2. To appoint ophthalmic physicians to our hospitals.

In place of the Fellowship I would substitute an ophthalmic qualification, and it should be possible to qualify medically or surgically. The surgical qualification would require evidence of operative skill. Even for an ordinary medical qualification, a man is required to have attended his 20 or 30 cases of midwifery. Is it too much to ask that he should show evidence of some operative skill in ophthalmic surgery before he is admitted as an ophthalmic surgeon?

These changes would take time. But the recognition of ophthalmic physicians and their appointment to hospitals could be effected at once. They should attend out-patients and have beds at their disposal. They should see all classes of cases, but should be relieved of all operative work. The surgeons, on the other hand, would refer their medical cases to the physician. This would provide a larger number of ophthalmic men to deal with the ever-increasing mass of ophthalmic work.

This system would, I believe, be of advantage both to the physicians and surgeons, both in hospital and private work, and would redound to the credit and advancement of ophthalmology.

A MEDICAL APPOINTMENT AT OMAGH.—Extraordinary interest has been manifested by the Omagh Guardians in the election of a medical officer for one of the dispensary districts. On Nov. 22nd, out of a total board of 84 there were 83 members in attendance, to decide the fate of two candidates—Dr. B. Lagan and Mr. J. A. Cunningham—who at a previous election had achieved a tie, each receiving 40 votes, and so rowdy was the meeting on that occasion that the election was adjourned. On the second occasion Dr. Lagan received 42 votes and Mr. Cunningham 41; but before the election a letter was received from a solicitor, giving notice that three members of the board were disqualified from voting, and claiming that their votes should not be accepted. According to report they had voted for the candidate who was elected, in which case the report amounts to a suggestion that the election may still be challenged; but, to quote a local paper: "Beyond a few angry words nothing untoward occurred, and the services of a body of policemen who were in the vicinity of the workhouse in the event of disturbances were not called for."

THE VALUE OF THE
COMPLEMENT-FIXATION TEST IN GONOCOCCAL INFECTIONS.

By H. B. F. DIXON, *M.C.*, M.B., B.CH. DUB.,
AND
A. H. PRIESTLEY, M.B., CH.B. VICT.,
CAPTAINS, R.A.M.C.

THE syphilologist has a great advantage over the specialist in gonorrhœa, both in the diagnosis of obscure cases and in treatment. In diagnosis he has the Wassermann test, which is not only of the greatest service in elucidating obscure and latent cases, but also serves to show whether treatment has been effective, and when repeated at intervals whether the apparent cure has been maintained. In treatment he has drugs having a specific action on the spironema. The clinician who treats gonorrhœa has no such aids, though gonorrhœa is quite as serious a disease as syphilis, and there are without doubt far more cases of unsuspected gonorrhœa than of latent syphilis.

In dealing systematically with a large number of cases of gonorrhœa we have been struck by two difficulties which hardly occur in syphilis. In the first place there is the difficulty of establishing a diagnosis in the absence of gonococci in the urethral discharge, or even in the presence of Gram-negative cocci where there is no time or opportunity for culture. In the second place there is the difficulty of establishing a standard of cure. The most stringent clinical standard cannot approach in accuracy a series of serum tests. The utmost the clinician can do in gonorrhœa is to attempt in an apparently cured case by means of provocative injections of vaccine, silver-nitrate injections, instrumentation, prostatic massage, &c., to cause the reappearance of pus cells and gonococci. If no pus and no gonococci appear the patient is assumed to be cured; nevertheless, relapses do occur.

It must be remembered that the complement-fixation test in gonorrhœa is not comparable, except to some extent in technique, with the Wassermann test. This is a point often overlooked, yet of primary importance in the interpretation of results. The Wassermann is a test of the damage done to the tissues by the spironema. If this has not gone too far complete destruction of the organism causes cessation of damage, and a negative reaction follows. The serum test in gonorrhœa is a true antibody test, and is therefore not a test of damage but of resistance. It is thus comparable to Noguchi's true spironema antigen test, which becomes positive as the patient improves. The wide range of the Wassermann test also renders it more useful than the gonococcus test can be. In syphilis it is not uncommon to find sera which, with heart extract (and especially cholesterinised extract), will fix 20 or more doses of complement. In gonorrhœa it is rare to find more than 6 or 7 doses fixed; the highest positive we have met with, excluding cases where large doses of vaccine have been given, fixed 10 doses.

Complement-fixation Test in the Determination of Cure.

We began this study in the hope that in the complement-fixation test we might find help in both the difficulties alluded to—namely, in diagnosis and, more particularly, in determining the grave question as to whether a patient can really be considered cured, without merely turning him out in the hope that he is cured. We think that we have evidence to prove the definite utility of the test in diagnosis. As regards a test of cure we at present hold open minds, but we have formed three very definite impressions, viz.:—

1. That no person suffering from gonorrhœa can be regarded as doing well and on the way to cure until he has shown a strong positive reaction, independent of an artificial reaction the result of large doses of vaccine. (What we call a strong positive reaction will appear subsequently.) The majority of our cases have either had no vaccine or only small doses of stock polyvalent gonococcus vaccine—not more than 600 millions. Such doses do not, in our experience, produce a strong positive, so that such a reaction in these cases may be considered to be an indication of a genuine immunising response on the part of the patient.

2. Detoxicated vaccines, on account of the much higher dosage employed, entirely obscure the immunising response.

We find that a dose of 1000 millions or upwards of detoxicated vaccine will almost invariably produce a strong positive reaction within a few days. We think we have evidence to show that this is a purely artificial rise, and by no means represents the same immunising response as a natural rise without vaccine. Several cases, which previous to the administration of detoxicated vaccine had shown no gonococci in smears, have begun to show them after large doses, and have not manifested that clinical improvement which we generally find after a natural production of a strong positive reaction. In our opinion, while detoxicated vaccines are strongly antigenic as regards the production of an antibody of the character manifested in complement-fixation tests, there is something missing in the true immune antigenic sense.

3. The natural course of the immunity curve, so far as this is represented by the fixation test, is, in our experience, as follows:—(*a*) Recent cases show a strong positive by the ninth or tenth week from the date of first discharge, if doing well, and this begins to fall in three or four weeks. (*b*) Second or later attacks, or relapses, show a slower rise, not reaching a strong positive till the fourteenth week, or later, but once having reached it they tend to maintain that level longer than recent cases. The explanation of this is probably that in a relapsed case the resistance is less, and consequently, the immunising response is delayed in appearance and needs to be exerted over a longer period to effect the final disappearance of the organism.

It follows from this that no one can be considered as even on the way to cure until he has shown a strong positive reaction. From this point, coincident with clinical improvement, his reaction should decline. Unfortunately it is not possible, for various reasons, to keep patients in hospital until a complete negative is shown. But we have found that those cases did best which showed an early strong positive and a subsequent fall while in hospital. On the other hand, the prolonged maintenance of a strong positive is an indication of a focus still present and active.

We have now got records of 625 cases on whose sera 840 tests have been performed during the last few months. As will be seen, the majority of these were sent into hospital for other diseases, mostly syphilis and soft chancre. Some of these gave positive or partial positive results, and these were examined and questioned as to history. In this manner we discovered active gonorrhœa in a number of unsuspected cases, and a history of the disease in a number more.

The standard of clinical cure adopted has been as follows:—

One clear week without treatment.
No morning discharge.
First and second urines clear, or at most only a few threads.
Urine normal after prostatic massage.
Smear after prostatic massage negative to pus cells and gonococci.
Negative smears after irrigation with silver nitrate 1/1000, and after two successive bougies.
No focal reaction after a provocative dose of 200 millions of stock gonococcus vaccine.
Urethroscopic appearance normal.

This standard appears to be more severe than that advocated by Simpson and Clarkson in THE LANCET of Nov. 30th, 1918. We do not, however, make routine cultures. The number of cases we have to deal with makes this impossible, and in our experience it is not worth the labour involved. While a positive culture is of definite value as excluding cure, a negative one is by no means a proof of cure.

One of us (H. B. F. D.) is entirely responsible for the clinical work, and the other (A. H. P.) for the serological work. The technique employed was that described by one of us (A. H. P.) in THE LANCET of May 10th, 1919.

Explanation of Groups.

We have divided the results into four groups according to the positivity of the test: Group I., where there is complete fixation of 5 M.H.D. of complement we call strong positives; Group II., where there is complete fixation of 4, but not 5, M.H.D., we call moderate positives; Group III., where there is complete, or nearly complete fixation of 3 but not of 4, M.H.D., we call weak positives and doubtfuls; Group IV., where there is complete lysis in all the tubes, or at most a trace of inhibition in the 3 M.H.D. tube, we call negatives.

As denoted by the signs in common use,

Group I. = +++
Group II. = ++± and ++−
Group III. = +±− to ±−−
Group IV. = $\underset{=}{+}$−− and −−−

Our grouping is made on the result of the first test in each case.

Of the 625 cases 53 fall in Group I., 66 fall in Group II., 165 fall in Group III., 341 fall in Group IV.

Analysis of the Different Groups.

Group I. Strong positives.—Of the 53 in this group, 40 were known to be suffering from gonorrhœa at the time; 2 were found to have gonorrhœa when examined after the test; 2 gave a history voluntarily of previous gonorrhœa; 4 were found to have a history of previous gonorrhœa when questioned after the test; 5 gave no history and showed no clinical signs of the disease.

If we exclude one case whose history goes back five years, together with the last 5 cases, 47 out of the 53 (= 90·4 per cent.) agreed clinically or in history.

Of the 42 who had gonorrhœa at the time of the test 16 (= 38 per cent.) had complications—viz., arthritis, 1; epididymitis, 11; vesiculitis, 1; epididymitis and arthritis, 1; epididymitis and vesiculitis, 1; arthritis and prostatic abscess, 1. Eighteen of these cases (= 42·8 per cent.) were second or later attacks or relapses; 27 (= 64·2 per cent.) were either later attacks or relapses, or had complications; 15 were uncomplicated first attacks.

Several cases had been treated with ordinary polyvalent gonococcus vaccine, but only one is known to have had a higher dose than 200 millions; this man had up to a last dose of 600 millions 15 days before the date of his first test. This is not sufficient to bring up a strong positive reaction. The average period since the onset of the last attack or relapse was 10½ weeks, the shortest being 13 days, the longest 23 weeks.

A few cases in this group are of interest.

(2462) First attack; has syphilis also; uncomplicated except for a severe prostatitis lasting four months; completely recovered except that the prostate is still slightly enlarged; several cultures have yielded only staphylococci and streptococci.

Tests: 1st 11 weeks after onset +++
2nd 13 ,, ,, ,, +±−
3rd 14 ,, ,, ,, ±−−
4th 17 ,, ,, ,, $\underset{=}{+}$−−

(2502) Second attack; arthritis and prostatic abscess, both now completely cleared up; still has considerable pus, but no gonococci have been found for several weeks. This man has given a strong positive on five occasions. He probably still has an active focus.

(2525) This man was sent in for soft chancre, and denied having had gonorrhœa. His serum was sent for a Wassermann, and the gonococcus test was also done. As the result of this was a strong positive he was examined, and pus was expressed from an enlarged prostate. A provocative dose of vaccine produced a general reaction. No gonococci were found by repeated smears and cultures. He was treated as a gonorrhœa patient and discharged three weeks after the last test.

Tests: 1st ... ... +++
2nd 14 days after 1st test ++±
3rd 22 ,, ,, ,, +$\underset{=}{+}$−
4th 38 ,, ,, ,, +±−

(2751) First attack; had epididymitis overseas, resolving on admission here; still shows gonococci in smears, though after the first test he was put on detoxicated vaccine, and has had up to a last dose of 10,000 millions.

Tests: 1st 14½ weeks after onset +++
2nd 19½ ,, ,, ,, ++±

(2807) First attack; uncomplicated; made steady improvement and was discharged one week after last test.

Tests: 1st 17 weeks after onset +++
2nd 19 ,, ,, ,, +$\underset{=}{+}$−
3rd 21 ,, ,, ,, +±±

Group II. Moderate positives.—Of the 66 cases in this group, 48 were known to be suffering from gonorrhœa at the time; 4 were found to have gonorrhœa when examined after the test; 5 gave a history voluntarily of previous gonorrhœa; 3 were found to have a history of previous gonorrhœa when questioned after the test; 6 gave no history and showed no clinical signs of the disease.

The history of three goes back 13, 14, and 17 years. If we exclude these together with the last six cases 57 out of the 66 (= 86·3 per cent.) agreed clinically or in history.

Of the 52 who had gonorrhœa at the time of the test, 10 (= 19·2 per cent.) had complications—viz., arthritis, 1; epididymitis, 7; epididymitis and scrotal abscess, 1; cystitis, 1.

Of the 52 cases of gonorrhœa in this group 15 (= 29 per cent.) were second or later attacks or relapses; 21 (= 40·4 per cent.) were either later attacks or relapses, or had complications; 31 were uncomplicated first attacks. The average period since onset was the same as in the first group—viz., 10½ weeks.

The following are cases in this group.

(2552) First attack; admitted here one month later with a resolving epididymitis; no gonococci seen since 10 days before last test; steady improvement; discharged 11 days after last test.

Tests:	1st	9 weeks after onset	++±
	2nd	16 " " "	⩲−−

(2590) First attack; epididymitis; also soft chancre; improved rapidly; discharged 14 days after last test.

Tests:	1st	3 weeks after onset	++±
	2nd	7 " " "	−−−

(2611) Second attack; no complication; came in with a muco-purulent discharge, but no gonococci were ever found by smears or cultures; the source of infection, however, was traced and was found to be suffering from gonorrhœa; discharged six days after last test.

Tests:	1st	11 weeks after onset	++±
	2nd	14 " " "	++±
	3rd	20 " " "	+±−

(2627) Second attack; no complication; no gonococci seen till put on detoxicated vaccine, when pus and gonococci became plentiful; has had up to a last dose of 10,000 millions; still under treatment, showing gonococci and much pus.

Tests:	1st	23 weeks after onset	++⩲
	2nd	26 " " "	+++
	3rd	30 " " "	+++

(2735) Second attack; arthritis and gleet on admission; no gonococci seen here; improving, but still under treatment; has syphilis also.

Tests:	1st	19½ weeks after onset	++−
	2nd	21 " " "	+++
	3rd	23 " " "	+++
	4th	30 " " "	+++

(2756) First attack; epididymitis; no gonococci found for several weeks, but pus till four days before last test; discharged seven days after last test.

Tests:	1st	5 weeks after onset	++±
	2nd	9 " " "	+++

Group III. Weak positives and doubtfuls.—Of the 165 in this group, 93 were known to be suffering from gonorrhœa at the time; 4 were found to have gonorrhœa when examined after the test; 11 gave a history of gonorrhœa previously; 3 were found to have a history of gonorrhœa when questioned after the test; 54 gave no history, and showed no signs of gonorrhœa.

The history of four goes back 7, 7, 10, and 15 years. If we exclude these with the last 54, 107 (= 65 per cent.) had gonorrhœa, or gave a recent history; 58 (= 35 per cent.) had no recent history and no clinical signs.

As this group includes nine possible readings, it seemed that perhaps it might be split into subgroups. It is not suggested, on our present limited experience, that this has much practical value; but if partial inhibition in the second tube be taken as the dividing line, those above being called weak positives, and those below doubtfuls, the following is the result: (*a*) weak positives, 75 cases; 54 (= 72 per cent.) were positive clinically or by history; (*b*) doubtfuls, 90 cases; 53 (= 58·9 per cent.) were similarly positive. That is to say, the more positive the result the more likely the diagnosis of gonorrhœa. It must, however, be remembered that these figures refer to the first test only. When the test is repeated in two or three weeks very different results are, as a rule, obtained. Non-gonorrhœa cases from doubtful usually become negative, occasionally remain doubtful, this being no doubt due to experimental error, which further experience may diminish. Gonorrhœa cases show a rise or fall according to the duration of the disease and the progress the patient is making. It must be emphasised that one weak positive or doubtful test is of little value in diagnosis and of no value whatever in prognosis.

Some cases in this group will illustrate this.

(2491) Second attack; uncomplicated; no gonococci found in this attack by smears or cultures; rapid improvement under treatment; discharged ten days after last test.

Tests:	1st	11 weeks after onset	±−−
	2nd	13 " " "	−−−

(2503) First attack; epididymitis almost resolved at time of first test; rapid improvement; discharged 14 days after last test.

Tests:	1st	16 weeks after onset	+−−
	2nd	17 " " "	±−−

(2628) First attack; double epididymitis, severe vesiculitis, and prostatitis; very resistant to treatment of all kinds; gonococci present for over three months despite energetic treatment; now beginning to show some improvement. A case of poor resistance.

Tests:	1st	7 weeks after onset	+±−
	2nd	10 " " "	+±⩲
	3rd	12 " " "	+−−
	4th	17 " " "	++±

(2630) Second attack; also old syphilis; urethral condition improving, but still much pus; possibly only secondary infection now, as no gonococci have been cultured after repeated attempts.

Tests:	1st	13 weeks after onset	+⩲−
	2nd	16 " " "	⩲−−
	3rd	18 " " "	+−−
	4th	23 " " "	+++

(2631) First attack; uncomplicated; very resistant to all treatment; gonococci were present after four months' treatment, including detoxicated vaccine; still much pus.

Tests:	1st	13 weeks after onset	±−−
	2nd	16 " " "	−−−
	3rd	18 " "	±−−
	4th	22 " " "	++±

Note.—The second test followed a dose of 600 millions of stock gonococcus vaccine, and is presumably a "negative phase" result. The fourth test was after reaching a dose of 2500 millions of detoxicated vaccine.

(2726) First attack; severe prostatic abscess; a troublesome and resistant case; condition improved very slowly at first, but there has been rapid improvement during the last fortnight.

Tests:	1st	5½ weeks after onset	+⩲−
	2nd	7½ " " "	±−−
	3rd	10 " " "	±−−
	4th	14½ " " "	++±

(2729) First attack; severe arthritis; in hospital overseas for three months before admission here; arthritis improving slowly; general condition poor; T.A.B. and detoxicated vaccine; gonococci present up to three weeks ago.

Tests:	1st	13 weeks after onset	+±−
	2nd	15 " " "	+±−
	3rd	17½ " " "	+−−
	4th	21 " " "	++⩲

(2743) First attack; uncomplicated; slow improvement; gonococci until two days before third test; still under treatment.

Tests:	1st	4½ weeks after onset	±−−
	2nd	6½ " " "	++−
	3rd	9 " " "	++±
	4th	13½ " " "	+±−

(2744) Second attack; uncomplicated; rapid improvement; no gonococci seen since day of admission.

Tests:	1st	1 week after onset	+−−
	2nd	5½ weeks " "	++±

(2760) First attack; in hospital overseas 2½ months before admission here; arthritis improving on admission; urethral condition never much trouble; discharged 14 days after last test.

Tests:	1st	12 weeks after onset	+±−
	2nd	14 " " "	−−−

(2868) First attack; epididymitis now resolved; still thin morning discharge, but no gonococci seen since **four days** before second test.

Tests:	1st	6 weeks after onset	+±−
	2nd	9 " " "	+++
	3rd	13 " " "	++±

(2910) First attack; uncomplicated; now fit for discharge.

Tests: 1st 15 weeks after onset ± – –
2nd 18½ ,, ,, ,, – – –

Group IV. Negatives.—341 cases were negative on the first test. These were for the most part cases of syphilis or suspected syphilis, whose sera were sent primarily for the Wassermann test; but 89 of them were cases diagnosed as gonorrhœa and 6 more gave a history of gonorrhœa within three years. These, of course, may have been completely cured, and we think it is probable that several of the others were free from gonococcal infection at the time the test was made. These figures as they stand show 26·1 per cent. to be actually positive, a result which at first sight seems damaging to the value of the test in diagnosis. But again it must be pointed out that these are the results of first tests only. If subsequent tests on the same patients were taken into account the percentage of actual gonorrhœa cases falling in this group would be much lower.

Of the above 89 cases, 31 have been repeated once or more, and of these all but 6 showed a rise on the second test, 7 became strong positives, 9 moderate positives, and 9 weak positives; while on a third test some of the last became positives. If this proportion were maintained throughout the 89 cases the percentage which on second test remained negative would be 5 instead of 26·1. On the other hand, 17 cases showing no signs and giving no history of gonorrhœa were repeated, and only 1 showed on second test anything but a negative; this one became a doubtful, and was probably an experimental error. Of the 6 cases alluded to, which remained negative on second test, 2 are cases of doubtful diagnosis, and 3 others are probably cured cases whose antibody has disappeared; the sixth is still under treatment and will be further tested. We add details of the five doubtful or cured cases.

(2068) This man was admitted to hospital overseas as a case of gonorrhœa, and sent on here a month later. He has syphilis, but it is doubtful if he has ever had gonorrhœa. Gonococci have never been found, despite most careful search over a period of four months. Neither detoxicated vaccine, silver nitrate, nor instrumentation have provoked the appearance of the organism, and his prostate has always been normal. He has given a dead negative fixation result on four successive occasions. He still, however, has a slight morning discharge, which we are inclined to think is due to simple urethritis kept up by energetic treatment.

(2698) This man has no clinical signs of gonorrhœa, but gives a history of an attack two years ago. His serum was sent for a Wassermann test, and has twice given a dead negative gonococcus fixation result.

(2728) This man was in hospital overseas for 2½ months before admission here. He reported sick in the first place with a double epididymitis, but stated that he at no time saw any discharge. No gonococci were found either overseas or here. His epididymitis cleared up shortly after admission. He gave a negative result on three successive occasions.

(2862) Another case sent on from a hospital overseas, in whom no clinical signs were found and who twice gave a negative.

(3094) This man gives a history of exposure to infection in December, 1918, and shortly after developed vague perineal pains. Despite the fact that he had no discharge he was firmly convinced that he had contracted gonorrhœa. He reported sick many times, but as he had no clinical signs he was not treated. He is a very neurotic individual, and after many months determined efforts to be admitted to hospital he managed to produce a discharge. He was admitted here three months ago, and since then exhaustive examinations have failed to find the gonococcus. He still complains of pains in the cord and testicle at times. We are of opinion that this man has never suffered from gonorrhœa but from gonorrhophobia. He has three times given a negative fixation result.

The following are illustrative cases in this group:—

(2737) First attack; uncomplicated; has syphilis also; improving, but still pus: no gonococci seen for 4 weeks.

Tests: 1st 4 weeks after onset – – –
2nd 8½ ,, ,, ,, + + +
3rd 12½ ,, ,, ,, + + +

(2746) First attack: uncomplicated; no gonococci seen since date of 1st test, but pus till 1 week before last test; discharged 3 days after last test.

Tests: 1st 8 weeks after onset $\underline{\underline{+}}\,-\,-$
2nd 10 ,, ,, ,, $+\,+\,\underline{\underline{+}}$
3rd 13 ,, ,, ,, + + +

(2866) First attack: epididymitis; improving slowly; epididymis still hard and swollen; still morning discharge, but no gonococci seen since 1 week before last test; still under treatment.

Tests: 1st 6 weeks after onset $\underline{\underline{+}}\,-\,-$
2nd 7½ ,, ,, ,, $+\,\pm\,\underline{\underline{+}}$
3rd 11 ,, ,, ,, + ± ±

(2942) First attack; epididymitis and peri-urethral abscess; gonococci present till one week after second test; general condition poor; improving slowly.

Tests: 1st 6½ weeks after onset – – –
2nd 8½ ,, ,, ,, + + ±
3rd 12½ ,, ,, ,, + + +

(2957) First attack; epididymitis; treated privately for a fortnight before admission; no gonococci seen here; improved rapidly and was discharged 12 days after last test.

Tests: 1st 8 weeks after onset – – –
2nd 11 ,, ,, ,, + + ±

Summary and Conclusions.

840 tests have been made on 625 cases sent from both gonorrhœa and syphilis wards.

Of 53 strong positives... ...	90·4 %	Agreed clinically or in history.
66 moderate positives ...	86·3 %	
75 weak positives	72·0 %	
90 doubtfuls	58 9 %	
341 negatives	26·1 %	

26·1 per cent. of the negatives were cases of gonorrhœa or gave a history of gonorrhœa. Many of these cases, however, we have reason to believe to be free from gonococcal infection, and those with an undoubted infection showed a rising reaction (usually a positive) on second test in a fortnight. Only one case of known gonorrhœa remained negative on second test.

In diagnosis a positive result is strongly indicative of active gonococcal infection. A single negative is of no value, but a second negative in two to three weeks is strong presumptive evidence of absence of infection. Cases doing well show a positive reaction by the ninth or tenth week, which soon begins to fall, such fall coinciding with clinical improvement. Cases in which a strong positive reaction is maintained over several weeks still have an active focus.

The administration of detoxicated vaccine in doses of 1000 millions or more produces an artificial power of fixing complement, which, however, does not necessarily mean any improvement in the patient's condition. In such cases the complement-fixation test is of no value.

The complement-fixation test should prove of the greatest value in the diagnosis of obscure pelvic diseases in women, so often the result of gonorrhœa.

We desire to thank Lieutenant-Colonel M. P. Corkery, O.B.E., the Commanding Officer of this hospital, for facilities in connexion with this work; also the other medical officers, for their coöperation in examining cases and making inquiries into histories. We further wish to thank the staffs of the treatment rooms and laboratory, and especially Sergeant E. G. Penney, R.A.M.C., for his zeal and care in laboratory preparations, and for many other services in connexion with this inquiry.

Military Hospital, Chiseldon, Sept. 6th, 1919.

THE LATE DR. R. W. NESFIELD.—By the death from septicæmia, at the early age of 52, of Richard Webster Nesfield, M.B., Ch.B. Vict., L.S.A. Lond., Manchester has lost one of its best known and most esteemed practitioners. Himself the son of Dr. Stephen Nesfield, a Manchester physician of no small repute, "Dicky" Nesfield was an old Rossalian, and later a very well-known student of the Manchester School of Medicine. After taking the L.S.A., he obtained the Victoria degree in 1893. For some time he then held the senior resident post at the old St. Mary's Hospital. After a period of practice at Shelley, near Huddersfield, he settled down at the old family practice in Old Trafford with his brother as partner, about ten years ago. When the war came and his brother was mobilised he was called upon to do two men's work, and the strain had not been relaxed since. This year, however, he managed to get a good holiday, but the long work had told and the war was to take its deferred toll of him. He died at his home in Richmond Place, Old Trafford, and was buried on Nov. 11th at the Stretford Cemetery, Canon Richardson and other clergy officiating. The crowds who were present then, and also at the memorial service at St. Bride's Church, afforded some evidence of the great regard felt for Dr. Nesfield in the district.

THE LATE COMPLICATIONS OF

GUNSHOT WOUNDS OF THE CHEST.

BY JOHN B. McDOUGALL, M.D. GLASG., M.R.C.P. EDIN.,
FELLOW OF THE ROYAL FACULTY OF PHYSICIANS AND SURGEONS, GLASGOW; LATE OFFICER-IN-CHARGE, MEDICAL DIVISION, 30TH GENERAL HOSPITAL, FRANCE.

THE study of gunshot wounds and injuries of the chest during the war was a subject full of interest for the surgeon as well as for the physician. The physicians were introduced to physical signs which had frequently nothing in common with those of chest diseases peculiar to civil life; and surgeons likewise were confronted with pulmonary lesions due to the presence of foreign bodies, and had often to attack the lung substance itself, a procedure of the greatest rarity in pre-war surgery.

During the fighting the acute stages of chest wounds were seen in the hospitals in France. There it was possible to correlate the nature of the injury, its date of onset, and its immediate results with the early complications. Once the patient left the base hospitals in France, however, there was only one ready method available of ascertaining the after-history of the case; that was by sending one of the forms supplied by the Medical Research Committee with the patient to the United Kingdom. In some cases the medical officers at home were kind enough to send back notes on the case when the patient was ultimately discharged from hospital; in other cases no information was forthcoming. In a few instances the data concerning the further course of the case, and the physical signs in the chest at the time of discharge, were rendered fully and with considerable care, but in the majority of cases the date of discharge and a cursory note as to whether the patient was "fit" or "debilitated" were the only records returned.

It became obvious, therefore, that a more elaborate system of investigation had to be undertaken. The one which commended itself to me was to send on the Medical Research Committee form in the usual way, but, in addition, to take a special note of the name and address of the patient's next-of-kin prior to his evacuation to the United Kingdom. At intervals after the man's discharge from hospital at home a form was sent to the next-of-kin, with a request that it should be filled in and returned to me. It is extraordinary how faithfully the replies to this request were given. Whether it was the stamped addressed envelope enclosed, which told that there was no personal expense attached to the venture, or whether it was an earnest desire to furnish details which might further the cause of clinical science, I know not, but it was certainly surprising to find that over 90 per cent. of the cases have been followed up at four to six monthly intervals by this simple method. In some cases the symptoms complained of were grossly exaggerated, but, on the whole, the answers to the questions asked were given concisely and well.

The circular sent took the following form:—

1. What is your (son) doing now?
2. Was he discharged from the army on account of his wounds? If so, when?
3. How far can he walk without exhaustion?
4. Has he any pain, cough, or spit?
5. Does he complain of anything else?
6. You may add any notes you may think of interest.

Of course, many cases were investigated more fully by further private correspondence, and I should not be in a position to place the following facts on record were it not for the very great help I have obtained from many doctors at home who have, often at the patient's own request, furnished me with details of physical signs and other points in the history of the cases.

In this way, therefore, one has been able to compile a complete record of 139 cases from the time of injury, and to trace the clinical history of each case through field ambulance, casualty clearing station, base hospital in France, hospital and convalescent home in England, and, finally, to add notes on the subsequent history as it affected the original disability.

My own observations on the clinical condition were made at two base hospitals in France over a period of nearly two years, whilst acting as physician-in-charge of cases of gunshot wounds of the chest. Since November, 1918, however, a special effort has been made to investigate every case presenting evidence of an old chest wound. These latter cases are not included in the statistics in this article, for complete clinical notes have not been available. Nevertheless, they have been of interest inasmuch as they have taught one to appreciate the fact that many of the so-called subjective symptoms are, in reality, due to, or can be explained by, gross organic disease in the lung, pleura, or chest wall.

CLASS I.—*Cases returned to duty in the army in less than three months from the time of injury.*

This is the condition of affairs which borders on the ideal. Under this heading are included not only cases which were returned to duty within the time stated, but also cases which remained at duty free from disablement attributable to the original wound. The group includes 40, or 28·7 per cent., of the total number of cases investigated, which is admittedly a small percentage. The original lesions in these cases varied, as shown below:—

Collapse or contralateral collapse only	3
Hæmothorax (sterile)	24
Foreign body in lung or pleura	13

Only 21 of these have, at the time of writing, reported themselves perfectly well and able to carry out their duties without complaint of any kind, and of these 3 had collapse or contralateral collapse, 10 had hæmothorax, and 5 had foreign bodies in lung or pleura. Since November, 1918, it has been my privilege to examine a number of men who had sustained thoracic injuries during the war. Some of these had reported sick and were admitted to hospital on account of subjective symptoms, due, presumably, to the old chest wound. Other cases were discovered in the wards suffering from some other condition—e g., skin diseases. It is, of course, always difficult to be sure what the original lesion has been, but it may be presumed that an effusion into the pleura has occurred in about 60 to 70 per cent. of the cases.

The symptoms are variable in this class. Denechau[1] reports 42 cases with no objective signs, but who complained of subjective symptoms. Some complain of shortness of breath on exertion, especially when marching with full kit and rifle. There is invariably an area of increased sensitiveness to pressure in the neighbourhood of the wound, even when it is no larger than a threepenny piece; sometimes this hyperæsthesia is the only symptom of which he complains. Cough is rarely troublesome. The physical signs vary from being negative to those indicative of restricted movement over a limited area of the lower lobe of the affected side. Two cases presented wounds of entrance and exit in the right chest above the level of the fourth rib, and had obviously had penetrating wounds of the chest, yet the movement of the upper lobes was good, and except for a relatively poor air entry at the base of the right lung there was no abnormality in the chest. Præcordial pain is rare.

CLASS II.—*Cases returned to duty in the army after a period of three months from the time of injury.*

The opportunity to see these men in France seldom presents itself, for the original lesion has usually been so severe as to incapacitate for further active service abroad. Many, however, are able to carry on work in a more or less sedentary occupation at home, such as batman, clerk, groom, messenger, &c.

In my series there are 41 cases in this class, or 29·4 per cent. The original lesions varied, as shown below:—

Collapse or contralateral collapse alone	1
Hæmothorax (sterile)	25
Hæmothorax (infected) rib resected	2
Foreign body in lung or pleura...	13

At the present time (October, 1919) 18 have no subjective symptoms, and these include the case which had collapse, 11 which had sterile hæmothorax, 1 which had infected hæmothorax, and 5 which had foreign bodies in the lung or pleura.

Amongst the subjective symptoms is pain in the chest in the neighbourhood of the original wound, usually near the wound of exit if such be present. Occasionally it is situated in the lower thoracic zone in the region of the diaphragmatic attachment. It is aggravated by exercise of any kind. The difficulty encountered in lifting heavy objects is usually in proportion to the amount of damage to the thoracic musculature, and in cases where the scapula or clavicle have been fractured this particular form of disablement may be very great indeed. It is noticed, too, that injury in the region of the pectorals, rhomboids, or latissimi is accompanied by far greater inconvenience than a correspondingly severe lesion involving a portion of the chest uncovered by these muscles.

The pain is sometimes superficial, sometimes deep, but not sufficient to incapacitate completely. It is often influenced by changes in the weather. Præcordial pain is complained of in 9·6 per cent. of these cases. It is present most frequently in the cases which have had long periods of suppuration in the muscles or in the pleural cavity, and like the pain in other parts of the chest is more severe on exertion. Palpitation is a symptom in about 4·8 per cent. of these cases in Class II. Cough is more frequent than in Class I. It is dependent upon the amount of former pulmonary or pleural damage. The expectoration is greatest in amount in the mornings, but in some cases it appears to be almost continuous, especially in the cases recovered from empyema. The physical signs are, as a rule, more obvious in this class, a fact which is in keeping with the previous histories of the cases. The greater liability to cough and spit is reflected in the greater prevalence of bronchitis, but the pulmonary signs are much the same as those found in a large proportion of cases in Class I., being, however, much more frequently found in this group.

CLASS III.—*Cases discharged from the army on account of wounds.*

It was difficult to imagine during the war that free excision of a portion of a rib with drainage in any form in cases of infected hæmothorax was going to be compatible with the future life of a soldier. The actual amount of operative interference was, it is true, very slight, and in many cases the operation itself was performed under conditions of anæsthesia which left no doubt that the most which could be done was being done under the best possible conditions. The end-results were, however, received with scepticism, and it only required reliable figures to show that the means at our disposal for the treatment of severe wounds of the chest, complicated by infected hæmothorax, were far from satisfactory. Large wounds of the chest wall were excised, ribs excised, pleura excised, and lung tissue excised to limit the spread of infection and to save the patient's life. And the surgeons reported recoveries! Certain it is that life was saved in hundreds of cases, but it may be asked legitimately if all due respect was at all times paid to the mechanisms and physics of the chest. In Class III. we find a motley group of men who are, or should be, pensioners.

It is most important to analyse this group carefully, for the following reasons. Firstly, they represent our failures to deal successfully with acute pleural infection; secondly, they are not now all suffering from sepsis, but most of them from the result of sepsis; thirdly, they demonstrate how important it is to preserve as far as possible the integrity of the chest; for once the sepsis has been fought successfully there remains much to be done from a medical standpoint, and this can only be accomplished if the respiratory mechanism can respond.

In this class there are 46 cases; the original lesions were as follows:—

Collapse or contralateral collapse	2*
Hæmothorax (sterile)	13
,, (infected), rib not resected ...	1
,, ,, rib resected	14
Foreign body in lung or pleura	16

* Complicated by other injuries.

Symptoms.—The general condition now is one varying from invalidism to semi-invalidism. Only 7 cases are now able to return to full duty in civil life. Men who previously were miners are now lift-porters or in charge of buildings, &c. Some are able to take a fair amount of exercise, especially walking exercise, but this is not great as a rule, and varies from one-half to two miles. The prevalence of subjective symptoms in all classes of chest wounds has been commented upon by Denéchan.[1] His observations were made in July, 1916, on men who had been wounded in the interval between November, 1914, and April, 1915. Pain is common to all cases in this group. It varies in site and intensity, but is most common over the lower chest on the affected side. As in Classes I. and II., there are times when the pain appears to be dependent on meteorological conditions, but in the great majority of cases where there has been intrapleural suppuration it is continuous, with exacerbations due to coughing or exertion. The effects of muscular movement are very marked, and the inability to move the muscles of the shoulder girdle with freedom depends on the amount of destruction in the muscles forming it. Five cases are complicated by fracture of the clavicle, scapula, or both. The pain is sometimes intense in the neighbourhood of the wound, so much so that the patient cannot lie on that side. Præcordial pain is common, especially on coughing or on voluntary exertion. It is rarely acute; more frequently dull and aching. Cough is complained of in 76 per cent. of the cases. It is more or less continuous, and not apparently alleviated by medicinal treatment in most cases. In about one-third of the cases it is unproductive of sputum and is rarely the only symptom. Cough is most frequently a symptom when there is a foreign body in the lung.

Dyspnœa.—Every single case complains of shortness of breath on exertion. In a few cases it is said that if it were not for the shortness of breath "he would be able to earn a good wage." Walking upstairs, or up an incline, is a feat of considerable merit, but walking against the wind usually ends in failure. A few cases are improving in this respect, however, and have discovered that by careful and systematic training much can be accomplished. A consideration of the degree of destruction of normal tissue in the chest, together with the prevalence of adhesions in the pleural cavity, makes it clear why dyspnœa should be so prominent in these cases. In some it may be cardiac in origin. Two cases showed signs of myocarditis and cardiac dilatation, whilst under my care in France, secondary to septic hæmothorax; it would be difficult to say whether complete restoration of cardiac function has taken place by this time.

Gastric symptoms.—These are relatively rare and are found in only 6·5 per cent. of the cases in this class. Loss of appetite is the chief complaint, but sickness and vomiting have been present as long as eight months after the time of injury to the chest. One can readily understand the pathology of gastric disturbance in cases where the diaphragm has been torn, and where a communication has existed between the pleural cavity and the peritoneum, but in most cases with symptoms referable to the stomach the diaphragm was not directly wounded. Nor does it appear feasible to suggest a direct spread of inflammation from the pleural cavity, for in the acutest cases with a large hæmothorax infected with streptococci, the stomach symptoms are not so common as one might imagine, considering the anatomical contiguity which exists between the pleural cavity and the stomach. While the deposition of fibrin on the diaphragmatic pleura especially may be an important asset in limiting the spread of inflammation in the early stage of infection, the *continued* immobility of the diaphragm itself in left-sided lesions particularly may be responsible for some of the later manifestations of gastric derangement.

Neurasthenia and mental symptoms.—The incidence of neuroses is probably no greater in old wounds of the chest than in wounds of any other part of the body, but from the notes available it appears that insomnia is comparatively frequent. Night-starts and "horrible dreams" are enumerated in this symptomatology, but the circumstances of the original injury rather than the injury itself are almost certainly responsible for this disturbing element. Fortescue-Brickdale[2] has recorded a case of infected hæmothorax where the chest condition was satisfactory four months after the injury, but who had developed a "childish" mental condition with incontinence of urine.

Fever.—In the cases in which there has been definite evidence of a recurrence of fever there has almost always been some local lesion in the chest to account for it—e.g., empyema, fistula, bronchitis, &c. It is a common feature in cases with chronic suppuration, and in those where a foreign body has been retained in the lung substance.

Lesions of the chest wall.—Reference has already been made to the disabilities in Class II. resulting from extensive or selective destruction of the muscles forming the shoulder girdle. Much of the narrowing of the chest on the affected side is due to the loss of muscular tissue, and subsequent atrophy of muscles which act in conjunction with those already damaged. This muscular atrophy may lead to scoliosis. On auscultation a creaking sound suggestive of very coarse pleural friction may sometimes be heard in the neighbourhood of the wound, but that it is not of pleural origin may be proved by making the patient hold his breath and moving the muscles in the vicinity of the old wound.

One case, a German, showed this "fascial creak" over the right supraspinous fossa 16 months after a superficial wound in the same region involving the muscles *only.*

The actual damage done to the chest wall by the operation for rib resection is negligible so far as can be ascertained from the later reports. In a few cases one has seen retraction over the area in question during deep inspiration, and this is certainly more marked after the onset of a bronchopneumonia involving the lung on the affected side. Much restriction of movement of the chest is due to callus formation, which may be above or below the ends of the rib or ribs remaining after resection. X ray plates show this well. Severe neuralgic pains in the course of the intercostal nerves traversing the affected area may be due to involvement of the nerves in the callus. There may be also sharp spicules of bone springing from the internal aspect of the rib, pressing on the pleura and causing "pleural" pain or even pneumothorax (Sargent).

In contradistinction to these more or less purely destructive lesions of the chest wall there are the usual manifestations of atrophy of the muscles and contraction of the chest secondary to collapse of the lung and to adhesions in the pleural cavity. In the type of case under consideration this deformity may come on rapidly—so rapidly, in fact, as to suggest that trophic influences are at work in addition to the more mechanical ones. The compensatory expansion of the other side of the chest may throw the affected side into greater and greater relief by comparison, but in any given case cyrtometer tracings will give an exact mathematical picture of the existing degree of expansion and contraction respectively. A chronic discharging sinus in the chest wall has been noted in four cases. The focus of suppuration may be in the chest wall, in the pleural cavity, or in the lung itself. It is not possible to give exact figures to show the incidence of each, but in two cases operation was undertaken in England, and fragments of necrosed bone removed from the deep layers of the chest wall, where they had been enclosed in small pus cavities. Complete recovery is reported in each case. The usual position of the fistula or sinus is in the neighbourhood of the original wound, entrance or exit as the case may be, but in a small proportion of cases, pus comes to the surface at a point at, or near, the attachment of the diaphragm to the chest wall; these are cases of residual empyema and one case in my series has yielded to operative treatment.

Pleurisy.—It is probably correct to surmise that at least 70 per cent. of all cases of gunshot wounds of the chest have had an effusion of blood into the pleural cavity (vide ante). And, where there is blood, there is inflammatory reaction leading, in the sterile and mild cases, to the deposition of fibrin on the diaphragmatic, visceral, and parietal pleuræ, and in the infected and severe cases, to thick adhesions, with more or less collapse of lung, especially over the lower lobe. Proof of the frequency of pleural adhesions is found in the statistics of Robineau,[3] who, in 42 thoracotomies for removal of foreign bodies at a protracted date from the time of wounding, observed 33 cases with more or less firm union between the two pleural layers. A large number of men discharged from the army on account of chest wounds are those who have had infected hæmothorax treated by aspiration, rib resection, and subsequent drainage. and the late symptoms are, on the whole, fairly constant. Pain, cough, and dyspnœa are very common, whilst the physical signs show contraction of the affected side, most marked in the cases with previous history of long-standing infected hæmothorax, dullness on percussion over the greater part of the affected side of the chest, diminished vocal fremitus and resonance, absence or great diminution in the volume of air entry, occasionally cogwheel breathing, and more rarely crepitations.

In every case with suspected pleural adhesions a screen examination and an X ray plate of the chest should be made. The movement of the diaphragm on the affected side will be found to be absent, or limited to a half or less of the normal respiratory excursion. The regular contour may be obliterated, or adhesions stretching from the lung to the parietal pleura may be seen; and the normal costodiaphragmatic sulcus may be, in fact usually is, obscured. The usual radioscopic signs of pulmonary collapse or deficient expansion may be noted.

Fresh attacks of acute pleurisy with effusion have not been detected in the clinical examination, or in the notes on the after-histories, nor have I seen a recurrence of hæmothorax. The occasional incidence, however, of pleural abscesses in the later stages of the disease shows that the possibility of intrapleural suppuration must always be considered in cases which are known to have had a septic hæmothorax at a previous date, and where the physical signs enumerated above are present, together with elevation of temperature and hyperæsthesia of the chest wall. Pieces of bone, fragments of metal, and decayed pieces of clothing have been found in the pleural cavity in different cases; a common place for them to be found is in the depths of the costo-diaphragmatic fold.

Sputum and hæmoptysis.—The sputum varies in quantity from a scanty expectoration in the morning to a continuous discharge during most of the day. 50 per cent. of the cases in this class complain of expectoration. Sometimes it is said to be greenish in colour and to take the form of pellets; at other times it is profuse, frothy, and constitutes the chief discomfort to the patient. Frequently it is purulent. Blood may appear in streaks or in clots mixed with a viscid mucus, and in such cases the degree of invalidism is usually marked. The patient carries with him the fear that he is developing consumption, and is not slow to ask advice on the matter. In Class III. hæmoptysis occurred in 10·8 per cent. of the total number of cases. The records show that hæmoptysis may be a late symptom in a variety of injuries and that it is not found only in cases with a retained foreign body. In two cases hæmoptysis has been present at intervals from the very first; in one case it did not appear until the third month of "convalescence."

It is to be clearly understood that by foreign body is meant metal or bone which was visible in the X ray examination. But in the cases with hæmoptysis, and where no foreign body was visible, it would be difficult to deny that a piece of clothing or a piece of necrosed bone or other foreign material is present. When one recollects that the smallest tuberculous lesion at an apex may result in a brisk and recurrent hæmoptysis, provided the necessary anatomical relations are fulfilled, it would not be hard to imagine that a small portion of foreign debris—e.g., a piece of fabric or a splinter of bone—might be responsible for many of the cases of late hæmoptysis, especially where the X ray examination failed to record positive evidence of an intrapulmonary lesion. In no case in this series has hæmoptysis been fatal, but in every case where it has been present the degree of disability has been well over 80 per cent. Usually, however, when a foreign body is present there are additional symptoms.

Asthma.—No single case of undoubted spasmodic asthma has occurred in my series. but others (e.g., Malespine)[4] have reported instances. Three patients have reported sudden attacks of difficulty in breathing occurring during the night, but there is no evidence to prove that these were true asthmatic seizures.

Emphysema.—Surgical emphysema is not found amongst the later complications of chest injuries. Compensatory emphysema is, however, a most frequent finding. It is observed in the lung on the opposite side from the original injury and in the neighbourhood of foreign bodies, and also in the upper lobe when the lower lobe of the same side is the seat of collapse, or is bound down by adhesions. It is a beneficial change, inasmuch as it is an attempt on the part of Nature to re-establish the normal respiratory mechanism. The physical signs may be very deceptive, as, for instance, in cases where the right side of the chest is much contracted from the result of an old empyema, and where the left lung has encroached beyond the sternum over the normal area of superficial cardiac dullness. In such cases the apex beat may be felt in the fourth interspace near the left sternal margin, and the right border of cardiac dullness may be outside the right nipple line. The displacement of the heart is due to collapse and adhesions on the right side, and not to any mechanical action on the part of the hypertrophied left lung. A good X ray plate will help one to interpret these signs, for the collapsed portion of lung shows up well by comparison with the emphysematous areas. The more efficient the compensatory emphysema the fewer are the subjective symptoms, and one of the objects of methodical respiratory gymnastics is to encourage the development of this condition.

Bronchitis.—The frequency of cough and spit is often, but not always, an indication of the amount and severity of existing bronchitis. Many old "chest" cases consider they must cough, until it is explained to them that there is nothing to be gained by repeated expulsive efforts carried out in this fashion. But bronchitis, as an isolated complication, must be rare. It is more usually found in association with a chronic pneumonic condition to be described later, or in cases complicated by influenza. When pleuritic adhesions are present signs of widespread bronchitis are rare, and do not add greatly to the disability already present. It is not uncommon to find a few râles confined to the small tubes at the base of the lung on the side of the original lesion, when the lower lobe is beginning to expand. These tend to disappear, however, with the gradual restoration of the lung to its former dimensions. The notes from the hospitals in England have emphasised this point.

Tuberculosis of the Lungs in Relation to Chest Injuries.

The study of gunshot wounds of the chest is one which offers a good field for the investigation of the relationship between trauma and phthisis. I hope, however, to deal with this question more fully elsewhere. Meanwhile it may be said that my experience differs in no way from that of Sargent,[5] Malespine,[4] Soltan and Alexander,[6] and others, who have found that the number of cases developing evidences of tuberculosis after chest wounds is exceedingly small. Out of a total number of 1782 cases of old chest wounds collected from the literature, definite signs of tuberculosis supervened in 5—i.e., 0·28 per cent. It is to be remembered, however, that there is no symptom or sign in phthisis which may not be simulated by a foreign body in the lung if an examination of the sputum be neglected. The presence of tubercle bacilli in the sputum is the only definite proof that the lesion is tuberculous. The syndrome of "chronic pneumonia" due to the presence of a foreign body in the lung may cause the greatest difficulty, for pain, cough, hæmoptysis, fever, emaciation, purulent sputum, restricted chest movement, diminished or increased vocal fremitus, and all the auscultatory signs so characteristic of advanced tuberculosis may be simulated by a foreign body lodged in an upper lobe.

The correct diagnosis of these cases is important, for there are now several cases on record where complete removal of the metal has resulted in complete recovery, and where the general condition also improved in a manner which would never have been contemplated had the patient been suffering from a similar degree of tuberculous mischief.

Chronic pneumonia.—Chronic pneumonia is a condition which has to be differentiated from pulmonary sclerosis on the one hand, and from pulmonary tuberculosis on the other. Whilst pulmonary sclerosis is the result of a more or less successful attempt on the part of Nature to substitute harmless tissue for the harmful, chronic pneumonia is the outcome of irritation due to the presence of a foreign body in the lung tissue. In 139 cases of chest wounds, there was positive X-ray evidence that a foreign body was present in 33. Following the above classification, 10 were returned to duty in the army in less than three months, 9 after three months, and 14 were discharged from the army as unfit for further service.

The late histories of the cases reveal that a foreign body may be present without symptoms directly due to its presence in the lung in 20·2 per cent. of the cases. When symptoms are present, however, they are remarkably uniform. Pain is constant and is referred to the side of the chest involved. Sometimes the patient is unable to lie on the side affected, and yet complains that if he lies on the sound side his sleep is disturbed by coughing. Evidence is lacking to show that pain or any other symptom is less severe when the upper lobe is involved, and any beneficial effects of "natural drainage" have not been detected in upper lobe lesions. The sputum is, as a rule, profuse, and may be limited to the early morning hours. Frequently it is purulent, and hæmoptysis is complained of in 18 per cent. of the cases. Large quantities of blood are not expectorated; more often blood is seen in streaks at intervals. It is usually viscid, but may resemble prune juice. According to some French observers,[7] the sputum may show cells containing iron pigment, even when it is not discoloured. Organisms indicative of secondary infection may be present (staphylococci, streptococci, pneumococci, &c.). The albumin reaction is positive. Dyspnœa appears to be very great in all cases and is the symptom which is most commonly complained of. Night sweats may prove troublesome.

I have not been fortunate enough to see many of those cases clinically in this stage of the illness, but from the observations I have made, together with the notes supplied to me by several doctors at home and more especially by Dr. Malespine of Lyon, the physical signs show the same uniformity which characterises the subjective symptoms. The movement of the chest is restricted on the affected side from apex to base; vocal fremitus is increased, and the percussion note is dull over the area affected. Beyond the immediate neighbourhood of the foreign body the note becomes less dull until, at the opposite extreme of the lung (apex or base), the note is merely impaired. The cardiac boundaries are within normal limits, unless there are also signs of complete collapse of the lower lobe and pleural adhesions on the same side as the foreign body, in which case there may be displacement of the heart to that side, with a corresponding alteration in the physical signs over the lower lobe (see above). Depending on the size and the anatomical situation of the foreign body, and also on the relative acuteness of the disease, the signs on auscultation vary, particularly in the presence or absence of adventitious sounds. In the more chronic localised cases the breath sound is tubular, with marked prolongation of expiration and whispering pectoriloquy may be heard, always most pronounced in the immediate neighbourhood of the enclosed foreign body. Friction may be heard. Adventitious sounds may be absent, but moist sounds of intrapulmonary origin, associated with the sibilant rhonchi over a diffuse area, are common in the acute cases. The "sound" side may give signs of bronchitis involving the larger tubes.

The physical signs of cavity formation may be present, but there has been no such case in my series. Elliott and Henry[8] have, however, noted the occasional presence of a lung cavity in post-mortem work. "It is lined with a definite pyogenic membrane, and may be traversed by unsupported pulmonary vessels running across it just as in a tuberculous cavity." Many of the patients are able to be up and about unless the degree of emaciation and weakness precludes this. Eight patients are quite unable to follow employment of any kind. There are no records available as to the course of the temperature in these cases. Four cases have been operated on so far in my series, and of these three are now able to follow employment of some kind or other. The similarity of this disease to phthisis, and some points in the differential diagnosis, have already been noted.

Bronchiectasis.—No case of bronchiectasis has come to my notice so far, but the pathology of pulmonary sclerosis following a retained innocent foreign body in the lung is to be remembered in this connexion.

Influenza.—Two cases, or 4·3 per cent. of the cases in Class III., give histories of having had an attack of influenza subsequent to the injury. This is to be compared with those similarly affected in Classes I. and II., 2·5 per cent. and 2·4 per cent. respectively. Death resulted in two cases—all in Class II. The course of the disease differed in no way from the usual type seen in men free from wounds, but in two cases at least it was responsible for a much protracted illness. The figures quoted would suggest that influenza is a more dangerous and frequent complication in those who have perforated wounds of the chest, with collapse of the lung due to effusion of blood into the pleura, than in those who had, at the time of injury, signs of collapse or contralateral collapse without penetrating wounds of the chest. The nature of the chest injury in the cases which died of broncho-pneumonia following influenza is indicated in the table below:—

Date of wound.	Nature of chest injury.	Date of death.
27/8/17	Bullet wound of right chest; penetrating: hæmothorax.	27/10/18
12/9/17	Penetrating wound of chest. Infected hæmothorax. Rib resection. Recovery.	7/11/18

Soltan and Alexander[4] have described a case of septic broncho-pneumonia as a late complication following general anæsthesia for the removal of a foreign body which had traversed the lung and had become localised in the abdomen. It was assumed that the patient had aspirated septic material from his left lung into his right during the deep respiratory movements coincident with the induction of anæsthesia. An empyema followed.

Abscess and gangrene of the lung.—How many of the cases with foreign bodies in the lung ultimately develop an abscess or gangrenous condition cannot be stated. It is not possible to say anything of the incidence of these two conditions from the notes at my disposal. Clinically, they are seen very rarely. It is much more common for a foreign body to give rise to symptoms of "chronic pneumonia," described above, than to the classical picture of pulmonary abscess. Denéchau[1] has seen two cases of lung abscess bursting through the chest wall 16 months after the date of injury. Sir W. Hale White[9] has also laid stress on the rarity of abscess and gangrene of the lung.

Pneumothorax, as a late complication of chest injuries, did not occur once in my series. Cases have, however, been reported in the later months, due, it is said, to penetration of the pleura by a spicule of bone growing from the inner aspect of a fractured rib (Sargent).[10]

Rare complications.—Little need be said about the lesions in the heart or blood-vessels resulting from old gunshot wounds of the chest. They are not late complications, but are, strictly speaking, the late manifestation of early complications. A case of pericarditis has been recorded by Rose Bradford, who says that grazing wounds of the heart are probably the cause of pericardial friction. Cardiac arrhythmia, or continual tachycardia, with dyspnœa on the slightest exertion, is a syndrome elaborated by Emile Sargent.[11] The physical examination of the chest may be negative, or a foreign body may be seen on screen examination in the neighbourhood of the large vessels at the base of the heart, or in the region of the cardiac plexus or phrenic nerve.

Dr. Loch returns me notes of a case which developed exophthalmic goitre in the fourth month of illness; it is of interest to read of similar cases from the clinique of Sargent, who attributes the condition to sympathetic irritation. Pseudo-ptosis and contraction of the pupil, but with no vaso-motor phenomena, have supervened in one case which was under my care in September, 1917. There is no condition analogous to the "spes phthisicæ" in the chronic invalidism associated with gunshot wounds of the chest. In fact, many of the cases show definite evidences of neurosis, as has been pointed out previously. In the letters from some of the patients the personal concern, especially in cases of hæmoptysis due to a foreign body which the patient knows is in his chest, is very pronounced, and may be an important factor in bringing about much of the general weakness and debility.

One case of hemiplegia has been recorded by Phocas,[12] and convulsive attacks are a feature of one case of my series. I can obtain no further information as to the exact nature of these "fits." Piery[13] has reported one case where death occurred in a fit, and yet another case is quoted by Leriche.[14]

Summary.

The following summary is based on the study of the correlation between the early clinical symptoms and signs and the late complications of chest wounds.

Wounds of the chest wall.—Wounds involving the muscles of the shoulder-girdle give rise to much disability in the free movements of the arms. Fracture of the scapula is specially associated with impairment of function. If there is no intrapulmonary or intrapleural damage at the time of injury the men return to duty in the army in one to three months and are fit for service abroad.

Collapse and contralateral collapse.—This was found in 25 cases in the entire series. In 9 cases collapse occurred without perforation of the chest. Contralateral collapse, partial or total, was found in 10 cases. There is no evidence to prove that collapse, *per se*, is responsible for any of the after-effects of gunshot wounds of the chest, and in a study of the influenza cases infection is not found specially in cases which showed this phenomenon. The notes from the home hospitals show that in every case where the condition had been suspected in France no physical signs were present over the lung in question at the time of discharge from hospital in England. It is well known that even in the "acute" stages of collapse or contralateral collapse, localised or massive, there may be no symptoms beyond slight dyspnœa and cough.

Hæmothorax (sterile).—Seventy-three cases come under this heading. If the effusion has been small there may be no physical signs in the chest three months after injury. When the effusion is large, however, there may be evidences on the objective side of limitation of movement of the lung on the same side and, on the subjective side, of dyspnœa on exertion and dull aching pain, probably due to fibrinous adhesions at the lower margin of the lung. Every case was able to return to duty in the army in two or three months, but 37 cases which had large effusions aspirated were only fit for light duty at home after an illness lasting three to five months.

Hæmothorax (infected); rib not resected.—Five cases showed signs of infection—e.g., 1 with encapsulated diplococci, 1 with a coliform organism, 2 with staphylococci, and 1 with a Gram-positive streptococcus. In none of these was rib resection performed, the guiding principle being that the general condition, plus the physical signs, were of more value in coming to a decision in favour of operative interference than absolute reliance on the temperature chart and bacteriological examination. In one case was operation (including aspiration) necessary in England. One was returned to duty in the army within three months; two returned to duty in the army after three months, and one was discharged from the army as permanently unfit for further service.

Fortescue-Brickdale's[2] results show that aspiration of nine specially selected cases infected with staphylococci, streptococci, Gram-negative diplococci, coliform organisms, and anaerobes resulted in return to duty within a period of four months from the time of wounding.

Hæmothorax (infected): rib resected.—The total number of cases in my series is 17. These may be subdivided into those which had a foreign body (visible to X ray examination) in the chest, and those with no foreign body. The final results are tabulated below.

Foreign body present in lung or pleura	4 cases.
No foreign body	13 ,,

Cases with no foreign body in lung or pleura (13).

Number fit for duty within 3 months	0
,, ,, ,, 6 ,, ...	2
,, discharged from army	11

Of those discharged from army:

Number unable to work, still in hospital (October, 1919)...	3
,, able to do light duties	2
,, fit and well	2
Deaths	4

Cases with foreign body in lung or pleura (retained) (4).

Number fit for duty within 3 months	0
,, ,, ,, 6 ,, ...	0
,, discharged from army	3

Of those discharged from army:

Number able to work, still in hospital (October, 1919) ...	2
,, able to do light duties	0
,, fit and well	1
Deaths	1

The disability in old cases of infected hæmothorax is almost always the result of pleural adhesions. The large number of cases so affected makes it imperative that something should be done to help them, and Sir Berkeley Moynihan[15] has already found that the breaking down of adhesions in cases where a foreign body is retained in the lung results in great relief. It would be well to emphasise this point in the light of statistical results relating to morbidity.

The figures given above may be compared with Colonel T. R. Elliott's,[16] which show that cases of septic hæmothorax who survived, "thanks to early detection and adequate drainage," were under hospital treatment for more than twice as long as the sterile hæmothorax cases, and one-third of them were ultimately invalided out of the service.

There is a small number of cases who had evidences of a foreign body in the lung and yet who had no physical signs of infected hæmothorax or septic pneumonia. The total number is 26. Of these, 9 are well and able to go on with army work after an illness of three months; 7 are capable of doing light duties in civil life; 10 are discharged from the army as permanently unfit.

Deaths.—It may be of interest to give a summary of the deaths which have been recorded since the investigation was begun:—

Name.	Date of wound.	Nature of original lesion.	Cause and date of death.
Gnr. S.	30/7/17	Non-penetrating wound of chest. Right-sided hæmothorax. Aspirated.	Cirrhosis of liver, 24/11/18.
Pte. McP.	22/8/17	Penetrating wound of chest. Fracture of scapula. Small hæmothorax.	Killed on 5/5/18.
Cpl. G.	27/8/17	Penetrating wound of chest. Sterile hæmothorax.	Influenzal bronchopneumonia, 27/10/18
L.-Cpl. B.	12/9/17	Penetrating wound of chest. Infected hæmothorax. Rib excised. Recovery.	Ditto. 7/11/18.

(Continued at foot of next page.)

A MODIFIED OPERATION FOR SCROTAL VARICOCELE,

TOGETHER WITH A LOCAL ANÆSTHETIC TECHNIQUE.

BY SAMUEL R. MEAKER, B.A., M.D. HARV., M.R.C S. ENG.,
LATE INTERNE, BOSTON CITY HOSPITAL.

IN discussing the operation for varicocele the text-books of surgery for the most part content themselves with a description of the common procedure—a resection of veins and a tying together of their ligatured ends. The literature of the subject, however, presents an extraordinary number of variations from this usual technique. During the last three years I have had under my care a long series of varicocele cases. My only excuse for adding to an already large literature is that I have been able to obtain more satisfactory results by the method about to be described than by any other.

Nearly all the operations that have been devised involve a twofold procedure: first, a removal of most of the varicosed veins; and secondly, a correction of the testicular ptosis by some form of suspension or support. Of these two steps there is no doubt that the second is the more important. One has only to consider how perfectly the symptoms (other than psychic) of varicocele are relieved by a properly fitted suspensory in order to realise the efficacy of support alone. The "conservative" operation of Del Valle omits vein-resection altogether. My view is that the removal of veins is never necessary for the relief of physical symptoms provided the testicle be adequately suspended. With large varicoceles it may be advisable for cosmetic reasons, particularly if psychic symptoms are prominent, or if the patient wishes to pass into one of the public services. Even in such cases correction of the orchidoptosis alone will bring about a considerable diminution in the size of the varicocele. If one depends primarily upon the resection of veins to effect a cure, then one must steer a narrow and difficult course between the Scylla of removing too little, and the Charybdis of taking away too much. In the first case relief will be incomplete or temporary only, while in the second circulatory disturbances in the testicle, of greater or less severity, inevitably follow.

Methods of Suspending the Testicle.

Numerous methods of suspending and supporting the testicle have been described. They may be grouped under five headings: (1) Suspension by resecting or otherwise shortening the pampiniform plexus. Some of these techniques exhibit considerable ingenuity. For example, Del Valle's operation (already referred to) causes the veins to pass over a bridge of tissue formed from the external oblique aponeurosis. (2) Suspension by raising a flap of tunica vaginalis and suturing it to the external inguinal ring (Parona's operation). (3) Suspension by raising a flap of external oblique aponeurosis and suturing it to the gubernaculum testis (Frank's operation). (4) Support by partial resection of the scrotum. (5) Suspension by shortening the cremaster.

It appears to me that in most cases valid objections attach to all except the last of these methods. The natural support of the testicle is not the scrotum, or the venous plexus of the cord, or any other structure except the tube of cremasteric muscle and fascia. As a general rule, natural means are preferable to artificial, provided that we can accomplish our purpose by them. Moreover, methods (2), (3), and (4) are unnecessarily elaborate for the ordinary case, while the first method is likely to be inefficient. Veins, and especially varicosed veins, are almost the last structures that one should select to bear strain and tension.

The general idea of shortening the cremaster for varicocele is by no means new. Mori described such a method in 1907 and Carta in the year following. Mr. Philip Turner[1] gives his technique, which consists in making a longitudinal incision through cremaster to gain access to the veins, and then, after vein-resection, sewing it up transversely. This method does admirably for cases where the testicular ptosis is slight, but in more severe cases does not give sufficient shortening.

It sometimes happens with large varicoceles of long standing that the cremaster is thinned and its muscular elements are atrophied. In such patients I believe that Parona's operation gives the best results. In the majority of cases, however, a muscular cremaster is found which is quite capable, after being shortened, of fulfilling its proper function.

The Author's Operation.

The operation which I ordinarily use is done as follows: An incision about 1½ inches long is made over the cord just below the external inguinal ring, and is deepened until the external spermatic (intercolumnar) fascia is seen. This is picked up with two pairs of dissecting forceps and nicked between them. It readily lifts up from the underlying cremaster, but there is no advantage in separating the two layers further. The cremaster is next picked up and nicked in a similar manner. The cut edge of the external spermatic fascia and that of the cremaster are now clipped together with a Spencer Wells forceps on each side of the nick, and the incision in these structures is extended longitudinally up and down for an inch or more each way. A little traction by an assistant on the Spencer Wells forceps will enable one easily to slit the cremaster for three inches through a skin incision of half that length. The assistant should now spread the slit open by using the forceps as retractors, while the surgeon, with his finger or a blunt dissector, gently separates the cremasteric tube all around and for a length of at least two inches from the elements of the cord in their investment of internal spermatic (infundibuliform) fascia. This separation is very easily effected except at the back, where a little force or a touch of the scalpel may be necessary. If it is thought desirable to resect veins, it may be done at this stage. I rarely do more than to remove the three or four worst, tying each vein separately with the finest catgut, and making no attempt to bring the ligated ends together. The next step is the shortening of the cremaster. This is accomplished by eight interrupted sutures of fine catgut, introduced longitudinally into the muscle, so that when they are tied the cremaster is puckered. Each suture picks up the muscle at three or more points; the distance between the highest and the lowest of these represents the amount of shortening that is obtained after tying. One should aim to bring the top of the testicle to the level of the root of the penis. The four sutures in the posterior half of the cremasteric tube are introduced from within, the cord being retracted first to one side and then to the other. They should pick up only the muscle, and should lie exactly in the direction of the long axis of the tube (Fig. 1). Unless these precautions are observed, there is some danger of including the genital branch of the genito-crural nerve. If the cremasteric innervation is destroyed, the whole purpose of the operation is defeated. Before these posterior stitches are tied, the edges of the incision in the tube are approximated by the Spencer Wells forceps, and the four anterior sutures are introduced from without, including intercolumnar fascia as well as cremaster (Fig. 2). The incision is now spread open again and the posterior sutures are tied. Next, one removes the forceps and ties the anterior stitches. An additional external stitch may be inserted directly over

---

[1] THE LANCET, 1917, i., 759.

(Continued from preceding page.)

References.—1. Denéchau: Plaies de la Plèvre et du Poumon, par R. Grégoire et A. Courcoux, Masson et Cie., 1917, p. 184. 2. Fortescue-Brickdale: Gunshot Wounds of the Chest, Quar. Jour. Med., vol. ii., No. 43, April, 1918. 3. Robineau: Plaies de la Plèvre et du Poumon, Grégoire et Courcoux, Masson et Cie., 1917, p. 189. 4. Malespine, E.: Les Séquelles des Plaies de Guerre du Poumon, Lyon, 1917. 5. Sargent, E.: La Tuberculose chez les Soldats à la suite des traumatismes du Thorax, Jour. de Méd. et de Chir. Pratiques, July 25th, 1916. 6. Soltan and Alexander: On Gunshot Wounds of the Chest, as seen at a Base Hospital in France, Quar. Jour. Med., vol. x., No. 40, July, 1917. 7. Martin, A.: L'Examen histochimique des crachets dans les vieilles blessures du Thorax, Nancy (Thesis), December, 1916 8. Elliott and Henry: The Morbid Anatomy of Wounds of the Thorax, Jour. R.A.M.C., vol. xxvii., No. 5, p. 525. 9. Hale White: THE LANCET, 1915, vol. ii., p. 1233. 10. Sargent, E.: Soc. méd. des Hôpitaux June 18th, 1915. 11. Sargent, E.: Troubles fonctionnels cardio-pulmonaires imputables à la lésion du plexus cardiaque et des nerfs du médiastin chez les blessès de poitrine, Acad. de Méd., June 12th, 1918. 12. Phocas: Soc. Chir., Feb. 10th, 1915. 13. Piery: Mort subite par accident nerveux d'origine pleurale, Lyon Médicale, April, 1917. 14. Leriche: Bull. Soc. Chir., 1914, p. 324. 15. Moynihan, Sir Berkeley: Discussion on Gunshot Wounds of the Chest, Brit. Med. Assoc., April, 1919. 16. Elliott, T. R.: Some Statistical Results of Treatment of Chest Wounds, THE LANCET, Sept. 8th, 1917

the cremasteric incision. A little care in infolding the puckered area will enable one to avoid a "bunchy" appearance and to leave a smooth surface (Fig. 3). Suture of the skin in the ordinary way completes the operation.

Advantages of the Operation.

The advantages claimed for this operation are the following: 1. It can be as easily and quickly done as the common operation for varicocele. 2. It is based on a sound anatomical principle. 3. It gives adequate and permanent suspension to the testicle, which is essential to a radical cure of the condition. I have had the opportunity of examining some of my patients after several months of active military service subsequent to the operation. In no case had any degree of the old ptosis returned, and all were free from symptoms. 4. There is little or none of that plastic inflammatory thickening at the point of operation which so commonly occurs in cases done by the old method. 5. The mobility of the testicle is not restricted by the formation of adhesions at this point. 6. The operation is not followed by congestion of the testicle or any other form of circulatory disturbance. Convalescence is rapid; the patient gets up in a week, and permanently discards his suspensory in a fortnight.

FIG. 1.

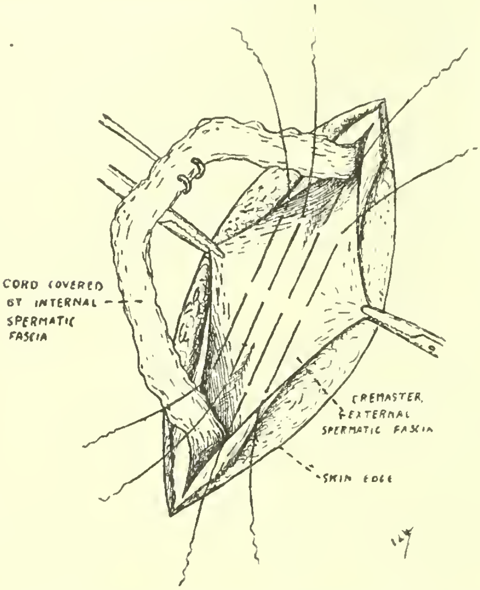
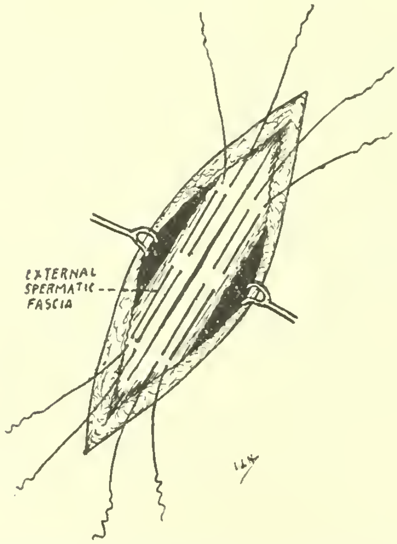

CORD COVERED BY INTERNAL SPERMATIC FASCIA
CREMASTER & EXTERNAL SPERMATIC FASCIA
SKIN EDGE

FIG. 2.



Preliminary Hypodermic Medication.

The radical cure of varicocele can be done very satisfactorily under novocaine anæsthesia. It is my custom to precede all local anæsthetic operations with two doses of morphine and scopolamine. The object of this hypodermic medication is is no sense to combat pain or to gloss over an insufficient local technique, but simply to produce in the patient a calm and easy mental attitude rather than that state of worry and tension which may make even a painless operation an acutely unpleasant experience. The size of the doses must be regulated for the individual case, according to (1) the age and weight of the patient; (2) the magnitude of the proposed operation; and (3) the patient's temperament. The second dose can often be most nicely estimated after carefully observing the effect of the first. For an average varicocele case the following would be a suitable dosage:—

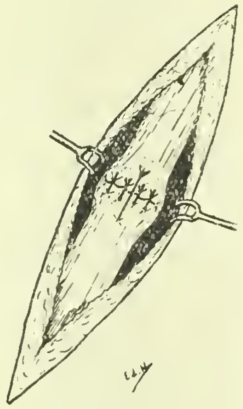
Morphine, gr. $\frac{1}{4}$ ... ... Scopolamine, gr. 1/150	Two hours before operation.
Morphine, gr. $\frac{1}{6}$ ... ... Scopolamine, gr. 1/200	One hour before operation.

It is desirable to have screens around the bed from the time of the first injection, and to forbid all talking and unnecessary noise in the theatre while the operation is in progress. Questions such as "Does it hurt?" and "Do you feel that?" do no good, and are likely to act unfavourably by suggestion. Scopolamine produces a dry mouth, and patients are sometimes distinctly uncomfortable from this cause; in such cases water may be given.

Technique of Novocaine Anæsthesia.

The novocaine technique consists of two injections, of which the first is done as follows: The cord should be picked up through the skin with the left thumb and forefinger at its point of exit from the external ring. A drop of novocaine is injected into the skin over the cord as high up as possible. Before this is done the patient should be warned that he is about to feel a sharp "pin-prick." Next, a fine needle, about 1½ inches long, should be passed, detached from its syringe, through the anæsthetised point into the centre of the cord. There is no danger of wounding the vas, as it readily rolls away from the point of the needle. If a vein should be punctured (this does not often happen) the appearance of blood at once makes it evident. Four cubic centimetres of a 2 per cent. solution of novocaine are now gently injected into the cord. A larger amount is not necessary, and may produce sufficient œdema to interfere with the neatness of the operation. In about five minutes a conductive anæsthesia of the scrotal contents on the injected side will have developed. In the meantime one makes the second injection—an ordinary infiltration of the skin along the line of incision with the same solution, starting at the point through which the first injection was made. This method of anæsthesia is suitable also for orchidectomy, epididymotomy, the radical cure of hydrocele, and other intrascrotal operations.

FIG. 3.



I wish to express my thanks for the accompanying drawings to Lieutenant C. Langton Hewer, R.A.M.C. (S.R.), formerly my anæsthetist at the Military Hospital, Woking.

CLERICAL, MEDICAL, AND GENERAL LIFE ASSURANCE SOCIETY.—The annual report of this society for the year ending June 30th, 1919, records a satisfactory year of working. The new life business exceeded anything in the past 95 years of the existence of the society, and the total premium income was £496,697, an increase of over £20,000. Claims by death, including £29,542 directly due to the war, amounted to £367,586 in all. The expenses of management, after allowing for the cost of annuity business, represented £14 5*s*. 8*d*. per cent. of the premium income, as compared with £12 18*s*. 7*d*. per cent. in the previous year.

NOTES ON
AN INFLUENZA EPIDEMIC
AS IT AFFECTED PORTLAND PRISON AND QUARTERS.

BY M. HAMBLIN SMITH, M.A. CANTAB., M.D. DURH., M.R.C.S., L.R.C.P. LOND.,
MEDICAL OFFICER, H.M. PRISON, PORTLAND;
AND
M. J. SAUNDERS, L.R.C.P. & S. IREL.,
ACTING DEPUTY MEDICAL OFFICER, H.M. PRISON, PORTLAND.

THE following statistics are presented in the belief that some interest will be created by information concerning the influenza epidemic as it affected a particular community during October and November, 1918. Portland Prison and its official quarters occupy a position in the S.E. corner of the island, on high ground immediately above the sea. The buildings are distinctly separated from other houses occupied by the general population, but so far as the quarters are concerned there is free communication with the outer world, for the children attend one of the council schools, where they come into contact with those from other localities, and many of the adolescents are daily occupied in surrounding districts. A community of this kind presents special facilities for statistical purposes, for practically every case of disease comes under the notice of the medical officers, and figures can be obtained with a considerable degree of certainty.

Housing and Population.

The prison quarters consist of 139 houses, mainly set in parallel rows. At the time of the epidemic 15 of these houses were unoccupied. The remaining 124 houses were inhabited by 475 persons, or less than 4 per house. There were in addition 17 officers who were living in cubicles within the prison walls at the time and sharing a common mess-room; we have included these officers in the table below. The prison and quarters have their own drainage system and are kept in the best possible sanitary condition. The prison officers are, on entry, a carefully selected body of men, and their hours of duty are regular; whether their families are more healthy than the average can only be a matter of conjecture. Owing to retirement on attaining the age-limit there are very few persons over 60 years of age living in the quarters, but, on the other hand, many of the younger officers are on active service. Many of the officers and prisoners are much exposed to the weather while at work. A certain number of officers with their families live in private houses outside the quarters, and are not included in our statistics.

Distribution of Infection.

The following table shows the age and sex distribution among the 492 persons forming the community, and gives the approximate percentage of each age group attacked:—

A = Attacked. B = Escaped. C = Percentage attacked.

—	Males.			Females.			Total.		
	A.	B.	C.	A.	B.	C.	A.	B.	C.
21 years and over ...	25	94	21·0	44	103	30·0	69	197	25·9
14 to 21 years	13	10	56·5	24	19	55 8	37	29	56·0
5 to 14 years	41	26	61·2	38	16	73·0	79	42	65·3
Under 5 years	8	9	47·0	6	16	27·0	14	25	36·0
—	87	139	38·5	112	154	42·1	199	293	40·4

The most striking feature of the epidemic displayed in this table is the exceedingly large proportion of the community attacked—namely, 40·4 per cent.; but it will be seen that this figure mainly represents cases among persons under 21 years, although they constitute less than half the population. In explanation of such a high incidence among the young people we have formed the opinion that school infection is primarily responsible, and we consider this factor to be of sufficient importance to merit discussion under a separate heading. Meanwhile, in relation to the subject of distribution, we would mention that only two of the officers living in cubicles were attacked, and they were promptly isolated in the prison hospital.

Schools and Spread of Infection.

It is significant that the first cases to appear in the quarters were among children who were attending school, and an examination of the totals in the above table reveals something of interest in connexion with this subject. It will be observed that 65·3 per cent. of all school children in the community were affected, and that out of the 199 cases of infection that occurred in the quarters school children furnished 79 cases, or 39·5 per cent. The following table, showing the age distribution of these 199 cases of infection, renders this point more clear:—

	Per cent.
21 years and over	34·5
14 to 21 years	18·5
5 to 14 years (school age)	39·5
5 years and under	7·5

Such a high percentage of infections among school children could not reasonably be explained on the grounds that they are more susceptible than others not of school age; and as in this case they constitute only 24 per cent. of the community it cannot be attributed to anything under this head. It will, we think, be now understood what an enormous part can be played by schools in time of epidemic. In the one we are considering, our observations revealed to us that in the great majority of houses the infection first attacked the school children, and then spread to other members of the household. Unfortunately, owing to the rapidity of spread, most of the children were infected before school closure could be effected.

Cases of Infection among the Prisoners.

At the time of the epidemic there were 270 convicts in the prison and 8 of these were attacked, all from different working parties. In two of these cases the source of infection (from an officer) was clear and definite, and one of these two cases appeared to have infected four other prisoners who sat near him during chapel service. In the remaining two cases the source of infection was obscure. These cases were promptly isolated and the chapel services suspended. No further cases appeared.

Incubation period.—In one of the cases which occurred among the prisoners we could definitely fix the incubation period as being not less than two or more than three days.

Clinical Features and Complications.

In the early and concluding stages of the epidemic the cases were mild and uncomplicated, but soon after its commencement they became severe and were characterised by sudden onset, with intense headache and pains in the back and limbs. The temperature usually ranged between 101° and 103° F., and in the worst cases reached 104°; in the uncomplicated cases it generally remained up for four or five days and then began to fall by lysis. Severe catarrhal symptoms were present in all these cases. Among the complications hæmorrhages were very frequent, epistaxis being the usual form, with rectal hæmorrhage a good second; hæmoptysis occurred in two cases, and hæmatemesis in one. There were six cases of broncho-pneumonia, and only one of lobar pneumonia.

Mortality.

No deaths occurred in the prison or quarters, and this statement applies also to those officers and families living outside. The mortality among the general population of the island was distinctly high, especially among the young adults, and so far as our fortunate experience in this respect is more than a coincidence we venture to ascribe it to: (1) The excellent housing conditions and entire absence of overcrowding; and (2) the ability of the sufferers, with the exception of mothers of families, to take to their beds at the first signs of illness, and remain there until convalescent.

Treatment.

Although this must be largely empirical, we pin our faith to sod. salicyl. with ipecac. and spt. amm. aromat. during the pyrexial stage, and tonics during convalescence. In a few cases of the great prostration following the attack we were struck by the very good results which appeared to follow the administration of polyglandular preparations. Complications were treated as they arose.

Evidence of Protection Offered by Previous Attacks.

We had only 23 cases during the preceding summer epidemic, and ten of these were again attacked. One of these ten cases developed pneumonia, and two others were attacked twice in this (October-November) epidemic, an interval of about three weeks occurring between each attack. On the other hand, these two and the remaining seven cases were mild, and occurred in households where the other victims developed a severe form of the disease. As a further instance which might prove helpful in relation to this question, we would mention the case of a household of six persons, four of whom developed the disease in a rather severe form; the remaining two, who were attacked during the summer epidemic and were the only members of the family affected at that time, escaped entirely.

Conclusions.

Our conclusions are few, but so far as our experience goes they are, we venture to think, soundly based.

1. Prompt isolation, when it can be effected, as in the cases which occurred among the prisoners, is undoubtedly the best means at our disposal for preventing spread. And as the result of isolation is evidence that the disease is spread by personal contact, all persons coming into contact with cases, whether isolated or not, ought to adopt some means of personal protection. For this purpose the wearing of masks would appear to be very effective.

2. At the first warning of an epidemic schools and other places of congregation ought to be promptly closed.

3. With regard to the question of protection being offered by previous attacks of the disease, the evidence at our disposal would seem to justify us in forming the conclusion that a previous attack does confer in most cases a certain amount of protection.

4. There was strongly impressed upon us the urgent necessity of organising some service of domestic help (quite apart from actual nursing) in all cases where the mother of the family is stricken with the disease. It is sad to see the mother suffering with, or convalescent from influenza (and our remarks, of course, apply to other diseases also), but compelled to attend to the needs of her young family, simply because there is no one else to do the work. We venture to think that some of the feminine activity and organising power, which is now being released from war services, might well be turned in this most essential direction.

We are indebted to the Directors of Convict Prisons for permission to publish this paper.

ON MYALGIC PAINS.

BY J. MADISON TAYLOR, A.B., M.D.,
PROFESSOR OF APPLIED THERAPEUTICS, TEMPLE UNIVERSITY, MEDICAL DEPARTMENT, PHILADELPHIA, PA.

THE phenomena of disordered states of muscles or fibrous structures constitute one of the most prevalent and puzzling causes for frank or obscure distresses or disablements. They occur in those otherwise in excellent health or while convalescing from almost any form of acute or chronic disease or injury. Fibromyositis—which is perhaps the best name offered—is often recognised as such, or may be so cunningly interwoven with other factors as to escape separate blame or suitable treatment per se.

Oftentimes the most carefully devised remediation for associated or original conditions proves inadequate to relieve this feature. Hence the experience of one on whose attention it has been forced by personal suffering, and who therefore sought diligently for means of relieving himself and clients, may prove helpful.

I.—*Fibromyositis and its Disabilities.*

Fibromyositis is one of the most common, disabling and often distressing of ailments, appearing suddenly and insidiously, remittingly or intermittently. It forms the basis of, or clinical background for, a vast variety of morbid states both physical and mental. The condition is not always painful, nor even tender, but capable on aggravation of exploding into torture and mental anguish. It obscures and befogs the clinical issue so often as to act as a serious handicap.

Among the distresses or disabilities referable to fibromyositis are: headaches, backaches, lamenesses, restriction of movement (often not recognised as pain states), deformations, faulty attitudes, intestinal disorders, even appendicitis. They often accompany or follow, seeming to be the effects of, acute disorders of varied origins. Sometimes there is osteophytic proliferations with decalcification of vertebræ, but even then treatment can effect cure. Referred pains, while due to particular causes, are many times aggravated by fibromyositis.

The means of cure lies in two chief directions, dietetic or metabolic regulation, and the resources of reconstructive or bio-kinetic measures. Of these, the latter are most prolific of relief and the former for removing the underlying causes and staying progress. Indeed, if a fibromyositis has progressed far enough there is only one means of radical emancipation—viz., by revision of conduct through reconstructive personal hygiene. Especial attention should be focussed upon the skin and muscles. My experience leads me to believe that without a thorough marshalling of reconstructive, especially manipulative, measures rheumatic states will persist or recur. Sometimes counter-irritation is necessary. The colon should be irrigated with much water, 4 or 6 gallons, in and out, and in and out again, till the whole gut is clean, repeated every other day for two weeks. To this it is well to add sodium chloride and sodium bicarbonate daily for four or five days.

So common a condition deserves attention for the reason that, in spite of its universality, it too often escapes recognition; many contradictory conceptions obtain as to its nature; many errors as to phenomena, progress, significance; also as to economic means for relief and cure.

Diagnosis, obscure in many definite clinical entities, frequently reveals the coexistence of a fibromyositis. Whether the derangements exhibited be sensory, static, or inflammatory, no treatment for the overshadowing disorder will be successful until the accompanying fibromyositis process is dealt with both as a possible source of origin of the pain and as a contributing cause of distress and disability. Tuberculous lesions often exhibit reflex or spastic muscle densities, as pointed out by Pottenger. These are, in my opinion, fibromyositic in character. So of diverse sorts of lamenesses, whatsoever other condition be present.

A fibromyositis is often the essential process when symptoms point reasonably toward more serious diseases or disorders. A fibromyositis may be acute, and, when prolonged, may be accompanied by moderate febrile reaction, so large and complex are the sources or origins. It is then obvious enough, as in a sharp attack of myalgia of the lumbar muscles, the scapulæ, the pectorals, muscles of the scalp, neck, and the like. The frequently recurring tenderness of the erector spinæ muscles, indicating irritation in the rami, are, in my opinion, of the nature of fibromyositis. To be sure, they point to irritations in the spinal subcentres, and these must be relieved in order to cure associated miseries or diseases.

Fortunately, manipulative treatments work both ways, not only dissipating the local tenderness but also reflexly stimulating the vaso-motor action in the subcentres, and thereby contributing to the nutrition in the disordered peripheral locality.

II.—*The Differentiation between Neuralgia and Myalgia.*

We should differentiate between neuralgia and myalgia. In neuralgia painful points are found in the nerve, at outlet or in continuity; where nerves emerge from bone especially. After being relieved there is no further local tenderness. In myalgia pain is located in the body of the muscle, especially at its thinnest part, where most expanded, and is always distributed over a larger area than is neuralgia; also tenderness persists between attacks. A zone of hyperæsthesia or hyperalgesia exists which does not parallel the nerves. Myalgic points or areas correspond to where muscle blends into fibrous structure or tendon. Myalgia often simulates angina pectoris (Peritz), acute gastritis, especially when the belly is distended with gas. Also it simulates cholecystitis, appendicitis, sacro-iliac disorder. A "sciatica" is often triumphantly detected, which in reality consists of fibromyositis in the muscles of the gluteal region, especially of the brim of the pelvis; also of the small lumbar attachments. Many lamenesses arise in muscle tenderness in the glutei and their fibrous attachments, only to be detected by expert finger explorations; they are curable by persistent manipulation readily enough.

Induration, infiltrations, thickenings are exhibited, giving evidence of chronic myositis at points of lodgment. Certain stages are shown: (1) swelling, elasticity, sometimes glossiness of skin; (2) bogginess, œdematous states, a doughy feeling; (3) densities, rigidities, spasm, passing with age into ligament-like cords, which are tender to touch. These cord-like, stringy structures are characteristic of fibromyositis. They also are evidences of disturbed states (reflex spasm from a peripheral lesion) in paravertebral structures. In late maturity certain muscle fibres are replaced by connective tissue, and in these tendernesses are common, due to compressions of sensory nerve terminals when movements are made.

The two earlier stages are most sensitive. They likewise come and go—i.e., are less or more severe—but rarely intermit entirely so long as the condition lasts. In older forms of fibromyositis passive tenderness, as well as active sensitiveness, the organism becomes so adjusted that the sensory responsiveness sinks below the threshold of consciousness; hence is operative in causing vague, unidentified distress, weariness, sleeplessness, achiness, infirmity, atrophy, decrepitude, and mental depression or confusion. There may be no active sensory response; the awareness may be subordinated and only brought out by carefully directed tactile explorations, or by movements active or passive, and especially when fatigue or exhaustion coexists.

Favourite seats of myositic thickenings are the head (scalp), neck, in and about the knee, hip, shoulder, and ankles, wherever muscles overlap; inside of the elbow; insertion of the pectoralis major, the latissimus dorsi into humerus, the intercostals, of the abdominal wall, the crest of the ilia, the glutei. Indeed, the buttocks are a fertile ground of fibromyositic complexities variously named, but always hindering locomotion.

III.—*Diagnosis and Treatment.*

The means of diagnosing latent forms of fibromyositis is largely by expert tactile apperception (an educated finger-tip). The relief and cure, as said, lie in two directions—digestive regulation and the varied resources of reconstructive measures. Especially useful is heat, pressure, manipulation, separation of fibres by hand, or counter-irritation by blistering or cautery. Indeed, if the condition has lasted long and complications have progressed far enough there is only one reliable means of emancipation—viz., through the resources of revised conduct, personal hygiene, improving habits, notably by attention to skin- and muscle-training, passive and active.

The point I wish to emphasise here is that whatsoever be the pathologic process underlying most protracted or subacute maladies there frequently co-exists forms and degrees of fibromyositis complicating matters and producing distress or disablement or both, which demands relief per se. When once the fact becomes realised and the main diagnosis is correct, but there is superadded another cause for the pain or disability and the clinician devotes his attention equally to both, then his duty to the patient is by way of fulfilment.

It is a common experience with me to meet a case in whom dissatisfaction has arisen with former sound service, conditions which, however, so puzzled the physician that he confidently asserted the original one persisted. As a graphic example:—

> A vigorous young man consulted me for what he said his physician, an admirable exponent of the best ability, told him was a pleurisy, which at any moment might grow worse, and that it was dangerous for him to work. The man, feeling absolutely well except for a pain on taking a long breath, and sadly needing to earn money to live, determined to seek other advice. There certainly was no pleurisy, and there certainly was a point of fibromyositis along a rib and a local tenderness. This I promptly dissipated. He could then breathe with no pain, and returned to work immediately.
>
> Another, a master mason, whom the foreman on some repairs on my house wished to work on the job. This man rested under the medical ban of a subacute appendicitis for 10 months. This proved to be merely fibromyositis of the rectus abdominalis, and disappeared overnight under iodine treatment and strapping. He did his full work from that moment.

The most puzzling problems are those in which an obvious fibromyositis refuses to be cured, although much relieved, and other obscure phenomena persist. In most such instances there may be assumed a chronic irritation in the cell bodies of the cord from which the vaso-motor nerves arise which supply the distressed part. The form is often a protective spasm, usually detectable as a cord-like mass in paravertebral muscles. A permanent cure may be effected by freezing the spinal area two or three times, or by exerting some powerful mechanical stimulus to the part whereby adhesions are freed and the nerve outlets (gray rami) resume their functions unhindered.

Of the many forms of reliable treatment some are described later. In any event some expert (really expert) manipulation serves as an efficacious, almost necessary, adjunct. The main object is to relax the over-tension (protective spasm) in the affected structure, to diffuse the local stagnation, and to separate and stretch the muscle fibres from centre to affected locality.

In most instances manipulation should be applied as nearly as possible to the origin of the muscle, where the main nerve enters the mass, not neglecting the belly or mid-portion, nor the insertion. Hand treatment should aim to empty the spastic muscle of vitiated lymph and blood; should be applied not too long at a time, two or three minutes with intervals to let the patient rest from the pain induced, and then repeat two or three times; total, five or eight minutes. They should be again done on the same day or on successive days, being guided by the degree of "soreness" produced.

In the case of tonic muscle-spasm, often large and sudden, forcing the part first in one direction then quickly back again, will throw a long disused part first out of its false position, then back into a normal one. This often overcomes the chronic spasm. It is by such means that many miracles of the bone-setters are produced. In the chronic and obdurate forms treatment should be repeated at least twice a week, gradually increasing the force and depth of pressure and length of seance. Manipulation should always be followed by active movements made by the patient, carefully directed functional training, to secure accuracy in action and to equalise the coördination. Movements should be made in accord with laws of "protective reactions" and "distributing the direction of the load," with due consideration to states of contracture or relaxation—tonus or hypertonus, which I have described elsewhere.[1]

A particularly important accessory measure is expert muscle training in exact directions and degrees of force. By this means confidence is restored as well as adhesions and contractures overcome. It is common to meet sufferers who have been admonished to make no movement which causes pain. The truth is, when a movement causes pain that movement should be made repeatedly with increasing force.

The skin should be educated to protect itself and the hypersensitive muscles from chilling by friction with a dry towel on rising and on going to bed; also by gradations of exposure to air and by alternations of heat and cold as by hot and cold douches. Dry skin friction is vastly superior as a tonic to the peripheral circulation than is bathing in any form. The late Weir Mitchell frequently used a "salt towel"—i.e., a coarse "kitchen towel" dipped in salt water and dried—for friction.

Summary.

1. Keep in mind that any obscure muscle pain, brief or protracted, or lameness, or morbid alteration of posture or gait or tenderness, may be due to fibromyositis, hence determine by critical palpation what the afflicted or suspicious areas signify.

2. Relief of these local disordered conditions, whether painful, tender, or structurally significant, may clear up the matter, or in any event simplify the problem.

3. Cure of a fibromyositis may contribute materially to the limitation of any existing collateral sensory disorder or "transferred pain" by the removal of sources of reflex irritation, protective spasm, or by reducing the sum-total of morbid factors present.

4. Local hypersensitiveness in muscle masses, due to any one of a large variety of primary or secondary causes, frequently are exhibited in the form of a fibromyositis, revealing other co-existing factors, such as a focal sepsis, a central irritation, or a peripheral diseased state.

5. Cure of the local manifestations may be achieved by revising and regulating conduct through personal hygiene by modifications of diet, regulating exertion, reducing fatigue, especially exhaustion from excessive repetitions of monotonous motions as caused by restricted acts in labour; by

---

[1] See "Tonic Spasm," N.Y. Medical Record, October, 1918.

accustoming the patient to abrupt exposures to temperature changes and generally equalising force expenditure through salutory modifications in habits in accord with rational demands for activities.

6. In treatment, whatever other curative agencies are employed, do not omit to consider thorough colon irrigations; nor deep manipulations, after careful determination of conditions in the affected area.

7. While constitutional derangements demand attention and regulation, the local anomaly should receive adequate care. Sometimes powerful revulsives are needed—by blister, cautery, freezing, iodine, &c.—always followed by strapping with Z.O. plaster. The main cure, however, is always by manual treatment directed to the neuro-muscular mechanisms.

8. After due attention has been afforded by suitable measures applied to the constitution, to special organs, and to the affected area, there remains a need for functional education in the form of (*a*) mental readjustment to the complex problems of chronicity, protracted disability, and previous disappointments, loss of confidence in performing movements, &c.; and (*b*) re-educating the bewildered muscles to do their appointed work with precision and confidence.

9. Finally, the individual who suffers at any time from fibromyositis needs to learn and to practise thorough hygienic habits essential for his or her "diathesis," or "type of tissue cells," or peculiarities of neuro-muscular adjustments, or capabilities of elimination. Among the first of these good habits (euthenics) is to live as much as possible out of doors in all weathers, maintaining reasonable activities, and, while not over-fatiguing, yet to beware of the one unpardonable sin of physical and mental stagnation, deterioration from disuse.

10. Red Cross work, "drives" to raise funds for the "War Chest," canvassing for the sale of War Bonds and war-saving stamps, and other enthusiastic expenditures of energy afford great opportunity to stagnant mentality that will do much to relieve many patients. It offers an incentive that will keep their brains and bodies in useful activity and emancipate them from weakness and pain.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

CLINICAL SECTION.

A MEETING of this section of the Royal Society of Medicine was held on Nov. 14th, Dr. H. BATTY SHAW being in the chair.

MALIGNANT DISEASE OF THE FACE.

Mr. HENRY CURTIS read a paper on Three Cases of Malignant Disease of the Face, one of the lower lip, two of the nostril, surviving after more than five years, illustrating modern methods of radical operation. The parts removed and one of the patients were exhibited.

CASE 1.—A man, aged 53, with extensive squamous epithelioma of the left half of the lower lip encroaching on the angle of the mouth. Operation in June, 1914, the patient being exhibited at the meeting.

CASES 2 and 3.—Primary carcinoma of the external surface of the ala nasi, a condition of considerable rarity apparently, one in a man aged 43, operated on in December, 1913, the other in a woman aged 57, operated on in August, 1914; both cases alive and well, November, 1919.

The operations were devised in general conformity with the principles laid down by Sir Lenthal Cheatle in planning incisions for the removal of a cancer from the front of the face, so as to excise the growth with, wherever possible, at least three-quarters of an inch of skin around, and taking the entire thickness of the cheek, "everything down to the bone," together with all the lymphatics and glands likely to be involved en bloc. The old V-shaped incision for growths of the lower lip was condemned, the author quoting Rowntree's statistics from the Middlesex Hospital, showing 31 per cent. of local recurrence out of 126 cases, in the majority of which this operation had been used. Infected lymphatics, he said, leading from a growth diverged as they passed to the corresponding glands; whereas the lines of the V-shaped incision converged, thus cutting across channels infected with cancer cells. This explained the great frequency of local recurrence. Cancer of the lower lip usually spread along the margin, but more rarely it spread downwards to a greater degree than usual before it eventually curled round the angle of the mouth to reach the upper lip. Hence in early cases it was impossible to say in which of the two directions the cancer was mainly spreading, and it was therefore advisable that the incisions he planned to include both paths of spread.

As to the two cases arising in the ala nasi the speaker referred to modern views on cancer of the upper lip, which he considered to be to some extent applicable also to growths spreading in the opposite direction—i.e., from the ala nasi—downwards. Sir Lenthal Cheatle had pointed out complications which did not concern growths in the lower lip or angle of the mouth: 1. The early spread along the alveolar margin of the upper jaw, particularly in growths beginning in or spreading to the central part of the upper lip, which is shorter here than elsewhere. Atrophy of the normal tissue, and contraction of the newly formed connective tissue which encircles and pervades a cancer are factors leading to invasion of the jaw. 2. When cancer begins in the upper lip the columella is more invaded than the ala nasi. The septal origin of the orbicularis oris forms an easy pathway by which the disease reaches the columella. A more radical operation than had hitherto been generally advocated was therefore necessary for growths of the upper lip and ala nasi.

EXHIBITION OF CLINICAL CASES.

Mr. ARTHUR EDMUNDS showed an infant with a Congenital Tumour (? Teratoma) on the head in the region of the anterior fontanelle. It was about the size of a goose's egg, was covered by thickened skin and of variable consistency, containing solid nodular material and some bone.

Mr. EDMUNDS also showed a case of Multiple Bone Abscesses. The patient, a young girl, had had a very serious illness some years ago, which had left her with bony synostosis of both hip-joints. Subsequently she had continued to develop suppurative foci in her bones with the formation of sinuses, through which exfoliated pieces of dead bone were extruded. The nature of the infection was unknown; there was no evidence of tuberculosis.

Dr. PHILIP HAMILL showed a young man with Aortic and Mitral Valvular Disease, who had developed an aneurysm of a femoral artery. This had been successfully treated surgically by ligature above and below and by extrusion of the clot. The patient's general health was good, and Wassermann reaction and blood culture were negative. The case was regarded as one of mild infective endocarditis with embolic aneurysm.

Dr. S. A. K. WILSON showed an elderly woman with a Cervical Rib on each side. The wasting of the thenar eminences was characteristic of this condition, being confined to the part external to the long flexor tendon, the adductors of the thumb escaping. Symptoms, which were only slight, had not appeared until recent years and were ascribed to loss of tone in muscles and ligaments due to her age and to consequent descent of the pectoral girdle.

Dr. WILSON also showed a case of Dislocation of Cervical Vertebræ in a woman, following an accident. In spite of gross dislocation between the fifth and sixth cervical vertebræ there had been no real injury to the cord. Only a few subjective symptoms remained, and the patient was able to move her head with considerable facility.

Dr. WILSON also showed a case of (?) Trophœdema. The woman had had some œdematous swelling of the right leg for over 30 years, and this was succeeded by œdema of the left. After removal of the breasts a similar condition appeared on the arms; it was segmental in distribution and amounted in degree to pseudo-elephantiasis. None of the usual causes of œdema were present, and the patient enjoyed good health except for a sense of weight and fullness in the limbs. There was no hereditary or familial history.—Dr. F. PARKES WEBER agreed with the diagnosis. He said that there were far more cases of trophœdema without a family history of the condition than with one.

The CHAIRMAN showed the case of Œsophagectasia described at length in our issue of Nov. 22nd, p. 923.

SECTION OF THERAPEUTICS AND PHARMACOLOGY.

THE TREATMENT AND MANAGEMENT OF DISEASES DUE TO DEFICIENCIES IN DIET.

A MEETING of this section of the Royal Society of Medicine was held on Nov. 18th, when Professor F. G. HOPKINS, of Cambridge, opened a discussion on the Treatment and Management of Diseases due to Deficiencies in Diet.

Professor HOPKINS said that the vitamine hypothesis of deficiency diseases is passing from the phase where novelty arouses undue enthusiasm or uncritical opposition into the phase of sound criticism. It is not surprising that the vitamines have eluded us for so long, for the earlier experimental students of nutrition never really used pure foodstuffs. The facts concerning scurvy might have led to the realisation of the truth much sooner, but that fashions in opinion helped to obscure the issue. Scurvy is a clear example of a deficiency disease, but even a worker like McCollum denied this for a time and ascribed it to intestinal stasis. The work of the Lister Institute, the production of scurvy in monkeys, and the quantitative evaluation of foodstuffs in respect of their value against scurvy, all put the matter beyond a doubt. With regard to infantile scurvy the question of dried milk is an interesting one. The infant does not as a rule develop scurvy on a dried-milk diet, although some proportion of the antiscorbutic vitamine in the milk has been destroyed. It is possible that the infant starts life endowed with an excess of the vitamine.

In beri-beri it is questioned whether the anti-beri-beri vitamine is the sole factor. Certain Japanese evidence suggests that it is not.

Rickets is less well established as a deficiency disease, but is of supreme national importance. The work of Dr. E. Mellanby is convincing of the all-importance of a factor connected with fats, but there may be other complicating agencies. The nature of the fat in the diet makes the difference between rickets and no rickets in experimental work, at any rate, and other factors are of minor importance. Investigations into accessory food factors may be complicated by the fact that the specific substances may be consumed without being absorbed. There is an increasing probability that the function of accessory food factors is connected with the stimulation of internal secretions. The response of the animal to the amount of one factor varies with the amount of other factors in the diet and will also vary with the rate of metabolism. In prolonged fasts deficiency diseases do not develop. To the mind of an experimentalist there is more sound evidence for the connexion of rickets with a deficiency in a special type of fat than for any other explanation. Pritchard has advanced the theory that rickets is due to an acidosis following general malnutrition, but the blood of rickety patients needs much more investigation before the existence of such an acidosis can be established.

A xerophthalmia occurs in rats fed on a diet deficient in special fat, and this is regarded by McCollum as a deficiency disease. Its incidence is puzzling, as it does not occur always in animals fed on vegetable fats, but only in some groups. When it does occur it clears up when animal fat is given. Among children in Denmark during the period of the most wholesale export of butter, a similar xerophthalmia occurred. It was investigated by Bloch, who was forced to the conclusion that the curative factor was animal fat.

With regard to pellagra, the evidence points to its being due not to the lack of a vitamine but to some other deficiency in the diet. When, many years ago, a group of rats were fed on a tryptophane-free diet, symptoms developed which might have been pellagrous, but it has not been possible to repeat this result.

Pellagra in Turkish Prisoners in Egypt.

Professor F. D. BOYD (Edinburgh) gave a short account of the report drawn up by himself and the rest of a committee asked by Lieut.-Colonel P. S. Lelean to report upon the health of Turkish prisoners in Egypt. Professor Boyd was himself at the time acting as consulting physician to the Egyptian Forces, and the committee with whom he coöperated consisted of Professors W. H. Wilson and A. R. Ferguson, and Drs. H. E. Roaf, H. M. Woodcock, W. Campbell, and H. R. K. Paton. The prisoners were found to show erythema, deficiency of hydrochloric acid, emaciation, low blood pressure, depression, and nervous phenomena—to be, in fact, suffering from pellagra. The first symptom appeared to be loss of appetite, followed by failure of hydrochloric acid, failure of pancreatic juice, failure to assimilate, decomposition of protein, and, finally, excretion of indican. There was also severe loss by diarrhœa. Metabolic observations were made upon Turks not showing these symptoms, and it was found that their excretion of fat and protein were both well above the normal, showing that they were already in what might be called a pre-pellagrous state. Careful investigations were made into sanitation and water-supply without anything being found to be amiss, and an exhaustive search for any causative organism yielded no result. Examination of the diet showed no connexion between incidence of pellagra and either total calorific value, or fat content, or total protein content of the diets. It was only when the concept of the biological value of the protein was applied that any light was thrown upon the connexion between diet and the incidence of pellagra. The human body must have certain amino-acids, and different proteins have different biological values according to their power to supply these essential building materials, and so maintain the body in nitrogen equilibrium. If meat is regarded as having a biological value of 1·0, milk is found to have a value of 0·96, beans of 0·8, and maize of only 0 298. It is only when the biological value of the protein in a diet falls below 40 g. that pellagra begins to appear. Failure to absorb may raise this value, as does also the performance of heavy work. For treatment, increase in the diet of protein of high biological value was found to cause the most rapid improvement, and administration of hydrochloric acid was helpful.

Scurvy and Beri-beri in Mesopotamia.

Dr. W. H. WILLCOX detailed his experiences in Mesopotamia with scurvy and beri-beri. The wastage from these two causes was very great, but the scurvy was limited to Indian troops, while beri-beri affected only the British troops. This sharp demarcation followed marked differences in the rations. The ration of Indian troops was very poor in antiscorbutic vitamine, containing 2 oz. potatoes and 4 oz meat daily as the sole antiscorbutic. The system of rationing in India was very defective, so that Indian troops arrived in Mesopotamia already partly depleted. The Indian escaped beri-beri through his abundant ration of atta (whole cereal flour) and dhal (peas or other pulses), while the British soldier had bully beef and white-flour only. Scientific steps were taken to remedy the ration, and the application of the vitamine hypothesis stamped out both these diseases.

Marmite was used as a prophylactic in beri-beri. It was observed that fresh meat seemed to be a valuable antiscorbutic, that tamarind (an Indian fruit) had some value, but that preserved lime-juice appeared to have no value at all. Lime-juice when freshly preserved with alcohol and salicylic acid seemed to have some value.

It was observed in confirmation of Professor Hopkins's statement that starvation had not induced deficiency disease in certain starved Kut prisoners. It is urgent that more scientific attention should be given to the planning of rations.

A letter was read from Dr. E. A. BARTON (University College Hospital) recommending "University Cream," a beef-fat preparation, cheap and suitable for infants.

Dr. MACKENZIE WALLACE described a substitute for the German article "Nutrose." It is derived from ground nuts and is a fine flour in which 5 per cent. fat is left. It was used as a culture-medium and as a constituent of an emergency ration for British troops. Pigeons fed on polished rice were protected from polyneuritis by quantities of 9 g. nutrose and 18 g. of the biscuit, respectively, every other day.

Indications for Treatment.

Dr. H. E. ROAF pointed out that in deficiency diseases there are three special indications for treatment. First, to make good the deficiency, for which it is necessary to know the nature of the deficiency; secondly, to see that the curative substance, destined to make good the deficiency, is properly absorbed; and thirdly, to economise the expenditure of any substance in connexion with which the body lacking is particularly needed.

In pellagra the deficiency is believed to be one of protein of the right biological value, and consequently is a deficiency of aromatic amino-acids. The special amino-acid concerned is suggested to be tryptophane, but none of these suggestions is proved, and zein, the protein of maize, which appears to be incriminated, is lacking in other amino-acids besides tryptophane.

With regard to the non-absorption of the preventive substance it is noticed that indicanuria (indicating putrefaction of protein in the alimentary tract) is a frequent symptom in pellagra. Dr. Wilson had pointed out that it was also to be observed in a certain number of persons in a normal non-pellagrous population; when pellagra occurs one may suppose it would attack first those who normally show indicanuria. Slight cases of pellagra usually recover readily in hospital, but severe cases often do not, and after lingering for as long as six months may finally die. Presumably the power of absorption is irrecoverably lost.

The third indication for treatment suggested was to economise the expenditure of any substance particularly connected with the factor lacking. The marked correspondence of the symptoms of pellagra with the symptoms of Addison's disease point to the sympathetic system being affected; and in fact a marked change in the ganglion cells of the sympathetic can be observed, the change being one of plasmolysis and degeneration. Any strain upon the sympathetic system is therefore to be avoided, such, for instance, as is involved in sweating. It has been observed that the heavier the work the greater the incidence of pellagra, and possibly it may be through its promotion of sweating that heavy work produces this result.

Raw Foodstuffs in Scurvy.

Miss MARGARET HUME (representing Dr. Harriette Chick, Lister Institute) dealt with the comparative value of raw food-stuffs in the prevention and cure of scurvy. To prevent beri-beri in armies marmite and wheat germ are to be recommended, as being three or four times more potent than the next most potent foodstuffs known—egg yolk and dried peas.

To prevent scurvy in armies, preserved lemon-juice, and germinated peas or beans are recommended. Raw lemon-juice is four times as potent as raw lime-juice and retains its antiscorbutic vitamine well. The development of the antiscorbutic vitamine in seeds on germination was discovered by Dr. Valentine Fürst, of Christiania, and has been confirmed by Dr. Harriette Chick and her co-workers. The discovery has been applied for the prevention of scurvy among troops at Archangel and for the cure of scurvy among Serbs by Dr. Wiltshire in the Balkans.

With regard to the prevention of scurvy in infants, any milk other than raw mammalian milk will be poorer in antiscorbutic vitamine and a slight degree of deficiency may be produced in consequence; other antiscorbutic should therefore be given—e.g., orange, swede, or tomato juice. Carrot, grape, or meat juice, on the other hand, are much less concentrated. Orange juice is 100 times more potent than raw milk. Even freshly dried milk may have lost half of its antiscorbutic value.

Effect of Temperature on Accessory Food Substances.

Dr. E. M. DELF (Lister Institute) gave a short account of the effect of temperature on the accessory food substances. The work of Chick and Hume shows that the water-soluble growth accessory factor is able to withstand a temperature of 100° C. for two hours.

The evidence for the heat stability of the fat-soluble growth factor is conflicting and needs further investigation.

Experiments on the effect of heating antiscorbutic substances, whether in the natural state (e.g., cabbage leaves) or as expressed juices (cabbage, swede, and orange juices) leave no doubt that a considerable destruction of the antiscorbutic vitamine occurs. After steaming cabbage leaves at 100° C. for 20 minutes, the minimum amount capable of protecting young guinea-pigs from scurvy is a daily ration of about five times that which, under the same conditions, is just sufficient in the raw state. When the effects of different temperatures are compared, the time of heating is found to have more importance than the temperature at which the heating is conducted. Cooking cabbage leaves for an hour at 60° C. has about the same destructive effect on the antiscorbutic as heating at 100° C. for only 20 minutes; but in the former case the leaves are still tough and in the latter case are soft and fit for human food. Slow cooking, therefore, such as is necessary in the use of a hay-box, is not suitable for green vegetables.

A similar destruction of antiscorbutic properties is also found to occur on heating expressed juices. Cabbage-juice freshly expressed and heated for an hour at 100° loses about four-fifths of its antiscorbutic value. Freshly prepared swede- and orange-juice are much more stable at 100° C.; but after heating for one hour at 130° C. swede-juice loses more than half, and orange-juice less than half, its original antiscorbutic power.

The Preservation of Orange-Juice, &c.

Dr. A. HARDEN (Lister Institute) gave a short account of experiments by Dr. R. Robison and himself on the drying and preservation of orange-juice, and by Dr. Robison on lime-juice and apple-juice. It was found in all these cases that a residue could be obtained by evaporation which still possessed a considerable fraction of the antiscorbutic potency of the original juice. This has also been confirmed in America by Givens. The lime-juice and apple-juice were evaporated on the commercial scale. The orange-juice was completely dried in the laboratory, and after preservation for two years in the dry condition was still highly potent. There seems to be every probability that fruit juices can be dried and preserved for a considerable time without losing their antiscorbutic potency, and such dried material should be a valuable source of antiscorbutic for explorers or troops.

Antiscorbutic Factor in Lemon-Juice.

Dr. S. S. ZILVA (Lister Institute) discussed the nature of the antiscorbutic factor in lemon-juice. He pointed out how, by the addition of an excess of calcium carbonate, and afterwards of absolute alcohol, the citric and other organic acids can be removed and a neutral solution from which the alcohol is removed in vacuo, containing little solids but the entire antiscorbutic content of the lemon-juice, can thus be obtained. This solution can be concentrated and even brought down to dryness under certain conditions without losing its potency. Such concentrated antiscorbutic solutions have been tested on monkeys suffering from acute scurvy and on scorbutic infants with success. He further drew attention to a simple method of removing the citric acid, which consisted in adding calcium carbonate to the juice and filtering. The solution so obtained is also active and well tolerated by infants. Owing to the simplicity of this preparation, which he suggested could even be carried out at home, it should find application as a prophylactic, especially in cases of infants who do not tolerate acidity.

The second problem Dr. Zilva drew attention to was the influence of incipient scurvy on the structure of the teeth of guinea-pigs. In a scorbutic condition the pulp in the teeth of these animals gets entirely disorganised. This change can first be observed at a stage when no other lesions are discernible. If similar changes take place in human teeth the matter is of great importance, since the possibility exists that both adults and infants may be able to live on diets deficient in the antiscorbutic factor to an extent not sufficient to produce declared symptoms of scurvy, but enough to produce changes in the teeth. This problem cannot be settled entirely in the laboratory, and he invited the coöperation of the observant clinician in order to settle this important point.

POST-GRADUATE AND OTHER MEETINGS IN MANCHESTER.—Since the start of the Michaelmas term classes and meetings have been fully up to pre-war standard. The Royal Infirmary staff have given a weekly post-graduate lecture or demonstration on Tuesday afternoons at 4.30 at which the attendance has varied from 40 to 60 or 70. The Salford Royal and Ancoats Hospitals have held a special post-graduate course for final Fellowship men, with a good attendance. The Manchester Medical Society has held regular afternoon and evening meetings, some clinical and some for the reading of papers. The clinical meetings have included a meeting each at the three chief hospitals, when the staff of the hospital visited has on each occasion made itself responsible for the programme. The Manchester Pathological Society has recommenced its regular monthly meetings. The Manchester Medico-Ethical Society has held one of its popular "supper meetings." For next year we are promised the annual meeting of the Association of Physicians of Great Britain and Ireland, probably some time in May, and there are rumours of a special course in medicine at the Royal Infirmary in the summer term suitable for the M.D. and M.R.C.P. examinations.

Reviews and Notices of Books.

The Physiology of Muscular Exercise. By F. A. BAINBRIDGE, M.A., M.D., D.Sc., F.R.C.P., F.R.S., Professor of Physiology, University of London. With 22 diagrams. London: Longmans, Green, & Co. 1919. Pp. 215. 10*s.* 6*d.*

THIS is the fourth of the valuable monographs on physiology edited by Professor E. H. Starling. The complexity of the processes underlying muscular exercise—of constant occurrence in daily life and the highest expression of the activities of the body as a machine—is admirably set forth. To obtain the utmost efficiency of the neuro-muscular machinery almost all the resources of the body are mobilised. Muscular exercise is as much a nervous as a muscular process; its beneficial effects are therefore evident in the psychical as well as the physical life of the individual. The author deals shortly with the transformation of energy on which muscular movements depend, and fully and in an attractive and practical manner with the adjustments necessary to provide the muscles with the oxygen and foodstuffs required. He expounds the effect of exercise on the respiratory changes, temperature and reaction of the blood, output, size, diastolic filling, behaviour, and mechanical work of the heart.

The net efficiency of the bodily machine varies from 22 to 25 per cent., and may occasionally reach 33 per cent., the chief factors influencing the result being "training," the speed with which work is performed, and fatigue. The oxygen consumption of the body per minute during exercise varies almost directly with the amount of external work performed. Dilatation of the heart normally occurs during exercise, and is a strictly physiological process. Dilatation, by increase of contractile power, enables the heart to increase its output per beat in response to a larger venous inflow. Such dilatation reaches its physiological limit when the heart at the end of a diastole fills the pericardial sac.

The chapter on coördinating influences is particularly interesting. At the outset coördination is due entirely to the central nervous system, but later other factors are involved. In this connexion adrenalin action is considered. As to training, regular and progressive exercise is the essential feature; the character of the diet, provided this is ample and is properly digested, is of subsidiary importance. In a "trained" individual the development of the heart corresponds with that of his muscular system. After cessation of exercise the circulatory and respiratory changes pass off rapidly, but the return of the metabolic changes are more gradual. There is no direct evidence that, provided a man is physically sound and in good health, exercise, however severe, is ever harmful or followed by serious after-effects. The harmful after-effects of exercise when they occur, and this is comparatively seldom, can almost always be referred, directly or indirectly, to disease of the heart.

The work appeals to students of medicine and to practitioners as well as to physiologists and others who work in laboratories. To each chapter is added an excellent summary, and the bibliography runs to 11 pages. The author has made a conspicuously luminous and practical contribution to the physiology of muscular exercise.

Surgery of the Lungs and Pleura. By H. MORRISTON DAVIES, M.A., M.D., M.C. Cantab., F.R.C.S. Eng., Hon. Capt. R.A.M.C. (T.), Consulting Surgeon to University College Hospital and to City of London Hospital for Diseases of the Chest. With 80 illustrations. London: Shaw and Sons. 1919. Pp. 260 + xxiv. 25*s.* net.

THIS book has been published at a most opportune moment; it appears to be the first treatise of weight on the development of the surgery of the thorax and its contents. It has come none too soon, for rapid strides have been made in recent years in this branch of surgery. The author combining as he is able to do the functions of surgeon, physician, and radiographer, is equipped to deal as expert with the subject from all points of view. The volume opens with a prolonged and careful study of the anatomy of the thorax, together with an account of all the most recent work on intrathoracic pressure. After a short chapter on diagnosis and prognosis in intrathoracic disease the author proceeds to deal with injuries and diseases of the lungs and pleura and their surgical treatment. The book is illustrated throughout by skiagrams of more than usual excellence, most of them taken by the writer himself, while the descriptions of actual surgical procedures gain greatly in value by the explanations of the practical difficulties which the author has met with in his own operations.

The New Physiology and other Addresses. By J. S. HALDANE, M.D., LL D., F.R.S. London: Charles Griffin and Co., Ltd. 1919. Pp. 156. 8*s.* 6*d.*

IN this book, which consists of a series of addresses delivered from time to time during the past 11 years, Dr. Haldane puts forward his views as to the true aims of physiology, and the paths which physiological investigation ought to follow in the future. Dr. Haldane holds strongly that the mechanistic theory of life is dead, and that attempts to explain physiological or biological processes in terms of physics and chemistry are doomed to failure, since even the bedrock facts of physics and chemistry do not represent reality but only interpretations of reality. He believes, if we understand him rightly, that "life is just life," that to get a grip of physiological processes the whole life of the organism must be kept in view, and that the proper way to study biology is to find out the normal processes going on in the organism, and, above all, the relatedness of these processes to one another, which is so characteristic of the living organism.

It must be admitted that Dr. Haldane's views are directly opposed to what he calls the orthodox creed of physiologists, and at times he appears to regard himself as "a voice crying in the wilderness." But, although physiologists are rather chary of expressing their inmost convictions on general biological problems, we believe that Dr. Haldane's point of view is more widely accepted than he seems to imagine, and that it must tend to direct the stream of physiological research to a larger extent into biological as distinct from physico-chemical channels. Certainly every physiologist agrees with Dr. Haldane in believing that the study of a living organism consists in the study not only of the various processes taking place within it, but also in the coördination of these processes.

It ought to be added that the book also contains a most admirable and illuminating address on the relation of physiology to medicine, and on the advantages, both to medicine and to physiology, of a closer coöperation between them.

The Amœbæ Living in Man: A Zoological Monograph. By CLIFFORD DOBELL, M.A., F.R.S., Assistant Professor of Protistology and Cytology in the Department of Biology, Imperial College of Science and Technology. London: Published for the Medical Research Committee by John Bale, Sons, and Danielsson, Ltd. 1919. 7*s.* 6*d.*

AN attempt is made in this zoological monograph to give a concise and accurate account of all the amœbæ which live in human beings, and also to give a correct description of them from the standpoint of modern protozoology. To do this the author has had to revise the literature in addition to studying the organisms himself. This has involved a serious amount of work, and the sifting of the evidence for and against the different species has involved the author in much destructive criticism. The work consists of ten chapters, with a bibliography, an index, and a series of finely executed plates both in colour and in black-and-white. Chapter III., entitled "The Present State of Knowledge of the Amœbæ Living in Man," gives the uninitiated some idea of the general confusion prevailing in respect to the human amœbæ. Chapters IV. to VIII. describe the different genera and species as described and arranged by the author. There are four genera—viz., *Entamœba*, *Endolimax*, *Iodamœba*, and *Dientamœba*. The only species definitely proved to be pathogenic is *Entamœba histolytica*, but though the others are harmless they must be studied and known by the student of medicine in order to prevent him confusing them with the harmful. How this is done is clearly described in the book, and the student who masters the monograph will not fall into the errors which so many people—zoologists and medical men alike—have fallen into in the past. As a text-book for the student—and under the term student we include all who have to study the amœbæ of man in relation to medicine or science—we can think of no better work than this. It is clearly and accurately written, and the man who is in difficulty should be convinced by the arguments as to what views to adopt. The author has criticised previous work with unsparing hand, and some of his rebukes might have been modified if not mollified, even though others may be well deserved. He has cleared away a mass of misconceptions and fallacies, and his work should remain a standard book on the subject for some time.

The Practitioner's Manual of Venereal Diseases, with Modern Methods of Diagnosis and Treatment. By A. C. MAGIAN, M.D., Honorary Surgeon, Wood Street Clinic for Genito-Urinary Diseases. London: William Heinemann. 1919. Pp. 215. 10*s.* 6*d.*

THIS manual will be read with interest. It is designed to give to the general practitioner a concise outline of the diagnosis, symptoms, and treatment of venereal diseases as we are acquainted with them to-day. The author is lucid, and on this account the reader will feel the more keenly the omission to give sufficient space to certain subjects upon which he will certainly desire fuller information. There is no detailed description of the anatomy of the sexual organs in the male and the female, and a clear diagrammatic representation of these would have frequently helped in following the text. The construction and manipulation of the urethroscope are not adequately explained, nor is the use of Kellmann's dilators. The attention given to the treatment of strictures is too cursory, and the subject of gonorrhœa in women only occupies five pages, despite its difficulty and importance. In general it may be said that the author's treatment of syphilis is interesting and stimulating, but not full enough for the general practitioner. Space given to the earlier lesions, especially in regard to differential diagnosis, would have made the work more useful even at the loss of later sections devoted to such matters as the training of ambulatory tabetics.

The call for another edition, which we regard as certain, will give the author the opportunity of adding to the value of a volume which is already useful but which might be made more so.

The Surgery of Egypt. By FRANK COLE MADDEN, O.B.E., M.D. F.R.C.S., Professor of Surgery in the Egyptian Government School of Medicine, &c. With 63 plates—one in colour—comprising 238 photographs and 3 line drawings in the text. Cairo: The Nile Mission Press. 1919. Pp. 394.

THE surgery of the tropics differs in some respects from that seen in temperate climes, and the present volume is a record of the author's 20 years' experience of surgery in Egypt. A large number of tropical diseases lie both within the province of the physician and that of the surgeon, and this is clearly brought out in the present work, especially when we consider the subjects of bilharziasis and filariasis, to quote only two examples. Therefore we are not surprised when we find pictures dealing with the life-history of the bilharzia in the snail and other cognate matters introduced into a treatise on surgery. The pathological lesions are dealt with in considerable detail, and numerous excellent photographs are incorporated. A very good description is given of the operation for abscess of the liver, and the details of the special operation for elephantiasis of the scrotum are full. Photographs are used freely to illustrate the different points in the operations.

The book will be of great use to all surgeons whose work lies in the tropics.

JOURNALS.

British Journal of Children's Diseases. Vol. XVI. July–September. Edited by J. D. ROLLESTON, M.D.—In an article entitled "A Visit to Germany" Miss Jane Addams and Dr. Alice Hamilton, of Chicago, describe the effects of underfeeding observed in German children in a visit to Germany after peace had been signed. Malnutrition was increasingly evident after the sixth year of life, for there was not enough food to supply the needs of a growing child, unless a good deal could be added by the purchase of smuggled food. Already the school children of Leipzig were said to average 2–4 cm. shorter than the pre-war average. In Frankfort the average loss of weight for the younger children was 9–10 per cent., and for the older children 10–15 per cent. The fall in the milk-supply, which in the case of Berlin, had dropped from a million litres daily in 1914 to 150,000 litres in the winter of 1918–19, was attributed to the lack of rich fodder, which Germany had always been obliged to import. The amount of school work required of the children had to be lessened to meet their lowered vitality, and the number of school attendances was also greatly reduced by actual illness. In Halle the school population had been reduced by half since the beginning of the war. There was an alarming increase in juvenile criminality owing to inability to obtain enough to eat from the rationed supplies. Increase in tuberculosis was most marked in German cities. Country districts had apparently suffered less. So striking had been the effect of partial starvation on tuberculosis among all classes, that Professor Kayserling told the writers that many German physicians were beginning to say that tuberculosis should be regarded primarily not as an infectious disease, but as a disease of nutrition to be controlled much more by feeding than by preventing infection. Other diseases which had shown a startling rise in prevalence and severity as the result of the food blockade were rickets, which formerly had been almost confined to the very poor or the inmates of private orphanages, and infantile scurvy. Lack of soap had also given rise to a great increase in the prevalence of skin diseases, especially of parasitic origin.

In his paper on the Ætiology, Prevention, and Non-operative Treatment of Adenoids Dr. Harry Campbell maintains that the chief factor in the causation of adenoids is intestinal indigestion, due mainly to an excess of imperfectly insalivated starchy food. Defective mastication is another important factor. He considers that the most effective way to diminish the prevalence of adenoids in this country is to alter existing dietetic conditions. Crusty bread should be substituted for the soft spongy article, puddings should be limited to one or two days in the week, and the quantity of sugar restricted. On the other hand, more raw vegetable food should be consumed. Dr. Edmund Cautley records a case of Alveolar Sarcoma with Metastases in the Skull in an infant, aged 2½ years, in whom the diagnosis during life had wavered between chloroma and hypernephroma. Post mortem a bilateral growth was found in the lumbar region adherent to the periosteum of the spine and compressing the kidneys. The growth extended along the spinal column downwards and branched off into each iliac fossa. Numerous breaking down nodules were penetrating the soft tissue of the scalp and bony outgrowths were piercing through the epicranial aponeurosis. Dr. Hazel Chodak relates a case of Chorea complicated by Gangrene of the Fingers in a girl aged 12. It was difficult to say whether the condition was due to embolism or thrombosis. Although there are numerous examples of gangrene after other acute diseases on record, no other instance of gangrene following chorea appears to have been described. A case of Multiple Epulides in a girl, aged 11, is reported by Mr. W. Warwick James. The abstracts from current literature are devoted to diseases of the new-born, diseases of nutrition, diseases of the liver and peritoneum, acute poliomyelitis, and treatment.

AT the last meeting of the Newton Abbot (Devon) Board of Guardians, owing to the want of facilities for the accommodation of expectant mothers in their own homes, it was decided that they should be admitted, upon payment, to the maternity wards of the workhouse infirmary.

THE LATE MR. N. C. DOBSON.—Nelson Congreve Dobson, F.R.C.S. Eng., Ch.M., honorary consulting surgeon to the Bristol General Hospital, and Emeritus professor of surgery at Bristol University College, died on Nov. 16th at his residence at Clifton, Bristol, aged 74 years. He was formerly lecturer on anatomy at Bristol Medical School. He had been ill for many years, and owing to his defective vision had to give up his surgical work at a comparatively early age. He was highly respected and esteemed in Bristol, and much sympathy was felt when his health compelled him to surrender active work. His hope of seeing once again his son, Commander Claude Dobson, R.N., D.S.O., to whom the Victoria Cross had recently been awarded, and who had been summoned by wireless from the Baltic, was unhappily not gratified.

THE LANCET.

LONDON: SATURDAY, NOVEMBER 29, 1919.

The General Medical Council and Direct Representation.

WE published last week the results of the election of Direct Representatives to the General Medical Council for England and Scotland; the Irish figures, which were not issued until after we went to press, are published this week. The report of the Registrar of the Council on the election has now been received, which includes the statistics of the voting. For England the number of papers issued was 26,539, but as 1796 have to be deducted from this number, for dead letters and letters to practitioners temporarily abroad, the possible total of voters was 24,743. From this possible total 10,675 votes were received, but only 9867 were counted, the other 808 being invalidated, either because the papers were received too late or, when received, were not filled up in compliance with the regulations.

When we look at the number of votes received by the English candidates, as published last week, we see that the four candidates supported by the British Medical Association have been returned very easily at the top, though Sir T. JENNER VERRALL, whom we congratulate on his position at the head of the poll, only had the suffrage of half the practitioners who took the trouble to vote. The four candidates who received the support of the Medico-Political Union follow in the voting upon the four representatives of the British Medical Association, the president of the Union, Mr. W. F. H. COKE, receiving 3534, and wanting by rather more than 1200 votes the total number of votes received by Dr. J. A. MACDONALD, the chairman of the Council of the British Medical Association. Probably the surprise of the election to many of our readers is the solid support that has been given to the members of the Union, who desire frankly to transform the medical profession into a trade-union, and whose views are certainly more popular with the constituency than we had imagined. While the percentage of the constituency who took part in the election in England—namely, 43·4—is below the average of the last five elections, it is higher than that of the last election held in 1916. We might hope this to signify that the medical profession is awaking again to the influence for good that ought to be exercised by the presence on the General Medical Council of the Direct Representatives of the general practitioner, but at present in Scotland and Ireland, equally as in England, apathy appears to reign. In Scotland, from a possible total of 4898 voters, 2306 papers were not returned, and Dr. NORMAN WALKER headed the poll with 974 votes, leading Dr. EBENEZER DUNCAN by 151 votes. In Ireland, out of a total issue of voting papers amounting to 3589, 2217 persons did not vote, and Dr. LEONARD KIDD was re-elected with 695 votes To the whole of the constituency of England, Scotland, and Ireland 34,026 voting papers were issued, and of these only 13,227 were returned, or 38·9 per cent. Such figures are not very encouraging to those who have worked in the past for the principle of direct representation, while it is particularly unfortunate at the moment that the medical profession should wear in the eyes of the General Medical Council an appearance of indifference to great and impending issues.

The autumn session of the Council has taken place this week, and the salient portions of Sir DONALD MACALISTER'S Presidential address can be read in another column. We refer here only to one of his opening phrases, in which he appears to foreshadow retirement from the position which he has filled for 15 years. We learn of Sir DONALD MACALISTER'S intention, if such it be, with considerable dismay. Undoubtedly he is a very busy man; and undoubtedly, with work so important in other directions, he could give up his presidential office in full consciousness of having borne a heavy burden both long and ungrudgingly. But this is not the time when the Council can well forego his wise and energetic guidance. An unusually heavy number of changes in the composition of the Council has occurred recently, and this body of men, who are largely untried as co-workers, will find themselves confronted with many new and grave problems in professional life. At this juncture Sir DONALD MACALISTER can ill be spared, and we believe that the profession at large share this feeling with the members of the Council. The early workings of the Ministry of Health and the modifications in panel practice that are imminent will ensure the views of the Council being sought in support of measures or procedures whose bearing upon the professional life may be critical. Of the new Direct Representatives, upon whom grave responsibility will thus devolve, four have already served on the Council under Sir DONALD MACALISTER'S presidency, and the influence of their voices will certainly be enhanced by this fact. The general practitioner may require all the help that he can obtain from the Council in the days ahead.

◆

Inoculation Against Lobar Pneumonia.

THE susceptibility to pneumonia and to pneumococcic infections generally of negroes, and especially tropical natives congregated in labour camps and compounds in the Transvaal, is well known, and was investigated by Sir ALMROTH WRIGHT and his fellow-workers in 1911–12. Extensive preliminary studies led to the conclusion[1] that prophylactic inoculation with a pneumococcus vaccine offered the best means of raising the normally small immunity to the pneumococcus in the black race. Mass experiments, in which large numbers of men were inoculated, were made and a large amount of information was obtained which, collected in the form of comparative statistics, "showed in every case a reduction in the incidence-rate and death-rate of pneumonia among the inoculated." The following table shows some of the results obtained:—

---

[1] Sir A. E. Wright: On the Pharmaco-Therapy and Preventive Inoculation Applied to Pneumonia in the African Native. Constable and Co., 1914. THE LANCET, 1914, i., 1, 87.

—	1911	1912	1913
Population (daily average strength) ...	10,426	12,549	15,284
	Per cent.	Per cent.	Per cent.
Proportion of population inoculated ...	0·0	About 50	About 92
Incidence-rate of pneumonia...	4·0	1·28	0·74
Death-rate of pneumonia	0·97	0·31	0·14
Incidence-rate of other diseases	31·0	20·7	14·4
Death-rate of other diseases	0·51	0·38	0·34

The work thus begun by Sir ALMROTH WRIGHT was continued at the South African Institute for Medical Research, under the Director, Dr. W. WATKINS-PITCHFORD. In addition to continuing the provision of the vaccine required for routine inoculations, research was undertaken which led to the discovery by Dr. F. S. LISTER (contemporaneously with the American bacteriologists DUCHEZ[2] and GILLESPIE) that the pneumococcus can be separated into several serologically independent groups. The practical application of this discovery lies in the preparation of specific-group vaccines. A short summary of the practical results achieved now reaches us in the form of a pamphlet containing the evidence of Dr. WATKINS PITCHFORD,[3] submitted by him as Director of the Institute. It is shown in this publication that the fall in incidence and case-mortality of pneumonia, which began in 1911, has continued, and, further, that the only period when there was a halt in the downward tendency of the pneumonia curve (1915) coincided with a reduced issue, due to war difficulties, of the vaccine. The average annual death-rate from pneumonia for the years 1908 to 1911 was about 12 per 1000; from 1911 it had steadily fallen, until in 1918 it was less than 4 per 1000. Since the pneumonia mortality formerly represented over 40 per cent. of the general mortality, it follows that the general death-rate has sunk correspondingly. Whether the non-specific beneficial effect noted by WRIGHT and printed above has continued is not clearly shown.

Additional experience as to the value of prophylactic vaccination against pneumonia was obtained in the American Medical Corps during the European war. Lobar pneumonia was very prevalent in the American Army, especially in cantonments and among the coloured troops. At Camp Upton, CECIL and AUSTIN[4] inoculated 12,519 men with a vaccine consisting of Types I., II., and III., the dosage being 6 to 9 billion of Types I. and II. and 4½ to 6 billion of Type III.; the inoculations were generally three or four in number at intervals of five to seven days. The results obtained in this mass experiment were, briefly stated, that during ten weeks that the men were under observation, among the vaccinated troops (12,519) the (annual) pneumonia death-rate was 0·83 per 1000; among the unvaccinated troops (20,000) it was 12·8.[5] In this experiment it may be noted that the doses of vaccine injected were very large—10 to 15 billion—and that several inoculations were employed. Moreover, in a certain number of men there occurred local effects—sterile infiltrations—which caused discomfort and anxiety. These incidental disadvantages have been largely abolished by the use of a lipo-vaccine, that is, a suspension of the microbes in an oily medium. This technique, first employed by the French, has the following advantages: First, relatively enormous doses may be administered with no, or very slight, local or general symptoms; secondly, the immunising response is greater; and thirdly, only one inoculation is necessary. Using a lipo-vaccine, CECIL and VAUGHAN[5] inoculated 13,460 men with Types I., II., and III. of the pneumococcus in doses of, approximately, 10 billion of each type. The experiment was complicated by the occurrence of an epidemic of influenza, but the general result was extremely satisfactory; the incidence and case-mortality of pneumonia among the inoculated men were much lower than among the uninoculated. The results are among the most encouraging obtained in the whole range of vaccine-therapy.

◆

A Sample of the Population.

WHEN the Minister of National Service rested from his great task and handed over what remained of his functions to the Minister of Pensions he had accumulated the materials of a health census of the country, and when the report on this census appears it will surely afford a firm basis on which to build a new system of preventive medicine. What may be taken as a first instalment of the report appears at the front of our present issue. Dr. JOHN D. COMRIE, of Edinburgh, while presiding over a recruiting medical board, examined many thousands of unselected male citizens between the ages of 18 and 41 years, and he now reports on 10,000 of these examinations, the round number being chosen so that percentages or permillionages may be read off at a glance. He claims that these 10,000 were a fair sample of the countryside, comprising, as they did, both agricultural and industrial constituents of a lowland Scottish population. And his claim is confirmed by the close agreement in the familiar grades and categories between his sample and the sum of all the examinations in Great Britain supplied by the late chief commissioner of medical services.

Accepting, then, the fact that the sample was a fair one, what light does it throw on the character of the whole? Dr. COMRIE states that only 20 per cent. of the male population between 18 and 41 years of age were found free from noteworthy physical defect. This means that at a time when the army could pick and choose its men—which was obviously not the case in 1917—only about one-fifth of possible recruits would have been considered fully qualified in bodily physique for a military life. It should be added at once that many of the defects found, although likely to be tiresome and disabling to their possessors, did not necessarily preclude them from being placed in Category A or Grade I. Using the simpler classification into grades adopted by the Ministry of National Service after the end of 1917, 52 per cent. of the sample were placed in the first, 21 per cent. in the second, 18 per cent. in the third, and 4 per cent. in the fourth grade, the remaining 5 per cent. being postponed for later classification. The general bearing of this result has been widely known for some time, but the further, and hitherto less recognised, fact emerges from Dr. COMRIE'S figures that between the ages of 18 and 23 years a rapid deterioration of physique occurs in the male population of this country. While three men out of four, he states, were fit for general military service at the age of 18, only two out of four remained fit at 23 years of age. If this disquieting observation is confirmed in the extended records, it will be one of the first tasks confronting the new preventive medicine to discover the causes of this swift deterioration, and to stop it at the source. Is it —which Heaven forbid!—an inherent failure on the part of the germ-plasm to attain its full development? Is it due largely or entirely to the present conditions of industrial life which become operative during this particular five-year period of life? Is it due in some measure to the appalling conditions found in the teeth of recruits? At the age of 18 years Dr. COMRIE found the teeth generally sufficiently good for practical purposes, although frequently even then the upper incisors were beginning to decay. With advancing age the state of the teeth became progressively worse, and of the sample 10,000 recruits 928 had artificial teeth, while another 1120 were urgently in need of them. Whichever of the two later factors suggested is found to be the more productive of harm, consoling it is that each is within the range of preventive medicine in its broadest aspect.

---

[2] THE LANCET, 1919, i., 704.

[3] Statement of Evidence Submitted by the South African Institute for Medical Research to the Low Grades Mines Commission, August, 1919.

[4] Cecil and Austin: Jour. Exp. Med., 1918, xxviii., 19.

[5] Jour. Exp. Med., 1919, xxix., 5.

It may be urged that the standard of health required for the strenuous life on active service is not precisely that needed for the pursuits of peace, and that our aim is not necessarily to produce a nation of "strong men" and prize-fighters. It has often been insisted that the possessor of a physical frame, with some measure of disability of which he is aware and careful, may outlive his comrade whose physical development is apparently beyond reproach. And, of course, Dr. COMRIE'S figures and those of the National Service in general, refer only to physical data. But no one who studies these figures carefully can do other than realise the existence of a vast amount of preventable disease which might have been avoided by attention to the beginnings in early natal or even in antenatal life. Sir GEORGE NEWMAN states, in his recent outline of the practice of preventive medicine, that the results obtained from recruitment do roughly form a kind of index of the health of the people, and of their upbringing in infancy, childhood, and adolescence. We may, indeed, bear with some equanimity the discovery that over 2 per cent. of all recruits have mitral systolic murmurs, that varicose veins were found in approximately 5 per cent., and that hernia was present in 3·6 per cent. But if we have not settled down to an ignoble acquiescence in the inevitability of ill-health, the prevalence of dental caries and of other preventable disease must excite dismay and stimulate us to determined action. The publication by the Ministry of Pensions of the records within its possession will, we trust, not be long delayed. They will form a complete justification for every measure yet conceived or to be conceived by the Minister of Health.

Annotations.

"Ne quid nimis."

SYNTHETIC FOOD.

IN a paper read before the Society of Chemical Industry, a reprint of which has just reached us, Mr. A. Chaston Chapman opened up some attractive questions connected with the employment of micro-organisms in the service of industrial chemistry. So important, he thought, were the developments in this field that he pleaded for the formation of a national Institute of Industrial Micro-biology. When we consider, he said, the wonderful synthetic processes accomplished by the leaves of plants under the stimulus of light, the formation of starch or of protein in the growing plant, the conversion of carbohydrates into fat in the animal organism or by some of the microscopic fungi, or any of the numerous instances of enzyme action; and when we compare the ease and completeness with which these complex transformations are effected at ordinary temperatures with the clumsy and often wasteful syntheses of the organic laboratory, we must realise how far we are still from understanding Nature's methods, and how much we have to learn before we can hope to imitate them. He quoted the following remarkable instance, amongst many, of the powers of synthesis possessed by micro-organisms. One of the professors of the Institut für Gärungsgewerbe in Berlin received in 1916 from a pupil, stationed on the Eastern front, a small specimen of a growth found on the stumps of certain trees in the district. After considerable investigation it was found that the growth contained an organism which exhibited some very interesting features. Thus, not only did it produce under certain conditions considerable proportions of fat, but it also had the property of building up crude protein from ammonium salts (without any form of organic nitrogen) in the presence of phosphoric acid and traces of compounds of potassium and magnesium. Since, as Mr. Chapman points out, ammonium salts could be obtained readily from the air, and inasmuch as the carbohydrates resulting from the acid hydrolysis of wood could be used as a source of carbon it was clear that this organism rendered it possible in the short space of 36 hours to build up fat and protein from such comparatively cheap raw materials as ammonium phosphate and the acid conversion products of sawdust. It is some years ago now that the late Sir William Crookes urged the importance of manufacturing fertilisers from the air by the formation of nitric acid and the subsequent production of nitrate. That has been accomplished on a commercial scale, and a further step has been the synthetic formation of ammonia. If now our methods of cultivation, by the employment of micro-organisms, prove feasible, the practice of agriculture may well lie in new directions, with the application of micro-biological methods taking a prominent place. It is to be hoped, however, that such methods will not detract from the æsthetic qualities of food, which are of well-known physiological importance.

A GALLERY OF RADIOGRAMS.

AN exhibition will be held at the Royal Photographic Society's house, 35, Russell-square, London, W.C., under the auspices of the Röntgen Society, from Jan. 6th to Feb. 7th, 1920. The exhibition, to which admission will be free, will consist of a collection of prints illustrative of the various applications of X rays, and an early intimation of the probable number of prints to be shown from those willing to contribute will be welcomed by Dr. R. Knox, 38, Harley-street, London, W. 1. During the course of the exhibition, which will be open from 11 to 5 daily and till 9 on nights of meetings, two meetings will be held. On Jan. 6th, at 7 P.M., Dr. George H. Rodman will lecture on "The X Rays from the Popular Standpoint," and at the same hour, on Jan. 13th, a discussion on "Some Aspects of Radiology" will be opened by Major G. W. C. Kaye. The following rules have been drawn up for the guidance of members:—

1. Entries must be delivered at 35, Russell-square, London, W.C. 1, addressed to the Selection Committee, Röntgen Society, not later than 11 A.M. on Saturday, Dec. 27th, 1919.

2. Prints must be mounted. They may be framed *passe partout* or otherwise. Those in frames or under glass must be provided with rings or other means for hanging.

3. Each exhibit must bear on its back its title, a number corresponding with that on the accompanying list (see paragraph 4), and the name and address of its producer. It is expected that exhibitors who have received assistance in the production of their exhibits (other than mounting and framing) will notify the nature and extent of such assistance.

4. A numbered list, preferably on foolscap, of all exhibits submitted must be enclosed with each collection of prints, and any points of special interest shown in the radiographs should be here noted.

5. The retention or rejection of prints entered will be deputed to a small selection committee appointed by the council of the Röntgen Society.

It is hoped that the society will receive such contributions from its members as will make its first exhibition an unqualified success.

DENTAL CARIES AMONG AFRICAN TRIBES.

ALTHOUGH it is generally accepted that dental caries is due to the fermentation of carbohydrates around the teeth, there is still a wide divergence of opinion as to the part played by the various foodstuffs included in that group. Dr. J. Sim Wallace and others maintain that the cause lies in the decadent character of the carbohydrates used at the present day, the removal of the fibrous element and the fine division of the starch particles making the foods, when prepared for consumption, into a soft, sticky mass which requires but little mastication and tends to cling about the teeth. Dr. Stanley Colyer, who has criticised this view,[1] holds that the cause of caries is to be found in the introduction into the diet during recent years of unstable carbohydrates represented by the fermentable sugars and soluble starches. The result of his observation on the diet of certain African tribes would seem to support the view he holds:—

(1) The Barotze, a people living on either side of the Upper Zambesi, have as their chief foods cassava and mealies. Cassava is a shrub with large tuberous roots, which, after soaking and drying, is pounded into a fine white powder, possessing a large, but very finely divided, fibrous constituent. It is prepared for eating by sprinkling the powder with water which has been just brought to the boil and then stirring with a stick, the resultant mixture being an elastic and rather sticky mass. Mealies are also prepared as a thick glutinous mass. The food requires very little mastication and tends to cling about the teeth, which are not cleaned after meals. Now, amongst the Barotze caries is uncommon, while marginal gingivitis and periodontal disease are extremely common. The caries which does occur progresses slowly, and seldom if ever starts on the approximal surfaces of the teeth.

(2) Amongst the natives living near or upon the Lakes Mweru and Bangweulia, whose staple food is red millet, periodontal disease is very common, but caries is even less common than in the Barotze, only one tooth in 270 being carious. The comparative freedom from caries in these two groups, Dr. Colyer remarks, cannot be due to the self-cleansing action of the foods, for they are soft and sticky; nor can the immunity from caries be attributed to the absence of carbohydrates, for the foods eaten contain a high percentage of this element; cassava about 20 per cent., maize and millet about 70 per cent. These foodstuffs, however, do lack the presence of easily fermentable carbohydrates in the form of the various sugars.

(3) In the Transkeian territories the staple foods are mealies and Kaffir corn, but in addition a considerable quantity of sugar is eaten; the sugar is mixed with the porridge, is sometimes taken raw, and two, or at times three, tea-spoonfuls are added to each cup of tea or coffee consumed. Mothers give sugar to their children by day and sometimes at night to pacify them. Amongst these natives caries of the teeth is common, the interstitial surfaces being frequently attacked. Natives are seen with dentures completely ruined by caries. Caries of the incisors is common, and the young are as frequently affected as their elders. Periodontal disease, on the other hand, is comparatively rare.

To sum up: In the three groups of natives referred to the staple foods are similar; among the two groups comparatively free from caries sugar is not used, but in the third group where caries is prevalent sugar forms an article of diet. These facts certainly support Dr. Colyer's view that the fermentable sugars are the important factor in the production of dental caries.

THE CYCLE AND MOTOR-CYCLE SHOW AT OLYMPIA, LONDON.

A SPECIAL Motoring Correspondent writes: The fifth annual exhibition of motor-cycles, three-wheel runabouts, and bicycles opened at Olympia last Monday and closes to-day. Large attendances are showing the public interest both in cycling and motor cycling. There are many developments on exhibition, some constituting real luxuries. Among other improvements, variable gears, weighing little more than a pound, provide speeds to suit every contingency of gradient, surface, or weather. There are back wheels easily removable for tyre changing; new models of frames, which should well cope with the strains and stresses of the worst roads; oil-bath chain-cases, rust-proof rims, and effective brakes with simple adjustment to take up wear. In the galleries, which are a happy hunting ground for those who have money to spend in keeping a machine up to date in respect of accessories, are shown saddles, chains, tyres, plugs, and lighting outfits. Motor-cycles certainly provide a cheap means of transit, and as such may appeal to many doctors. The small two-stroke engine, of great simplicity, as well as the two- or four-cylinder side-car combination, are all well represented, and with every modern improvement. The side-car is a cheap form of motoring of a thoroughly reliable kind. For those sufficiently mechanically minded to do little repairs, there is the advantage that the problem of running costs may be dismissed. The impression the exhibits has given is that the chief improvements are in the direction of accessibility and simplicity. Great advance has been made in the springing of the frames by the use of laminated springs, as in the A B C and the Royal Ruby, by shock absorbers on the Triumph, and by horizontally set coil springs for the head of the machine in the Sunbeam. Vertical and V two-cylinder engines are still numerous, though the horizontally opposed two-cylinder air-cooled engine is well represented. The objection urged in the early days of motoring, that horizontal engines were more apt to wear oval on account of bed wear, may perhaps not apply so much to light cycle engines. Time will anyway show. On the slower and heavier horizontal motor engines, such as the Benz and early Wolseley, oval wear certainly did take place. With regard to transmission, the belt-drive is retained on many favourites, such as the Rudge. Others, as the Enfield, Humber, and Rover, use chain driving gear—a method that modern clutches render quite permissible. A good feature on the Rover is a chain-guard. Prices are, of course, higher than before the war, but the increase, on the whole, does not exceed the ratio of the depreciated purchasing value of money.

---

[1] Dental Record, vol. xxxvi., No. 1; vol. xxxvii., No. 9; vol. xxxix., No. 11.

THE TEACHING OF OBSTETRICS.

WE printed in THE LANCET of Sept. 13th a full abstract of the report, drawn up by a committee of the Section of Obstetrics and Gynæcology of the Royal Society of Medicine, on the teaching of obstetrics and gynæcology to medical students and graduates in London, and commented then upon some of the important questions raised. The section itself is to devote a whole session to a discussion of the report on Thursday, Dec. 4th, at 8 P.M. The discussion will be introduced by Dr. T. W. Eden, chairman of the Teaching Committee of the section, and a criticism of the report, drawn up by Dr. Herbert Spencer, Lady Barrett, and Dr. H. Williamson, will be read by Dr. Spencer. Copies of the report and of the criticism may be obtained on application to the Royal Society of Medicine.

EPIDEMIC STOMATITIS.

A LEAFLET on foot and mouth disease, issued by the Board of Agriculture and Fisheries to facilitate early diagnosis and notification, describes the following symptoms:—

> "In the early stages of the disease the animal is lame and frequently smacks its lips, and shows by the movement of its tongue that the mouth is the seat of suffering; and the saliva flows freely from the mouth. An examination of the mouth shows the existence of vesicles on the tongue and on the inner part of the upper lip and on the pad. These vesicles show themselves in the form of a tough white skin which can be easily stripped off, and a red, raw surface is found beneath. The animal seldom refuses food, but rolls it about in its mouth, and often drops it instead of swallowing it. In most instances the feet are affected as well as the mouth, and blisters will form between the toes and on the heels between hair and hoof, causing the animal to walk tenderly, and frequently to catch up one foot after the other and shake it as if to dislodge something which was producing pain. In milch cows the teats may be affected with vesicles, especially at the opening of the milk duct. This often leads to sores and crusts being formed, which prevent the ready flow of the milk. The disease frequently exists simultaneously among the cattle, sheep, and pigs of the farm."

Medical officers of health and their assistants have been instructed to exercise the strictest vigilance in the supervision of carcasses and meat, with special attention to the heads, tongues, and feet. Not only the flesh but the milk from cows affected with foot and mouth disease is almost certain to become contaminated when vesicles or ulcers are present on the teats and udder. Practical experience indicates that the milk of affected cows is frequently infectious; a slight trace of the serum from a vesicle may easily infect 50 to 100 quarts of milk. The disease may be transmitted to calves and swine, and to man through butter or cheese as well as by milk. Recent outbreaks of foot and mouth disease at Lawford Heath and Tamworth have been attributed to butter and cheese sent from Germany to prisoners of war in this country. These products were rancid on arrival, and were carelessly thrown on to a neighbouring grazing field. Man may be severely or mildly affected. The symptoms are fever, weakness, conjunctivitis, nausea, vomiting, and diarrhœa, with formation of vesicles on the mucous membrane of lips, mouth, or nose, and on the ears, fingers, or other parts of the body; sometimes the skin is red and the joints painful. In children catarrh of the stomach and death may result from drinking infected milk; many cases have been reported of children showing blisters on the tongue and lips running into sores. Suspicion of the disease in any quarter, whether by direct or indirect evidence, should be notified at once. Lesions of the mouth in animals that may be confused with foot and mouth disease are: Traumatic injuries of the epithelium of the mouth; chemical and thermic injuries; superficial actinomycotic lesions; pseudo-aphtha or erosion; mycotic or benign stomatitis; contusions of the feet, especially in pigs; sore feet and inflammation of the interdigital space. However, the recognition of foot and mouth disease is so important that animals presenting any of the symptoms mentioned in the leaflet, unless obviously of traumatic origin, should be retained for inspection by an expert.

A NEW PUBLIC HEALTH ACT FOR SOUTH AFRICA.

A NEW Public Health Act, or sanitary code, for the Union of South Africa has been recently passed, and its main provisions will come into force not later than Jan. 1st, 1920. This Act establishes for the Union a Department of Public Health which shall be under the control of a Minister, and in respect of which there shall be a Government portfolio of Public Health. The functions of this new department will be to prevent or guard against the introduction of infectious disease into the Union from outside; to promote the public health; to prevent, limit, or suppress communicable or preventable diseases within the Union; to advise and assist provincial administrations and local authorities in regard to matters affecting the public health; to promote or carry out researches and investigations in connexion with the prevention and treatment of human diseases; to prepare and publish reports and statistical or other information relative to the public health, and generally to carry out in accordance with directions the powers and duties in relation to the public health conferred or imposed upon the Governor-General or the Minister by this Act, or otherwise. A body is to be established under the title of "Council of Public Health," consisting of the Minister as chairman, the chief medical officer, and seven other members (not being officers in the public service), who shall be appointed by the Governor-General; four of these seven other members must be medical practitioners selected on account of special knowledge of, or practical experience in, matters relating to public health or medical research. The duty of this council will be to advise the Minister and the Department on public health questions. The Governor-General must, under the Act, appoint a chief health officer, and so many assistant health officers, pathologists, medical inspectors, port health officers, and other officers as he may deem necessary. The chief health officer and the assistant health officers must possess a degree, diploma, or certificate in public health or State medicine granted after examination by a recognised university or medical corporation, and registrable. Every urban and rural district council may, and when required by the Minister shall, appoint a medical officer of health and one or more sanitary inspectors. All questions relating to the duties, tenure of office, and remuneration of these officers must be approved by the Minister; and provision is made for the combination of two or more districts to appoint jointly such officers. In addition to provisions for notification and other general measures for controlling infectious diseases, the Act has special sections dealing with tuberculosis, venereal diseases, vaccination, port sanitary administration, public water-supplies, meat, milk, and other articles of food, sanitation, and housing. The Act embodies improvements which experience elsewhere has shown to be necessary. Taking into consideration the conditions present in South Africa, the provisions are satisfactory, but occasionally they go a little beyond what would be thought permissible at home; for example, in dealing with the detention of "contacts" until they are released by authority, one section sanctions the use of guards and force to detain them, and, "in case of absolute necessity, the use of firearms or other weapons, and the arrest without warrant of any person who has escaped from such detention or isolation." When the Act has been put in force we may expect to see important developments in the sanitary circumstances and administration of the Union of South Africa.

THE NEED FOR SCHOOLS OF PSYCHIATRY.

THE discussion which took place at the Medico-Psychological Association on Tuesday afternoon centred round the need, which has become vastly more urgent during the war, of increased facilities for the care and treatment of early mental cases. Dr. C. Hubert Bond, in opening the discussion, assumed the existence of this need and urged the correlated need for the adequate teaching of psychiatry. Psychiatric clinics closely affiliated with general hospitals he regarded as an integral part of the clinical facilities of every medical school, and this as much in the interest of organised study and research as in that of overcoming the reluctance of mental patients to submit to remedial care in the early stages of their malady.

PELVIMETRY AMONG FILIPINO WOMEN.

AN interesting series of observations have been carried out by Dr. Acosta-Sison and Dr. Calderon [1] on the pelves of Filipino women admitted into the obstetrical department of the Philippine Hospital. As the result of measurements of the pelvic diameters made in 1237 cases they come to the interesting conclusion that the measurements of the average Philippine pelvis correspond most closely to those of the average contracted pelvis among white Americans. In this connexion they suggest that this latter type of pelvis is not an abnormality, but the normal pelvis of the Southern European element in the composite American population. The great majority of native-born Americans are of northern European stock, and the southern American element appears as a minor or abnormal type. There is a marked difference between the average negro pelvis and that of the average white American; is it then not natural to suppose that the Asiatic might present a type, or types, of pelves differing from both of these? The authors, by the graphic method of plotting their measurements, show that they can distinguish three main types of pelves among Philippine pelves, and the correlation of these types with those of other Oriental people, when they are available, will form a most interesting study. A further series of measurements carried out by the authors tends to confirm the view held by Whitridge Williams, Daniels, and others that a diminution in the diameter between the two ischial tuberosities does not necessarily mean a prolonged labour, so long as there is a corresponding increase in the posterior sagittal diameter. Another conclusion which these investigations bring out is that pelvic contraction sufficient to require Cæsarean section is relatively rare among Philippine women, since of 27 such operations 24 were done for other conditions than pelvic contraction.

THE TECHNIQUE OF KINEMATIC OPERATIONS.

Professor A. Pellegrini published in 1917 various methods of dealing with the bones in amputations with the object of facilitating the formation of plastic motors. In the *Clinica Chirurgica* of January, 1919, he has described further operative procedures with the view of forming a plastic motor loop and of overcoming certain defects in what is known as the Sauerbruch-Rochet method. This method deals with a considerable flap, detached throughout its whole length, which is sufficient to canalise a motor that is entirely muscular. The flap so detached has but little vitality, especially at its free end, and has in fact a tendency to necrose at its extremity near the margin of the canal. It is, moreover, subject to marked retraction, and, if œdematous and rich in fat, the cylinder formed is so thick that the canalisation of the motor becomes very difficult and may, in the process, lead to laceration of the muscular fibres. Professor Pellegrini describes several variations of his technique, and we reproduce his woodcuts, which render the details more easy of apprehension.

Variation I.—1st stage: Two parallel cutaneous incisions in a transverse direction 3 to 4 cm. apart, somewhat diverging at their extremities (Fig. 1). 2nd stage: Folding back the skin edges and superficial fascia thus marked out round a strip of gauze and fixation with two catgut sutures (Fig. 2). 3rd stage: Tracing out and isolation of one or more tendons or muscles and passing them in front of the tunnel of skin and suturing them in such a way as to form a loop enclosing the tunnel of skin (Fig. 3). 4th stage: Plastic for drawing together the skin, so as to completely cover the motor and perfect the orifices of the cutaneous tunnel (Fig. 4). The shape of the incisions facilitates the drawing together of the skin-flaps over the plastic motor at the end of the operation, which can be completed at the same sitting and without undue dragging. In Sauerbruch's method, on the contrary, it is not always easy to complete a local plastic operation at the same sitting, nor is it easy without making other incisions to cover up the denuded area left by the skin utilised for the tunnelisation. The new method is simple and easy, and the skin lining the tunnel is thoroughly vital in its whole extent, since its normal connexions are little disturbed. The process has, however, the disadvantage that the two scars formed are superimposed; this can be avoided by drawing together the skin edges in forming the tunnel upwards in a proximal direction, and the skin edges of the surface covering downwards, as shown in the following variations:—

Variation II.—Two transverse incisions through skin and superficial fascia with oblique prolongations upwards, longer

---

[1] The Philippine Journal of Science, vol. xiv., No. 3, 1919.

FIGURES SHOWING IMPROVEMENTS IN THE TECHNIQUE OF KINEMATIC PLASTIC OPERATIONS.

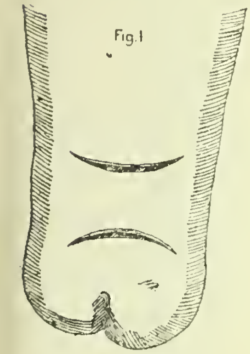


Fig. 1

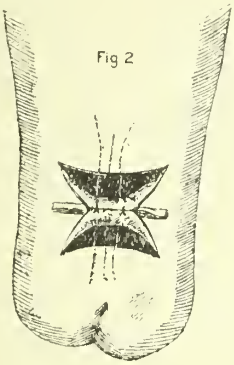


Fig 2

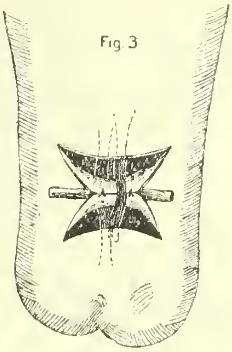


Fig. 3

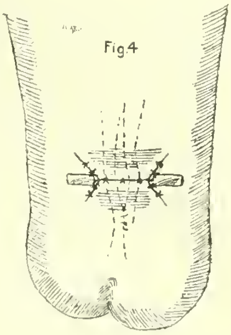


Fig. 4

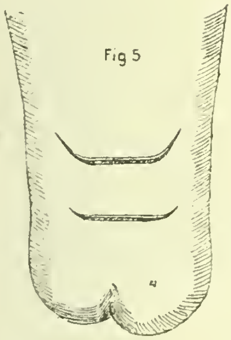


Fig 5

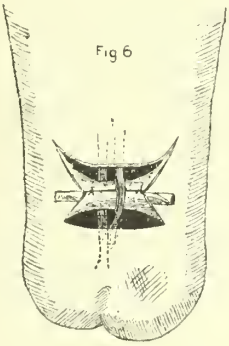


Fig 6

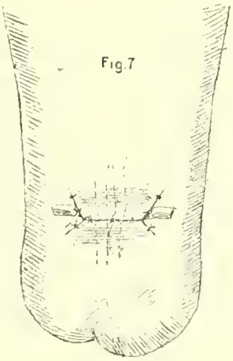


Fig. 7

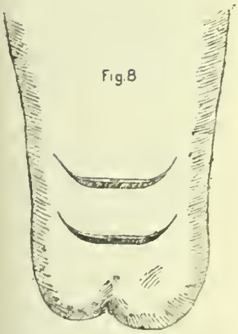


Fig. 8

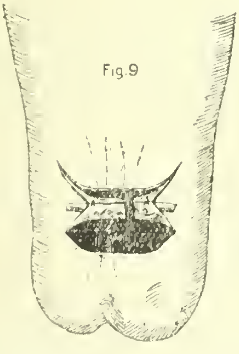


Fig. 9

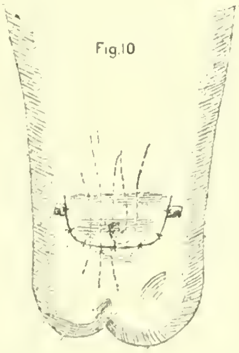


Fig. 10

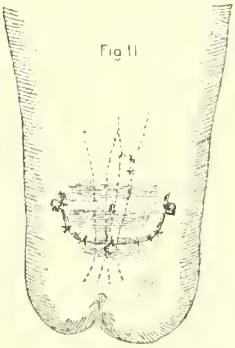


Fig. 11

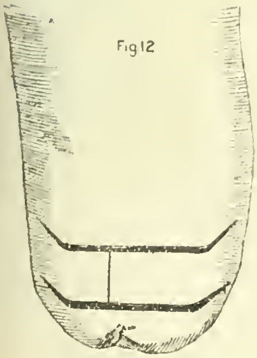


Fig. 12

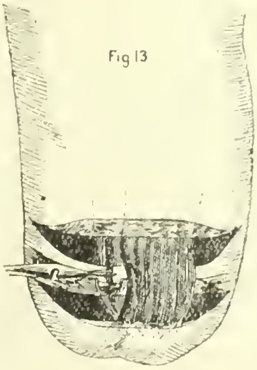


Fig 13

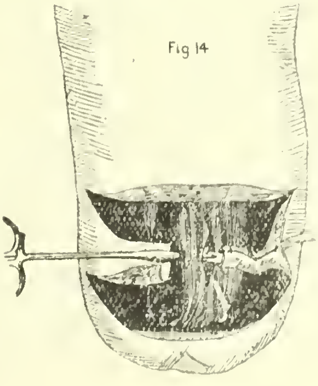


Fig 14

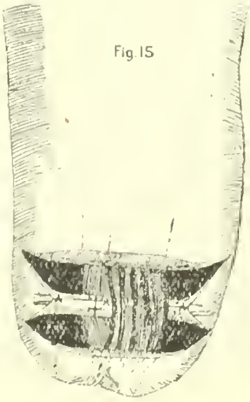


Fig. 15

in the first than in the second (Fig. 5). The other stages are completed as before. In this process the two cutaneous suture lines are on two different levels, and the rolling back of the skin to line the tunnel is made more easy (Figs. 6 and 7).

Variation III.—1st stage: Two transverse incisions prolonged upwards at both ends equally. The other stages correspond to those of the previous variations (Figs 8–11), but the resulting skin cicatrices are still farther apart. The turning back of the skin to form the tunnel in the second stage is made easier and occurs almost spontaneously, with a tendency to remain so, few or no sutures being necessary, and the cicatrix lying more to the proximal side is opposite to that against which the artificial extension exercises greatest pressure, which is a marked advantage. In this process a branch of the motor loop is separated distally or proximally for passage in front of the skin canal (Fig. 9) and resutured in front in various ways (Figs. 10 and 11). This may prove an inconvenience when it is necessary to cut and suture several tendons or thick masses of muscle, and may be avoided by another procedure which offers several advantages over that of Sauerbruch-Rocket.

Variation IV.—Cutaneous incisions the same as in the third variation, with the addition of a cross incision to divide temporarily the fold of skin in two equal or unequal parts so as to enable one or both to be passed either beneath or through the muscles or tendons of the plastic motor (Figs. 12–15). This procedure is more certain of success than that of Sauerbruch-Rochet, since each of the two portions of the divided fold are only half length and therefore of greater vitality. The operation is performed at a single sitting and is extremely easy of execution.

These methods may be compared with those of the Rizzoli Institute at Bologna, described by the director, Professor V. Putti, at the Royal Society of Medicine last year,[1] while the discussion on this subject by the British Orthopædic Association last week shows that in this country great progress is being made in this valuable branch of surgery.

THE BRITISH FEDERATION OF MEDICAL AND ALLIED SOCIETIES.

WE publish in another column a letter from the Federation directing the attention of our readers to Colonel F. E. Fremantle's Parliamentary candidature in the coming St. Alban's election. We are glad to see that under its new title the Federation does not forget its birth as the Medical Parliamentary Committee, for the professional feeling which called the Federation into existence is gaining in strength, that feeling being that when new legislation is in contemplation the medical aspects do not receive proper prominence. One way to remedy this is to increase the number of medical men with seats in the House of Commons. Few opportunities can ever occur to do this, for, as everyone knows, medical men will not be elected to Parliament in consideration of their medical position alone. None the less, the public can see that many of the largest questions at issue, whether in amendment of existing laws or in the creation of new ones, have the most intimate medical relations, so that the possession of medical experience may be now, and for the first time in this country, an asset to a candidate at the polls. In our view it would be a most powerful asset, if the public reads aright the signs of the times, and sees also that where the medical man desires that his own position should be properly recognised, he does this in the public interest every whit as much as in that of his profession. Good national health cannot be maintained without good medical service, and good medical service cannot be maintained upon bad terms. But this simple sequence of ideas has baffled many legislators, and it is to make the position clear that two conferences are being held this week—namely, the annual conference of Local Medical and Panel Committees of the British Medical Association and the conference of the same committees in connexion with the Medico-Political Union.

THE PARIS FACULTY OF MEDICINE.

Dr. Henri Roget, dean of the Faculty of Medicine in the University of Paris, has sent us a copy of the illustrated prospectus for the academic year 1919–20. The Faculty of Medicine has undergone a complete reorganisation and, as noted in our Paris letter last week, has considerably enlarged its accommodation. The extension of premises will certainly be necessary as the Faculty will have to cope with the same largely increased entry for the next few years that is agreeably embarrassing our own universities. The number of French women students registered in the Faculty has increased steadily from 61 in 1906 to 295 in 1918, whereas the number of foreign women students in 1918 was only 225, as against the record year of 1912 when 325 were registered. Foreign men students reached in 1918 the high total of 558, and when the passport difficulty is over Paris will doubtless attract the women students as of old. Special arrangements are now being made for post-graduate work. Our French colleagues are peculiarly happy in their choice of terms. An invitation to qualified men and women to attend a "cours de perfectionnement" will surely not fall on deaf ears. Confusion still exists in many minds between the "diplôme d'état," which confers the legal right to practise in France, and the "diplôme de docteur en médecine de l'Université de Paris," a purely academic distinction more hedged about with safeguards. The State diploma is given to foreigners only under the same conditions as to French students, which implies that the same preliminary examinations must have been passed and that no foreign degrees or diplomas—excepting those of Roumania—are recognised as affording exemption. With the attractions offered in the prospectus before us Paris may look forward to a crowded academic year.

Dr. B. H. Spilsbury, pathologist and curator of the museum at St. Mary's Hospital, has been appointed lecturer on morbid anatomy and histology at the Medical School of St. Bartholomew's Hospital.

THE Council of Epsom College will shortly be considering applications for "France" pensions of £30 a year. Candidates must be registered medical practitioners in necessitous circumstances who are not less than 60 years of age. Forms of application can be obtained from the secretary of the College, Mr. J. Bernard Lamb, 37, Soho-square, W.1.

THE analysis of the voting for the Direct Representative for Ireland on the General Medical Council yields the following figures: For Dr. Leonard Kidd, 695; for Dr. James C. McWalter, 616; spoiled votes, 47; received too late, 14; did not vote, 2217. The total of voting papers issued was 3589. For Scotland we have already given the actual numbers of votes recorded. Out of a total issue of 4898 voting papers, 105 were rejected through informality, 338 were returned through dead-letter office, 100 were received too late, and 2306 papers were not returned at all.

---

[1] THE LANCET, 1918, i., 791, 818.

THE GENERAL COUNCIL OF MEDICAL EDUCATION AND REGISTRATION.

THE autumn session commenced on Tuesday, Nov. 25th, under the presidency of Sir DONALD MACALISTER.

It was announced that Dr. Knox, the representative of the Royal Faculty of Physicians and Surgeons of Glasgow, would be unable to attend during the present session in consequence of ill-health. Also that Mr. Waring, the representative of the Royal College of Surgeons of England, would be absent in Belgium.

The following appointments to the Council were officially notified, and the new members were formally introduced to the President and the Council:—

Sir George Newman, K.C.B., M.D., as Crown Nominee for five years from October, 1919.

Matthew Hay, M.D., as representing the University of Aberdeen for two and a half years.

Henry Roy Dean, M.D., as representative of Victoria University, Manchester, for two years from October, 1919.

John Beresford Leathes, M.B., representing Sheffield University until October, 1920.

The President's Address.

Sir DONALD MACALISTER then delivered his address, commencing with a résumé of the changes in the composition of the Council since the last meeting. He welcomed in appropriate terms the new members and offered the cordial acknowledgments of the Council to their retiring colleagues. With reference to the statistics of the election of Direct Representatives, to which allusion is made elsewhere, he said that he thought the dislocations of war-time might account for the large number of voting-papers returned through the Dead Letter Office, but that other causes must be invoked to explain the fact that more than half the practitioners resident in the United Kingdom failed to give any indication that they were personally interested in the election. Out of the total of 34,026 voting-papers issued only 13,227, or 38·9 per cent., were returned in accordance with the regulations and recorded as valid.

In the following graceful words he alluded to his own connexion with the Council. "Thirty years have passed since I was elected a Member of this Council by the graduates of the University of Cambridge. Fifteen years have passed since, by your favour, I was first appointed to be your President. None of those who were my colleagues in November, 1889, are now with us, though some happily survive in well-earned retirement. The time cannot be far distant when you will properly desire to entrust the responsibilities of my office to younger hands. But in the meantime I am pleased to think that the efficiency of the Council, in its work for the public and for the profession, is unimpaired. Its membership may change; but its devotion to the due performance of its functions, defined and limited as they are by the Medical Acts, does not diminish. And I am pleased to note also that its influence in the counsels of the nation on medical matters, and its effectiveness in the guidance of professional training and the maintenance of professional standards throughout the Empire, are steadily increasing. It possesses a heritage of accumulated experience and recorded service which will be handed on from generation to generation of its members."

Two years ago Sir Donald MacAlister predicted that in 1919 the number of new practitioners registered would be far below the average, and he was able to show that the registrations up to this date proved the truth of his prophecy, although some compensation had been afforded by the addition of 400 British practitioners to the Colonial list of the Register. Later he referred to the fact that the Province of Alberta in Canada had now legislated in favour of medical reciprocity with the United Kingdom, and that the Order in Council justifying the application to the province of Part II. of the Medical Act, 1886, would shortly be issued; one province only of the Dominion—British Columbia—now remaining outside the agreements concluded between the United Kingdom and the British Empire beyond the seas. He continued: "The numbers of registered medical and dental students for 1919 are, as was also foreseen, very greatly in excess of former records. They are filling the schools to overflowing; some schools indeed have had to postpone all fresh admissions until next April. There is apparently no doubt that in a few years the professional ranks will be more than replenished. In some minds the expected influx is giving cause for anxiety lest the new practitioners may not all find suitable employment when they reach the Register. But it must be remembered that, on the one hand, the wastage of war has been great; and, on the other, that the openings for skilled men and women will be multiplied by the increased activities of the new authorities concerned with the conservation of the health and physical welfare of the people. There will, in fact, be many new demands, and I for one do not doubt that they will ultimately match the new supplies. Under the Ministries of Health Acts various preliminary Orders in Council have been issued and transmitted for consideration to the Executive Committee. They deal with questions of machinery. The Secretary for Scotland has requested the Scottish Branch Council to send for his consideration the names of four persons specially fitted for appointment by him to the Scottish Consultative Council on Medical Questions, and his request has been complied with.

As I indicated last May, the two Nurses Registration Bills then before Parliament have been displaced by a new Bill introduced in the House of Commons by Dr. Addison. It avoids certain disputed questions, chiefly by leaving them to be decided, under the directions of the Minister of Health, to a General Nursing Council, which has power to frame rules. These rules have to be approved by the Minister, but it is not provided that, as in the case of the Midwives Acts, they are first to be transmitted to the Council or its Executive Committee for consideration. You will probably desire me to call attention, through the Lord President, to this omission. Dr. Addison's Bill does not extend to Scotland or Ireland, but I learn that separate legislation for these parts of the United Kingdom is contemplated. The Executive Committee will bring to your notice this and other points on which representations might be made."

With regard to the important developments of dental practice he said that a Bill passed on the recommendations of the Departmental Committee on Dental Practice is in hand, though the precise lines on which the Government propose to deal with the numerous and complex issues involved are not yet known. He alluded to the fact that the Royal College of Surgeons of Edinburgh now offered inducement to licentiates in dental surgery to pursue more advanced study by the institution of a higher diploma of dentistry, and added that numerous applications from American and Canadian dentists desiring registration in the United Kingdom indicated the ambition of many dental practitioners, mostly those who served in the war, to acquire a legal status in Great Britain. He continued as follows:

"Representatives of the National Board of Medical Examiners of the United States of America recently visited this country with the object of studying and reporting on the methods employed here for the testing of candidates for medical qualifications and for the control of their registration as practitioners. The Registrar, by my instructions, placed at their disposal the fullest information on these subjects which the office possessed. The representatives, by the courtesy of the licensing bodies, also attended a number of the qualifying examinations. We are informed that they derived much valuable knowledge from their visit. Their report will be awaited with interest on this side of the Atlantic. The influential movement towards the establishment of a high and uniform standard of professional qualification throughout the American Commonwealth, of which the National Board is the expression, may have issues of importance extending beyond the United States. The provisional reciprocity established with Belgium for the period of the war may terminate with peace, unless fresh legislation is undertaken by the Belgian Government. I am informed that the legal question is now being studied by that Government. We may express the hope that the experience of our hospitality to Belgian practitioners may lead to the admission of British practitioners to the privilege of practising in Belgium on equitable terms."

The Teaching of Preventive Medicine.

A preliminary discussion took place upon the interim report furnished to the Council by the Education Committee on the teaching of the preventive aspects of medicine. Of 41 medical schools and clinical hospitals in the United Kingdom from which information on the subject had been invited 12 only had replied in time for their views to be discussed by the Council.

MEDICINE AND THE LAW.

Profiteering and Medical Fees.

IN THE LANCET of Nov. 22nd we noted the judgment given by the Lord Chief Justice and two other judges in a case where an attempt was made to exclude chemists from the scope of the Profiteering Act, 1919. Many prosecutions have taken place since the one which originated the proceedings above referred to, and contemporary journals devoted to the interests of pharmacy are indicating by the amount of space which they are giving to the subject the consternation which is felt by their readers whose social, as well as their financial, position is affected. In his judgment Lord Reading followed the lines laid down by Mr. Justice Blackburn in Lee *v.* Griffin (1 B. and S., p. 278), and based his opinion on the consideration that the cost of an article must usually include something for services rendered. He might equally reasonably, it seems, have justified a contrary opinion by the reflection that few services are rendered without the price of them including something for materials. This aspect of the matter is alluded to by a barrister, Mr. F. W. Crossley-Holland, in the current number of the *Pharmaceutical Journal and Pharmacist.* "We may yet," he says, "see the Harley-street physician arraigned before the local profiteering committee because his three guinea fee for writing a prescription necessarily includes the cost of the paper upon which the prescription is written." He suggests that pharmacy may have gained something through the judgment, since there may be brought within its purview certain medical men who dispense their own medicines and who may prefer in future to confine themselves to the giving of advice. Probably members of the medical profession will view the prospect of charges of profiteering with equanimity, for it appears likely that in the minds of the general public, with whom may be reckoned the lawyers, they will certainly be classed with professional men.

Medical Fees and Litigation.

An action recently tried by His Honour Judge Tobin in the Westminster County Court had as its result an award of £10 15*s.* damages, with costs, to a costermonger who had injured his leg in a cellar-grating. The plaintiff, who had reckoned his loss at about £3 a week during the four weeks for which he had been laid up, was entitled to damages in the opinion of the court, and he had obtained them with the assistance of a solicitor and of the evidence of a medical man who had attended him. Sir Alfred Tobin's judgment was, however, accompanied by these words addressed to the successful plaintiff. "You are to get £10 15*s.* and of that 15*s.* only are to go to the doctor, and not a penny piece more. You will have the £10 and your solicitor will not ask for anything. Do not give a penny to the man who advised you to bring the action."

It appears that the plaintiff said in his evidence that about six weeks after the accident he had met a man who had given him the name of the solicitor whom he eventually employed, and that he had promised this man a 5 per cent. commission on anything that he got through bringing the action. In addition to this the medical man referred to above admitted that his charge of £2 3*s.* included attendances at the rate of 10*s.* 6*d.* per visit, and acknowledged further that he would not have expected a patient in the plaintiff's position to pay so highly out of his own pocket, but had based his fees on the expectation of their being paid by the defendants. No doubt the county court judge had considered these statements, and, holding the opinion that there was an element of speculation in the case, felt it his duty to prevent, as far as possible, persons other than the plaintiff from reaping any benefit beyond the strict due. Admittedly, speculation tending to promote litigation, through outsiders acquiring an interest, is rightly condemned. There are, however, two sides to such a question. We say nothing about the person who recommended the solicitor, after stipulating for an easily earned sum of 10*s.*; or about the solicitor, who, for all we know, could and would have obtained his costs in any event from a client capable of earning £3 a week. There is nothing in the reports to show that the solicitor "speculated" at all. The medical man, by his perfectly frank admission of his position afforded some ground for the judge's strictures. It is undesirable that a medical witness, or, for that matter, any witness, should have a personal pecuniary interest in the success of the party who calls him. It may or may not colour his evidence, but without his being conscious of it, it may well have a tendency to do so. From the moment, moreover, when it is discovered (and its discovery is a matter of probability if not of certainty), the fact that he has such an interest, will be used, justly or not, to discredit anything that he may say. The medical and the legal professions alike regard with disapproval and distrust anything approaching speculative intervention in litigation. A medical man, however, is not likely to become a frequent attendant at law courts for the sake of what he can get out of "the other side."

It should be added that, in the case in question, the medical witness was in no way whatever responsible for the action being brought, nor was it suggested that he had treated the patient with the idea that such a result would follow. When, however, the action was brought his error consisted in allowing the plaintiff to claim against the defendant expenses which he would not have been asked to pay if there had been no claim made. It was an excusable error to the extent that the charge made was a moderate one when looked upon as compensation for time spent. The hardship in such a case presses upon the medical man and also upon his patient. Medical men cannot afford to treat themselves as charitable institutions any more than barristers or solicitors.

TUBERCULOSIS.

Treasury Grant towards Institutional Treatment.

The Ministry of Health has issued a circular, dated Nov. 3rd, dealing with Treasury provision for sanatoriums and hospitals for the tuberculous. It is pointed out that the number of beds at present available is most seriously inadequate for ex-Service men and civilian adults, and that it should be increased immediately. The Treasury has accordingly agreed that capital grants in aid of the provision of additional sanatorium and hospital accommodation shall in future be made at the rate of £180 a bed, subject to a maximum grant of three-fifths of the total cost on the conditions that (1) the providing authority submit their proposals, including the necessary plans and particulars, to the Ministry at the earliest possible date, and in no case later than June 30th, 1920, and that (2) the providing authority complete the works at the earliest possible date, and in no case later than two and a half years from the date of the Ministry's approval of the proposals, unless the Ministry, with the concurrence of the Treasury, sanction extension of time. Such extensions will only be allowed in special circumstances beyond the control of the local authority. The annual grant of 50 per cent. of the net deficit on the Council's tuberculosis maintenance account will be available in aid of the annual charges for interest on, and repayment of, loans raised to defray the balance of the capital cost of additional accommodation. But both capital and annual grants will be paid only in respect of expenditure approved by the Ministry. The addressees of this circular are urged to submit their proposals to the Ministry before Christmas if possible. In the event of difficulties with regard to building materials, local authorities are advised to apply to the Director of Building Materials Supply, Ministry of Munitions, Caxton House, Tothill-street, S.W. 1.

School for Tuberculous Children in London.

On Oct. 22nd Lord Downham, chairman of the London County Council, opened Springwell House, Clapham Common, as a school for tuberculous children. Work has been carried on since April 1st, and the pupils, all under 12, number 75. Special exercises and recreations are provided, and the school is inspected weekly by the medical officer of the Battersea Tuberculosis Dispensary. Lord Downham said that 2000 London children were notified as tuberculous, and that 2000 others might become tuberculous unless carefully looked after. The figures can only be relative.

Report of the Central Tuberculosis Officer for Lancashire.

IN his report for 1918 Dr. G. L. Cox, central tuberculosis officer for Lancashire, traces the high tuberculosis mortality of recent years directly and indirectly to the war. The average figures for the three-year period 1916–18 showed that 19 per cent. of the deaths from tuberculosis were not notified and that 26 per cent. of the deaths occurred within three months of notification. In 1918 there was an increase in the number of deaths from consumption not previously notified. This state of affairs is deplored, as attempts to combat the disease are largely stultified while so many infectious cases remain uncontrolled by public health measures. During 1918 the tuberculosis officers examined 6037 persons, and there were 23,233 attendances at the 22 dispensaries. A comparison of these two figures with the corresponding figures for 1917 showed an increase of 28 and 26 per cent. respectively. By the end of 1918 the total number of beds available for residential treatment was 535, of which 50 were for children. In spite of the frequency with which the disease was notified late or not at all, the number of patients sent by general practitioners to the consultant tuberculosis officers before notification increased yearly. The results of sanatorium treatment of over 3000 cases are tabulated, a special table being drawn up to show the relation of the patients' working capacity after sanatorium treatment to the presence or absence of sputum, and the presence or absence of tubercle bacilli. The figures stress the importance of early diagnosis, and they show that the first year after discharge is the most critical for the patient. The results of domiciliary treatment and dispensary supervision are also tabulated, with special reference to the presence of sputum and of tubercle bacilli in the sputum.

Tuberculosis in the Malay States.

In a 16-page pamphlet Dr. J. T. Clarke, health officer of Kinta, has collected evidence in support of his thesis that the "massive dose" of tubercle bacilli is the all-important factor in the causation of phthisis. He notes, as rather remarkable, that there is a higher proportion of phthisis among Chinese males than females in Singapore, the proportion being 6·04 to 3·81. But if all the cases of phthisis, bronchitis, and pneumonia be classed together the difference is much less, the proportion being 8·99 males to 8·1 females. Bovine tuberculosis does not exist in the Malay Peninsula, no case of tubercle in a domestic animal has been discovered, and out of more than 250,000 pigs killed in the Ipoh abattoirs during the last four years, there was no case of tuberculosis. The disease in man must, therefore, be exclusively due to infection from human sources. In Singapore phthisis causes 16 per cent. of the total deaths. Discussing von Behring's theory of infection, which he rejects, Dr. Clarke observes that the Chinese seldom take milk, even as children, and that in the Straits Settlements the cattle are at present free from tuberculosis.

The Tuberculosis Campaign in France.

The City of Paris has provided pavilions at Brevannes, with 400 beds, for tuberculous ex-Service men and any members of their families found suffering from the same disease. Opening these pavilions early in November, M. Poincaré recalled the last visit paid him by the late Professor Landouzy, who urged a vigorous campaign against a disease which presented the most vital problem from a national standpoint.

The "American Review of Tuberculosis."

The September number opens with two papers on Artificial Pneumothorax. The first, by Dr. C. D. Parfitt and Dr. D. W. Crombie, covers a wide field and deals with the 63 patients treated by the writers over a period of five years. Like Saugman and other exponents of this treatment, they compare the results achieved by successful collapse of one lung with the results, or rather lack of results, observed in those patients for whom the treatment was prescribed, but whose extensive pleural adhesions prevented its consummation. The comparison is a tribute to the efficacy of this treatment. The verdicts of many of the patients read very much like a flamboyant patent-medicine advertisement. The most valuable feature of this paper is, however, the section dealing with the signs of a movable mediastinum, the significance of this phenomenon, and its treatment. The second paper, by Dr. A. G. Shortle, deals with Some Common Mistakes in the Administration of Artificial Pneumothorax. In nine cases treated by other physicians the writer found that though lung collapse had supposedly been carried out for a considerable time, it had not been even partially effected. One of these patients had thus received air in the lung, and at once had passed it out of the mouth for a period of over a year and a half. Ignorance of technique and careless examination of the chest can alone account for such mistakes. A mistake which Dr. Shortle found deplorably common was the injection of large quantities of gas at long intervals, instead of small quantities at short intervals, a mistake the rectification of which may convert absolute failure to a brilliant success. The last paper in this number deals with Psychotherapy and Tuberculosis. The writers, Dr. Smith Ely Jelliffe and Dr. Elida Evans, introduce a Freudian atmosphere into their lengthy paper, much of which is devoted to the patient's dreams and the interpretation thereof.

NOTES ON HOUSING.

An Emergency Scheme.

OUT of the 500,000 houses budgeted for in the Government scheme only 124 have been completed at the present time. This does not imply that either the Ministry of Health or the local authorities have been idle. Both central and local bodies are alive to the urgency of the need, but neither have yet discovered a sufficient inducement to persuade the builders to undertake the actual work of construction. The cost of building is now 150 per cent. above that of 1914. The official estimate for six or seven years hence is roughly 70 per cent. above pre-war cost. Therefore any private enterprise in building is faced with the prospect of a heavy loss unless the builder can sell his house as soon as it is ready for occupation. He is able to do this kind of work, especially when the buildings are required for the more expensive dwelling houses, for offices, or for cinemas. He will not undertake the contracts tendered by local authorities, presumably because the latter are not able to offer a sufficiently high return for the work. At any rate, the 100,000 houses which Dr. Addison had hoped to see this autumn have not materialised, and at the housing debate on Nov. 21st the Government announced the introduction of emergency measures based upon the recommendations made to them a fortnight ago by Sir Tudor Walters.

A subsidy of £150 is to be paid for every house produced within a certain time and according to plans approved by the Ministry of Health. This subsidy will be paid on all houses constructed for the working classes, whether they are built within or without the State scheme by professional builders or by the future owners of the houses. The Prime Minister in his speech encouraged the hope that crofters or other small landowners might be stimulated to build their own houses. At the same time local authorities are to have their powers extended so as to enable them to put a veto on "luxury building." It is clearly a wise provision that where disease and immorality are being propagated by overcrowding the local building resources should be mobilised in defence of the community. This measure will undoubtedly be of permanent value. The success of the subsidy will depend upon whether it is large enough to tempt the trade, and this can only be determined by experience.

These two proposals are complementary to the scheme of the Ministry of Health, which will still be carried on, though its working out may be more protracted than was at first intended.

The Wooden House at Last.

In the meantime the wooden house, whose claims have been put forward from time to time in these columns, has at last been officially recognised. A model house, built entirely of wood and costing approximately £600, has been approved for erection as a part of the State-aided scheme. The loan on these houses is repayable in 40 years, as against 60 years in the case of brick houses, the cost of which varies from £650 to £770. The wooden house must, therefore, still be regarded as an expensive necessity. We gather from the speech of Sir James Carmichael at the inaugural luncheon of the Timber Exchange on Nov. 5th, that the prospects of obtaining raw material have improved considerably of late.

Professor E. W. Hope, medical officer of health for Liverpool, in his lecture at the Royal Institute of Public Health recently, said that the Liverpool Council had purchased the whole of the army huts at Larkhill Camp, numbering 500, and were converting them into living houses for families.

They were providing a living room, three bedrooms, and a scullery, and were attending to the sanitation of the camp on modern principles. He mentioned that in Liverpool there were some wooden houses in as good condition now as when they were built 30 years ago.

The Whitechapel Exhibition.

Housing exhibitions continue to do useful work in arousing public interest. Following closely upon the successful exhibition held in the Kelvin Hall at Glasgow, a similar experiment has been initiated in connexion with the Garden Cities and Town Planning Association at the Whitechapel Art Gallery. The exhibition was opened on Nov. 4th by Mrs. S. A. Barnett, who referred in her address to the low death-rate—0·30 per 1000—in Letchworth. The doors are open to the public from 12 noon until 9 P.M., and the exhibition of model houses and town planning schemes will continue until the end of the month.

Public Utility Societies.

Some of the schemes submitted by public utility societies are especially enterprising and original. At Swanpool the scheme has been promoted by a large engineering firm which is to supply waste heat and steam from the works. It is proposed to build 3000 houses on 350 acres, all the houses being centrally heated and provided with hot-water supply and electricity for lighting and cooking. This equipment is effected at an extra cost of £65 per cottage, but a saving of £54 is gained by the elimination of chimneys, grates, and other appurtenances of the coal fire.

The Supply of Building Materials.

To encourage private enterprise among the small builders who contract for working-class houses, arrangements have now been made which will enable these small private firms to obtain building materials through the Director of Building Materials Supply, who is already supplying materials required for State-aided schemes. A certificate must first be obtained from the clerk of the local authority or the Housing Commissioner of the Ministry of Health in whose district the houses are to be erected. This certificate must state (*a*) that the material is required for the purpose of erecting or improving houses for the working classes; (*b*) that the houses, development, design, and construction are approved; and (*c*) that the houses proposed to be erected are needed, and will relieve the programme of building by the local authorities. It is anticipated that the above arrangements will enable builders to effect a saving of 5 per cent. on their materials.

Tuberculosis and Housing.

Nearly one-half of the current number of *The British Journal of Tuberculosis* is devoted to a discussion of housing problems. Mr. L. P. Abercrombie deals with the sites for new housing schemes. Where these are to supply labourers for industries which are firmly rooted in unhealthy soil he urges that the sites of dwellings and industry be divorced. The richer classes have already found the home away from business to be satisfactory wherever new industries are springing up. The modern methods of transferring and transforming energy must be taken into account. In many cases it may be possible to start new industries in healthier situations by the exercise of a little forethought.

Dr. A. M. Williamson, the medical officer of health for the city of Edinburgh, claims that statistics have clearly proved the close relationship which exists between tuberculosis and overcrowding. A crusade against tuberculosis cannot be successful while 53 per cent. of the occupied houses in Scotland consist of one and two rooms. Sir George Younger draws attention to the same evil, and points out that of 263 cases of tuberculosis notified in Scotland in the years 1914 and 1915 no less than 159 came from houses of one, two, and three apartments. The old country cottages of Scotland are badly situated and very damp. Through ventilation is impossible, and indeed there is often scarcely any ventilation at all, the windows being fixed with only one small pane that can be opened. That the situation is not very much better in England is shown by Dr. W. Savage. Of the tuberculous cases visited in Somerset between the years 1913 and 1918 more than 40 per cent. were found to be sharing their bedrooms with others, and in less than 10 per cent. of all cases was it found possible to remedy this state of affairs at a later date.

MEDICAL REGISTRATION IN INDIA.

THE WORK OF THE BOMBAY MEDICAL COUNCIL.

UP to the year 1912 no system for the regulation of medical practice existed in any part of India. Even the titles of physician and surgeon were not protected, and any quack could assume the most high-sounding medical titles and practise away without let or hindrance from the law. In 1912 the Government of Bombay set an example to the rest of India by passing the Bombay Medical Registration Act, which made it essential that all practitioners of medicine and surgery should be registered, and granted persons so registered the same privileges accorded by the Medical Act of 1886. The Act admits to the Register in Bombay all persons entitled to registration under the British Act, and in addition a large number of persons with qualifications not recognised in England—viz., assistant surgeons (military and civil), subassistant surgeons (military and civil), licensed medical practitioners, and certain practitioners holding diplomas from foreign universities and corporations. The Act set up a Bombay Medical Council, consisting of seven members nominated by the Governor of Bombay in Council, and five members elected by persons registered under the Act. This Council is presided over by the Surgeon-General with the Government of Bombay. The duties of the Council are entirely judicial and bounded by the letter of the Act. The Act also set up a new licensing body for the Presidency called the College of Physicians and Surgeons of Bombay. This College grants diplomas of two grades—viz., the Membership and the Fellowship. The example of the Bombay Presidency has been closely followed by Bengal and Madras, and similar licensing bodies have been constituted in the other Presidencies. The status of these bodies may be gathered from the fact that in 1916 the India Office forwarded to the General Medical Council a communication from the Government of India recommending that the Membership and Fellowship of the College of Physicians and Surgeons of Bombay should be recognised as registrable qualifications under the Medical Act, 1886. In 1917, however, the General Medical Council replied to the Secretary of State for India that it is not prepared to recognise for registration in the Colonial List of the Medical Register diplomas granted by bodies other than the Indian universities. The Bombay and other provincial medical councils publish annual registers on similar lines to the Medical Register. These registers spread their nets very wide, and in addition to the "Licensed Medical Practitioners" of the Bombay, Madras, and Calcutta Colleges, and the medical schools such as Poona, Agra, Nellore, Cuttack, Royapuram, and Vizagapatam, the names of medical men are found with diplomas from the United States of America and Canada, and even from Zurich and Copenhagen. At the end of 1917 a lay member of the Bombay Legislative Council introduced a Bill which would have greatly weakened the 1912 Act as it proposed to limit the judicial powers of the Council, especially in relation to the practice of Ayurvedic, Unani, and other indigenous methods of medical practice. It further proposed to include in the Bombay Medical Council representatives of the military assistant surgeon and subassistant surgeon class, and those holding college diplomas, and to alter the number of nominated members to five by increasing the number of elected members to seven. This Bill, however, failed to become law. The Bombay Medical Council is a very active body, and its attitude towards the indigenous systems o medicine may be summarised by a resolution passed early last year.

> "The Council does not consider the association of a registered medical practitioner with any institution adopting any particular theory of medicine or surgery illegal provided such association does not include any act which would render a registered medical practitioner liable to the discipline of the Council."

The Council has adopted and is issuing the "Warning Notice" of the General Medical Council of the United Kingdom. It has also prepared a Code of Ethical Suggestions for Registered Medical Practitioners which should d much to raise the ethical standard of medical practice i India. It has at a recent session considered the practice o dentistry by unqualified persons, but has not taken any step to acquire control over this branch of medical practice. Incorporated in the minutes of the Council for 1918 is a table showing the results of the several professional examinations held in Bombay in 1917, compiled by the registrar from returns supplied by the licensing bodies in pursuance with the rules of the Council.

In a communication dated Oct. 1st the registrar of the Bombay Medical Council sends us a summary of the proceedings of the Council held on Sept. 1st, and states that similar summaries will be issued in future. These summaries will form interesting reports on Indian professional affairs. The reader will in these reports probably find frequent references to Indian medical colleges and Indian medical schools. To the professional mind in this country the terms "medical college" and "medical school" constitute merely a distinction without a difference. To medical men in India they convey a difference in professional status as wide apart as the poles. A college curriculum in India constitutes a full medical curriculum equivalent to that for a university degree. All military assistant surgeons go through a college training of this kind at one of the Presidency towns. A "medical school" curriculum is a modified curriculum carried out at one of the provincial medical schools. Sub-assistant surgeons and licensed medical practitioners have only a school training. There is nothing similar to this division of qualified medical practitioners into two grades in this country, but a very similar distinction between the doctor of medicine and the *vrach* existed before the war in Imperial Russia.

URBAN VITAL STATISTICS.

VITAL STATISTICS OF LONDON DURING OCTOBER, 1919.

IN the accompanying table will be found summarised statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious disease it appears that the number of persons reported to be suffering from one or other of the ten diseases specified in the table was equal to an annual rate of 10·1 per 1000 of the population, estimated at 4,026,901 persons; in the three preceding months the rates had been 5·9, 4·9, and 6·6 per 1000. Among the metropolitan boroughs the lowest rates from these notified diseases were recorded in Kensington, Hammersmith, St. Marylebone, Hampstead, Holborn, and Woolwich; and the highest in Islington, Shoreditch, Bethnal Green, Stepney, Deptford, and Greenwich. The prevalence of scarlet fever showed a marked increase—67 per cent.—over that recorded in the preceding month; this disease was proportionally most prevalent in St. Pancras, Islington, Shoreditch, Southwark, Deptford, and Greenwich. The Metropolitan Asylums Hospitals contained 2293 scarlet fever patients at the end of the month, against 1516, 1409, and 1633 at the end of the three preceding months; the weekly admissions averaged 340, against 236, 184, and 265 in the three preceding months. Diphtheria was considerably more prevalent—38 per cent.—than it had been in the month of September; the greatest proportional prevalence of this disease was recorded last month in Fulham, Hackney, the City of London, Shoreditch, Bethnal Green, Stepney, and Woolwich. The number of diphtheria patients under treatment in the Metropolitan Asylums Hospitals, which had been 1108, 1001, and 1168 at the end of the three preceding months, rose to 1405 at the end of October; the weekly admissions averaged 207, against 153, 125, and 180 in the three preceding months. The prevalence of enteric fever was equal to that in the preceding month; the 55 cases notified last month included 6 in Stepney, 6 in Poplar, 4 in Islington, 4 in Hackney, 4 in Woolwich, 3 in Shoreditch, 3 in Bermondsey, and 3 in Greenwich. Erysipelas was proportionally most prevalent in Stoke Newington, Shoreditch, Bethnal Green, Stepney, Poplar, and Southwark. The 51 cases of puerperal fever notified during the month included 7 in Islington, 6 in Fulham, 4 in Poplar, and 3 each in St. Pancras, Hackney, Southwark, Camberwell, and Woolwich. Of the 8 cases of cerebro-spinal meningitis, 2 belonged to Poplar; while of the 20 cases of poliomyelitis, 5 belonged to Wandsworth, 4 to Lambeth, 2 to Chelsea, and 2 to Deptford.

The mortality statistics in the table relate to the deaths of civilians actually belonging to the several boroughs, the deaths occurring in institutions having been distributed among the boroughs in which the deceased persons had previously resided. During the five weeks ended Nov. 1st the deaths of 5446 London residents were registered, equal to an annual rate of 14·1 per 1000; in the four preceding months the rates had been 9·7, 9·8, 9·9, and 11·2 per 1000. The death-rates last month ranged from 9·7 in the City of London, 10·2 in Woolwich, 11·1 in Lewisham, 12·0 in Paddington, 12·1 in Wandsworth, and 12·2 in St. Marylebone, to 16·7 in Finsbury, 17·7 in Southwark, 18·3 in Shoreditch, 18·7 in Bermondsey, and 21·0 in Holborn. The 5446 deaths from all causes included 528 which were referred to the principal infectious diseases; of these, 34 resulted from measles, 12 from scarlet fever, 91 from diphtheria, 27 from whooping-cough, 16 from enteric fever, and 348 from diarrhœa and enteritis among children under 2 years of age. Among the metropolitan boroughs the lowest death-rates from these diseases were recorded in St. Marylebone, Hampstead, St. Pancras, the City of London, Lewisham, and Woolwich; and the highest in Finsbury, Shoreditch, Bethnal Green, Poplar, Southwark, and Bermondsey. The 34 deaths from measles were 16 fewer than the average number in the corresponding period of the five preceding years; of these, 5 belonged to Southwark, 4 to Camberwell, 4 to Deptford, 3 to Finsbury, 3 to Battersea, and 2 each to St. Pancras, Lambeth, and Greenwich. The 12 fatal cases of scarlet fever were 9 below the average, and included 2 in Wandsworth, 2 in Camberwell, and 2 in Greenwich. The 91 deaths from diphtheria exceeded the average by 11; the greatest proportional

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING OCTOBER, 1919.
(*Specially compiled for* THE LANCET.)

CITIES AND BOROUGHS.	Estimated civil population, 1917.	Notified Cases of Infectious Disease.												Deaths from Principal Infectious Diseases.									Deaths from all causes.	Death-rate per 1000 living.
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cerebro-spinal meningitis.	Poliomyelitis.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Enteric fever.	Diarrhœa and enteritis (under 2 years).	Total.	Annual rate per 1000 persons living.		
LONDON...	4,026,901	—	2179	1169	1	55	1	51	405	8	20	3889	10·1	—	34	12	91	27	16	348	528	1·4	5446	14·1
West Districts :																								
Paddington	122,507	—	44	24	—	1	—	2	15	—	—	86	7·3	—	1	—	1	—	—	10	12	1·0	141	12·0
Kensington	161,535	—	35	30	—	2	—	2	9	—	—	78	5·4	—	—	—	1	2	—	18	21	1·4	217	14·9
Hammersmith ...	114,952	—	18	28	—	2	—	2	10	—	1	61	5·5	—	—	—	—	1	—	9	10	0·9	166	15·1
Fulham	145,186	—	50	60	—	—	—	6	10	—	—	126	9·1	—	—	—	7	—	—	6	13	0·9	179	12·9
Chelsea	67,368	—	27	8	—	—	—	—	1	1	2	39	7·1	—	—	—	1	—	—	5	6	1·1	86	15·6
City of Westminster	122,046	—	51	21	—	1	—	1	10	—	—	84	7·2	—	—	—	2	1	—	9	12	1·0	149	12·7
North Districts :																								
St. Marylebone ...	92,796	—	21	6	—	—	—	—	6	—	—	33	3·7	—	—	—	—	—	—	5	5	0·6	109	12·2
Hampstead	75,649	—	27	12	—	2	—	—	3	1	1	46	6·3	—	—	1	—	—	—	3	4	0·6	91	12·5
St. Pancras	186,600	—	144	40	—	1	—	3	17	—	—	205	11·5	—	2	—	2	—	—	7	11	0·6	244	13·6
Islington	297,102	—	230	77	—	4	—	7	35	—	—	353	12·4	—	1	1	8	2	1	25	38	1·3	417	14·6
Stoke Newington...	47,426	—	16	14	—	1	—	1	6	—	—	38	8·4	—	—	—	2	—	—	2	4	0·9	61	13·4
Hackney	196,598	—	116	81	—	4	—	3	20	1	1	226	12·0	—	—	—	14	1	1	12	28	1·5	272	14·4
Central Districts :																								
Holborn	35,303	—	12	4	—	1	—	—	4	—	—	21	6·2	—	1	—	—	—	1	1	3	0·9	71	21·0
Finsbury	68,011	—	46	18	—	2	—	—	8	1	—	75	11·5	—	3	—	—	—	—	13	16	2·5	109	16·7
City of London ...	16,138	—	2	8	—	—	—	—	—	—	1	11	7·1	—	—	—	1	—	—	—	1	0·6	15	9·7
East Districts :																								
Shoreditch	89,675	—	82	48	—	3	—	—	13	—	—	146	17·0	—	1	—	3	—	1	21	26	3·0	157	18·3
Bethnal Green ...	107,362	—	49	116	1	—	—	—	27	—	—	193	18·7	—	1	—	12	—	—	17	30	2·9	150	14·6
Stepney	232,010	—	142	116	—	6	1	2	42	—	—	309	13·9	—	1	1	4	1	2	18	27	1·2	303	13·6
Poplar	143,443	—	57	54	—	6	—	4	31	2	1	155	11·3	—	1	—	2	5	4	15	27	2·0	215	15·6
South Districts :																								
Southwark	167,936	—	130	37	—	1	—	3	23	1	1	196	12·2	—	5	—	6	2	—	28	41	2·5	285	17·7
Bermondsey	107,636	—	36	22	—	3	—	1	10	—	—	72	7·0	—	1	1	2	—	2	22	28	2·7	193	18·7
Lambeth	272,038	—	182	77	—	2	—	—	22	—	4	287	11·0	—	2	—	11	1	—	31	45	1·7	390	15·0
Battersea	150,023	—	75	29	—	1	—	2	15	—	—	122	8·5	—	3	—	2	2	1	9	17	1·2	182	12·7
Wandsworth	300,787	—	163	67	—	2	—	2	23	—	5	262	9·1	—	—	2	3	1	—	17	23	0·8	350	12·1
Camberwell	239,461	—	123	53	—	1	—	3	16	—	1	197	8·6	—	4	2	2	4	—	24	36	1·6	332	14·6
Deptford	103,527	—	90	19	—	1	—	1	10	—	2	123	12·4	—	4	1	—	—	1	10	16	1·6	125	12·6
Greenwich	90,440	—	103	16	—	3	—	2	6	—	—	130	15·0	—	2	2	—	2	1	8	15	1·7	136	15·7
Lewisham	161,406	—	86	32	—	—	—	1	10	—	—	129	8·3	—	—	1	4	1	—	2	8	0·5	172	11·1
Woolwich...	131,942	—	22	51	—	4	—	3	3	1	—	84	6·6	—	1	—	1	1	1	1	5	0·4	129	10·2
Port of London ...	—	—	—	1	—	1	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—

* Including membranous croup.

mortality from this disease occurred in Fulham, Stoke Newington, Hackney, the City of London, Bethnal Green, Southwark, and Lambeth. The 27 fatal cases of whooping-cough were 5 less than the average, and included 5 in Poplar, 4 in Camberwell, and 2 each in Kensington, Islington, Southwark, Battersea, and Greenwich. The 16 deaths from enteric fever exceeded the average by 5; of these, 4 belonged to Poplar, 2 to Stepney, and 2 to Bermondsey. The 348 fatal cases of infantile diarrhœa were 19 in excess of the average number; this disease was proportionally most fatal last month in Kensington, Finsbury, Shoreditch, Bethnal Green, Southwark, Bermondsey, and Lambeth. In conclusion, it may be stated that the aggregate mortality in London in October from these principal infectious diseases was 1·0 per cent. above the average.

(Week ended Nov. 22nd, 1919.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at 16,500,000 persons, the annual rate of mortality, which had been 12·9, 13·4, and 13·9 in the three preceding weeks, further rose to 14·8 per 1000. In London, with a population slightly exceeding 4,000,000 persons, the death-rate was 14·7, or 0·5 per 1000 above that recorded in the previous week, while among the remaining towns the rates ranged from 7·1 in Acton and in Lincoln, 7·3 in Enfield, and 9·5 in Gillingham and in Wolverhampton, to 20·7 in Barnsley, 21·0 in Dudley, and 22·2 in Huddersfield. The principal epidemic diseases caused 244 deaths, which corresponded to an annual rate of 0·8 per 1000, and comprised 66 from measles and from diphtheria, 64 from infantile diarrhœa, 25 from whooping-cough, 20 from scarlet fever, and 3 from enteric fever. Measles caused a death-rate of 2·2 in Burnley and in Gateshead, 2·6 in Sunderland, and 4·4 in Barnsley. The 79 deaths from influenza were 5 above the number registered in the previous week, and included 22 in London, 5 in Manchester, and 4 each in West Ham, Portsmouth, and Birmingham. There were 2820 cases of scarlet fever and 1537 of diphtheria under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, against 2678 and 1478 respectively at the end of the previous week. The causes of 45 deaths in the 96 towns were uncertified, of which 8 were registered in Birmingham, and 3 each in London, Liverpool, Southport, Manchester, and South Shields.

Scotch Towns.—In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2,500,000 persons, the annual rate of mortality, which had been 12·4, 13·1, and 12·6 in the three preceding weeks, rose to 18·6 per 1000. The 427 deaths in Glasgow corresponded to an annual rate of 19·9 per 1000, and included 11 from measles, 5 from infantile diarrhœa, 2 each from scarlet fever, whooping-cough, and diphtheria, and 1 from enteric fever. The 120 deaths in Edinburgh were equal to a rate of 18·6 per 1000, and included 5 from diphtheria, and 1 each from measles and infantile diarrhœa.

Irish Towns.—The 138 deaths in Dublin corresponded to an annual rate of 17·8, or 4·3 per 1000 above that recorded in the previous week, and included 5 from infantile diarrhœa, 2 from scarlet fever, and 1 each from measles and diphtheria. The 167 deaths in Belfast were equal to a rate of 21·7 per 1000, and included 9 from measles, 8 from scarlet fever, 2 from diphtheria, and 1 each from enteric fever and infantile diarrhœa.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

To be Surgeon-Lieutenants: J. T. Wylie, F. L. H. MacDowel.

ARMY MEDICAL SERVICE.

Col. A. G. Thompson, C.M.G., D.S.O., is placed on half pay.

ROYAL ARMY MEDICAL CORPS.

Lieut.-Col. E. P. Sewell, C.M.G., D.S.O., relinquishes the temporary rank of Colonel.

Temp. Lieut.-Col. J. Hay (Captain, R.A.M.C., T.F.) relinquishes his temporary commission on re-posting.

Temp. Lieut.-Col. P. B. Giles, C.B. (Colonel, retired, T.F.), relinquishes his temporary commission.

Majors J. du P. Langrishe, D.S.O., T. H. Gibbon, and Temp. Capt. L. G. Brown relinquish the acting rank of Lieutenant-Colonel on ceasing to command Medical Units.

Capt. G. P. Taylor, D.S.O., relinquishes the acting rank of Lieutenant-Colonel.

Major D. G. Marshall, retired Indian Medical Service, is granted the rank of Lieutenant-Colonel on ceasing to be employed.

The undermentioned relinquish the acting rank of Major: Capts. W. E. Tyndall, J. P. Quinn, C. de W. Gibb, J. H. Pendered, Temp. Capts. J. E. H. Roberts, G. T. Cregan.

Capt. A. W. Raymond resigns his commission.

Captains, from Special Reserve, to be Captains: L. M. Routh, C. H. G. Penny.

C. Sullivan, late temporary Captain, to be temporary Captain.

Officers relinquishing their commissions: Temp. Capt. (acting Lieut.-Col.) D. Fletcher (granted the rank of Lieutenant-Colonel). Temporary Captains granted the rank of Major: H. F. Wilson, T. H. Oliver, R. C. Alexander, H. H. L. Ellison. Temporary Captains retaining the rank of Captain: W. McConnell, A. G. Caldwell, S. V. P. Pill, A. McNally, G. T. Symons, B. S. Simmonds, G. A. C. Gordon, E. J. Griffiths, R. T. Taylor, R. H. Rattray, E. Prall, H. J. McCurrick, T. Taylor, G. T. Walker, J. Pryce-Davies, D. M. Livingstone, W. J. B. Lavery, D. McCormack, F. E. Tillyard, J. A. Tippett, C. L. Wigan, R. P. Marshall, J. A. Wellwood, C. J. B. Buchan, A. E. Chisholm, A. L. Candler, A. R. Fuller, S. F. Fouracre, H. W. Drew, F. E. Daunt, G. H. Ensing, W. G. Gordon, F. E. Marshall, A. J. Ireland, J. McClellan, W. M. Thunder, H. L. Pearson; Temp. Lieut. C. R. Kidd (and retains the rank of Lieutenant).

Canadian Army Medical Corps.

Temp. Major (acting Lieut.-Col.) W. J. McAlister to be temporary Lieutenant-Colonel.

Officers retiring in the British Isles: Temp. Major P. D. Saylor; Temp. Capt. G. E. Duncan.

TERRITORIAL FORCE.

Capts. (acting Majors) C. W. J. Brasher and A. Rodger relinquish the acting rank of Major on ceasing to be specially employed.

Capts. L. Beesley and E. L. Forward to be acting Majors whilst specially employed.

1st London Sanitary Company: Capt. (acting Major) E. R. Marle relinquishes the acting rank of Major on vacating appointment of Chief Instructor, Agricultural Wing, Army Science College.

3rd London General Hospital: Capt. E. N. Keys-Wells relinquishes his commission on account of ill-health and retains the rank of Captain.

2nd Northern General Hospital: Capt. (acting Major) A. L. Whitehead relinquishes the acting rank of Major on ceasing to be specially employed.

ROYAL AIR FORCE.

Medical Branch.—Transferred to the unemployed list: Capts. M. J. Whelton, A. W. Weston, L. A. Walker, C. P. C. Sargent, E. D. Granger.

Dental Branch.—Transferred to the unemployed list: Capts. S. G. Smith, F. R. McCambley; Lieuts. G. O. Roper, N. A. Goudge.

THE ROYAL DENTAL HOSPITAL OF LONDON.

ANNUAL DINNER.

THE annual dinner of the staff and past and present students of the Royal Dental Hospital of London was held in the Connaught Rooms, Freemason's Tavern, on Nov. 22nd, when Sir Harry Baldwin presided. There was a good attendance, and after the usual loyal toasts had been honoured the chairman, in proposing the toast of "The Past and Present Students of the Royal Dental Hospital," congratulated all present on their being able to resume this annual event. He referred with pride to the past students who have gratuitously given their services on behalf of the fighting units. It had been arduous and disinterested work, and had opened up a big region of study in dealing with the wounds of the jaw and face. He hoped that, because, happily, the war was over, the cult of jaw surgery would not be allowed to die out. He thought that the outlook for a National Dental Service was favourable, and he trusted that the Ministry of Health would soon determine that unqualified practice should cease. He referred to the proposal that the adjoining site of the hospital, once occupied by Newton's house, should soon be acquired, as the accommodation of the hospital and school was again getting inadequate. They felt the want of beds for cases needing peace and rest after long anæsthesia, and then the treatment of injuries and diseases of the jaw could be provided for. Surgeons would be attached to collaborate with the dental surgeon in carrying out this work. A considerable sum of money would be required for the purpose, and he urged those present and their friends to do all they could to raise the necessary funds. Miss D. A. Grose replied for the present students. She is the winner of the Woodhouse scholarship, and the chairman congratulated the hospital authorities on their decision to admit women students. That was justified, he thought, by the chief scholarship being won by Miss Grose. Mr. T. H. Miller, in a humorous speech, replied for the past students. The Dean of the school, Mr. W. H. Dolamore, responded for the school, and after reminding his audience of the good pioneer work done by Morton Smale and J. Francis Pink, emphasised the importance of carrying out the proposed extensions mentioned by the chairman. Mr. H. Stobie proposed the health of "The Visitors," to which Sir George Makins replied, referring the audience to the cordial relationship which existed between the Royal College of Surgeons of England and the dental profession. He knew that good feeling would remain, for he and his colleagues were well aware of the high aims of the dental profession. He dwelt upon the extent to which the increased advances in science would put pressure on the student. The final toast, that of "The Chairman," was proposed by Mr. D. P. Gabell, which met with enthusiastic response. A good programme of music and recitals was provided.

Correspondence.

"Audi alteram partem."

SOCIETY FOR THE PREVENTION OF VENEREAL DISEASE.

To the Editor of THE LANCET.

SIR,—In view of the ravages and sufferings inflicted upon innocent persons, often women and children, by venereal diseases, and also of the fact that such diseases are very easily prevented, this society appeals to the public for donations in support of its policy of ensuring the adoption of preventive measures in the only way which offers any real hope of efficiently combating this terrible scourge. Immediate self disinfection, requiring no special skill or training, applied at the earliest possible moment, is the method advocated by this society, and for this purpose the necessary disinfectants must be immediately available.

The aims of this society are to acquaint the general public with these means, and to issue instructions for their proper use. The public are invited to become members of the society, for which the annual subscription is £1 1*s.*, and whether they become members or not, all who are interested are invited to send a stamped, addressed envelope, when our leaflet giving the necessary instructions will be sent in return, free of charge. Members of public bodies and representatives of works and clubs can obtain a supply for distribution on making application.

Inquiries, donations, and subscriptions should be sent to the honorary secretary, Society for the Prevention of Venereal Disease, 143, Harley-street, London, W. 1.

(Sgd.) WILLOUGHBY DE BROKE,
President.
RUDYARD KIPLING,
HUGH ELLIOT,
E. RAY LANKESTER, K C.B., F.R.S.,
LEONARD HILL, M.B., F.R.S.,
LAURENCE R. PHILIPPS, Bart.
} Vice-Presidents.
WM. ARBUTHNOT LANE, Bart., C.B., M S.,
JAMES CRICHTON-BROWNE, F.R.S.,
} Hon. Treasurers.
Executive Committee. {
H. BRYAN DONKIN, M.D., F.R.C.P.,
FRANCIS LLOYD, Lt.-Gen., G.C.V.O., K C.B., D S.O.,
R. A. LYSTER, M.D.,
JOHN MACALISTER, F.S.A., F.R.G.S.,
F. W. MOTT, K B.E., M.D., F.R S.,
WILLIAM OSLER, Bart., F.R S., F.R.C.P.,
C. W. SALEEBY, M D., F R S.E.,
J. H. SEQUEIRA, M.D., F.R.C.P., F.R.C.S.,
HUMPHRY ROLLESTON, K C B., M.D.,
HUGH WANSEY BAYLY, M.C., M.R.C.S.,
Honorary Secretary.

Nov 21st, 1919.

THE BRITISH FEDERATION OF MEDICAL AND ALLIED SOCIETIES

[LATE MEDICAL PARLIAMENTARY COMMITTEE].

To the Editor of THE LANCET.

SIR,—May we direct your readers' attention to the fact that a medical man is now contesting the by-election in the St. Albans constituency? In accordance with the policy of the Federation to support all approved medical candidates, irrespective of party, our executive is assisting Lieutenant-Colonel F. E. Fremantle, M.B., F.R.C.S., R.A.M.C. (T.F.), in every possible way, in what is likely to be a short but sharp fight. Colonel Fremantle has for many years been county medical officer of health, and would seem well qualified to represent the electors at a time when health matters and the reconstruction of the medical services make it more than ever necessary to increase medical representation in the House of Commons.

An individual appeal has been made to the medical men in the constituency, to which this letter directs attention, and also through the constituent organisations of the Federation to all nurses, pharmacists, and midwives in the area. All medical men within reasonable distance would greatly assist by lending their cars on the day of the poll or during the "campaign." A. E. Cockerell, Esq., 17, St. Peter's-street, St. Albans, should be communicated with by those able to help.—We are, Sirs, yours faithfully,

CHARLES BUTTAR, M.D.,
Hon. Secretary.
N. HOWARD MUMMERY, M.R.C.S., Lt.-Col.,
General Secretary.

5, Vere-street, W. 1, Nov. 24th, 1919.

IRISH PUBLIC HEALTH COUNCIL.

To the Editor of THE LANCET.

SIR,—May I ask a "Correspondent" (THE LANCET, Nov. 22nd, 1919, p. 947) to answer the following queries, any references to which, in his reply to my letter of Nov. 1st, are most carefully avoided.

1. How can the medical profession in Ireland be asked to carry out any public health scheme suggested by a body on which they have no members elected, on modern democratic principles, by themselves, and which they cannot regard as in any way representative of the whole country or indeed as acquainted practically with the wants, from a public health point of view, of the whole of Ireland?

2. Was the "Irish Medical Committee," to which he refers, asked by the medical profession as a whole to suggest any names to the Chief Secretary, as Health Minister for Ireland, for nomination by him to the Irish Public Health Council, and, if not, did that committee, before submitting them, bring their names before the whole profession for their approval?

3. When the names were, as a "Correspondent" says, nominated by the "Irish Medical Committee," who prevented the Chief Secretary from accepting three out of the number and only taking two? How would it do for any medical body or committee in Ireland to elect a Direct Representative on the Medical Council and not the profession as a body?

4. Is an Irish Health Council representative of the whole of the medical profession in Ireland, on which every one of the medical members is a Dublin resident, and three of whom are officials and not in active practice? Are the medical men of Cork, Belfast, Limerick, Londonderry, and the whole of rural Ireland a set of fools to be ignored? Is Dublin to be the one Irish city to have all the medical representation on a Public Health Council which is to attempt to legislate on medical matters for the *whole* of Ireland? Would such a state of affairs be tolerated by the medical profession of England or of Scotland that no doctor was to be considered fit to be a member of an English or a Scotch Public Health Council unless he was a resident in London or in Edinburgh?

5. What does a "Correspondent" think of the utter mess the advisers of the Chief Secretary for Ireland (the Health Minister) in Dublin have led him into on the housing question, as evidenced by the speeches of two Irish Members, Captain Redmond and Mr. Moles, in the House of Commons on Sept. 21st? The day is indeed gone when any Dublin officials, or any body (one or more) of Dublin practitioners, can assume to guide a Minister of the Crown on public health questions, unless they are practically acquainted with such matters, and unless they know, by personal consultation, the opinions of those who live outside Dublin. Both as to the Public Health Council and the Housing Scheme, had Mr. Macpherson consulted the opinions of those who know the wants, the limitations, and the difficulties of the whole of Ireland, and not trusted to officials—with a narrow horizon—and to others who think their residence in the capital of Ireland makes them omniscient, he could have kept himself from such deplorable mistakes.

I am, Sir, yours faithfully,
Nov. 22nd, 1919. IRISH PRACTITIONER.

THE ORIGIN OF QUINSY.

To the Editor of THE LANCET.

SIR,—For a not altogether inconsiderable period of time a quinsy has been termed a peritonsillar abscess; in theory this term seemed quite satisfactory for pus was found in the tissues deep or external to the tonsil. Complete excision of the tonsil, therefore, should entirelyobviate all risk of quinsy. The question is, Does it? As no collection of pus can be formed around a tonsil which is no longer there, it is absurd to speak of peritonsillar abscess; but to say that there can be no quinsy is quite a different thing! My experience seems to show that, on the contrary, quinsy can and does occur after enucleation of tonsils. This indicates that we should not now be inclined to accept the simple pathological statement given above for all cases of quinsy.

My views were altered after the second of the two cases to be narrated; after hearing of the first I was only certain that no peritonsillar abscess could have occurred, and as I then considered this condition to be synonymous with quinsy I said a quinsy could not have occurred, a remark which, in view of my present opinion, appears to me to have been erroneous. The first case was that of a boy whose tonsils I had removed completely, whose father was most annoyed at the boy having had, as above mentioned, a quinsy, and I had the boy up and examined him and was quite satisfied that the tonsil had been efficiently removed. The second case I saw with the late Dr. J Cahill; it was that of a boy whose tonsils we had dissected out and who had developed an inflammatory swelling in the throat exactly like a quinsy. This required incision, and behaved just like a quinsy. It seems, therefore, probable that the site of disease in quinsy lies not in the peritonsillar tissues, but that a quinsy is a suppurating deep cervical gland. This also explains the variations which occur in the seat of suppuration in quinsy. It is, in fact, a lateral retropharyngeal abscess.

I am, Sir, yours faithfully,
R. LAKE.
Cavendish-place, W., Nov. 20th, 1919.

"TUBERCULOUS MENINGITIS AND LETHARGIC ENCEPHALITIS."

To the Editor of THE LANCET.

SIR,—Your annotation under the above heading in THE LANCET of Nov. 22nd came to my notice the day after the death of a patient of mine, in whose case there was the same difficulty of diagnosis, and in this connexion it seems worthy of record.

S. G., a boy, aged 7, had for some months previous to onset been noticed by his mother to get thinner and change in temper, becoming irritable and wilful. He had a fall on his head a week before onset of his illness, which was sudden, with persistent vomiting, headache, and pyrexia. I diagnosed tuberculous meningitis on the following symptoms: Vomiting, headache, complaint of pain in the neck, and evidence of slight stiffness of the muscles of the neck, marked Kernig sign, tache cerebrale, which he showed, together with the fact that his mother is tuberculous. On the fifth day he ceased vomiting and became drowsy; this lethargy deepened until he could not be roused. He now became incontinent. On the seventh day the eyes began to look swollen, there was temporary convergent strabismus and rolling movements of the eyes.

I now suspected that the case was one of encephalitis lethargica. Lumbar puncture produced a clear fluid under considerable pressure, which the pathologist reported to be "almost clear, with granular deposit on centrifugalising. No excess of lymphocytes seen; no polymorphonuclear leucocytes. Deposit consisted of Gram-negative bacilli, presumably due to contamination." Dorsal decubitus with hands behind the head was the usual attitude. On the ninth day slight weakness of left levator palpebræ was noticeable, and ptosis was complete on the following day. Sweating was very profuse and a marked feature throughout. The pupils, at first widely dilated and equal, later became unequal, and before death became pinpoint. The pulse during the first week was remarkably regular at 80; during the second and third week it steadily increased in frequency. The temperature varied little from 100°–101° throughout.

The ultimate diagnosis was based on the lethargy, ocular symptoms, profuse perspirations, absence of head-retraction and of severe headache together with the negative findings in the cerebro-spinal fluid.

I am, Sir, yours faithfully,
Cliftonville, Margate, Nov. 22nd, 1919. HAROLD W. PARROTT.

SPIRITS FOR INFLUENZA.

To the Editor of THE LANCET.

SIR,—It appears from the Parliamentary Intelligence in THE LANCET of Nov. 22nd that Captain O'Grady asked the Prime Minister "whether he was aware that potent doses of spirits were the best prophylactic against influenza, and that many people perished last winter for the want of supplies." Mr. Bonar Law's answer, assuming your report gives it in full, took no note of these extraordinary statements, but mentioned that the question of the supply of whisky was under consideration; he might thus be taken as giving tacit consent to an outrageous suggestio falsi.

Might we not ask, in the interest of truth and public welfare, that similar false suggestions should not be allowed to pass and be published unchallenged? For what does the Minister of Public Health exist?

I am, Sir, yours faithfully,
St. Just, Tarring, Nov. 25th, 1919. SIDNEY DAVIES.

THE ÆTIOLOGY OF INFLUENZA.

To the Editor of THE LANCET.

SIR,—It was with great interest that I read Dr. G. E. Beaumont's article on the Ætiology of Influenza in THE LANCET of August 9th. During microscopic examination of the sputa of patients suffering from influenzal pneumonia I have noticed, in the great majority of cases, the presence of long threads resembling filaments of anthrax bacilli, but measuring only one-half to one-third of the latter in thickness. Some of these filaments were homogeneous, some were segmented and had the appearance of chains of strepto-bacilli, and some, again, showed bipolar staining and resembled long chains of diplococci. But my mind was so much mesmerised by the so-called Pfeiffer's bacillus that I paid no attention to these forms and put them down to accident or artefact.

There is at present in my wards a sporadic case of typical influenzal broncho-pneumonia, whose sputum collected direct from mouth into a sterile Petri dish showed under the micro scope not only the filaments described above, but also coccal clusters, tetrads, and mulberry masses, as described by Dr. Beaumont. These organisms are found more abundantly in the sputum than in the blood of patients; and subculture from the blood of infected cases has not been very successful In all probability the organisms present in the blood are no alive, but are merely the dead carcasses of the parasite Therefore it seems reasonable to presume that there is som substance in lung tissue which promotes or is conducive t the growth of this organism. I therefore venture to suggest that an agar medium containing different proportions of an aqueous extract of lung tissue—preferably human—should b tried to subculture this organism.

I regret that I have neither the time nor the convenienc in this out-of-the way place to do this, but I hope that Dr Beaumont will prove that this pleomorphic mycotic organism conforms to the postulates of Koch.

I am Sir, yours faithfully,
S. SUBBA RAE B.A., M.B., M.R.C.S., D.P.H.,
Shimoga, Mysore Province, South India. Civil Surgeon.

PENSION SCHEME FOR PANEL PRACTITIONERS.

To the Editor of THE LANCET.

SIR,—The committee of the Medical Sickness Society, a their meeting on Nov. 21st, had brought to their notice th Circular Letter No. 157 from the Panel Committee, Count of London, dealing with the proposed formation of a insurance society for panel practitioners for the purpose o providing them with pensions, life assurances, &c.

The Medical Sickness, Annuity and Life Assuranc Society was founded in 1884 by medical men for medica men only, has invested funds of £300,000, and has ha 35 years' experience in dealing with the profession o insurance matters, and it is felt that a fresh company quite unnecessary. The society is mutual and registere under the Friendly Societies Act, but, as is known to all i members, is now in process of being turned into a mutua company under the Assurance Companies Act, so as to enab it to work unhampered by Friendly Society regulations an to give greater scope for the requirements of the professio generally.

Accordingly, the committee ask that these facts should b widely known before any decision is made which might any way be detrimental to the existing Medical Sicknes Annuity, and Life Assurance Society.

I am, Sir, yours faithfully,
W. KNOWSLEY SIBLEY,
Vice-Chairman and Acting Chairman at above Meeting.
300, High Holborn, London, W.C., Nov. 22nd, 1919.

THE CALL OF THE ALPS.

To the Editor of THE LANCET.

SIR,—We observe that in your issue of Nov. 8th you quote official returns in disproof of the statement contained in our letter of October that "we are witnessing a veritable German exodus from Davos." Yet that statement is true. Your comparison of the numbers of visitors for two successive weeks affords no just criterion of a process lasting months. If for brevity's sake any two sets of figures are to be selected they should be the present returns and those for the same date last year, in order to eliminate the seasonal factor in fluctuation. There are now in Davos and neighbourhood in all 906 German visitors as against 2500 in November, 1918. Further, the decrease has been on the whole continuous, and that at a time of year when new arrivals were formerly numerous. It may be added in passing that the English have, on the contrary, just doubled their number.

We have reason to know that the general opinion of those interested differs widely from that expressed in your article in attaching great importance to this point, and we therefore ask you to find space for this reply to your criticism.

We are, Sir, yours faithfully,
W. G. LOCKETT,
British Vice-Consul.
Davos, Nov. 12th, 1919. ARNOLD F. BILL, M.D.

*** Dr. Bill has sent us a certified record of the number of visitors in the Davos Valley for the last 14 months, which, in the main, bears out his contention. Of the 2500 German visitors in November, 1919, 1000 or more were undergoing internment and did not, for some reason, figure in the usual return. The latest reported number of German visitors given as 867 includes 200 interned men, most of them patients in the Deutsches Kriegerhaus at the mouth of the Dischmathal, as well as 140 or 150 patients in the Deutsche Heilstätte at Wolfgang. Dr. Bill adds: "As we now see him, the average German is a very mild edition of his former self, and the change in the atmosphere of Davos is even more noteworthy than the figures suggest."—ED. L.

PORTRAITS OF ANDREAS VESALIUS.

To the Editor of THE LANCET.

SIR,—Being engaged upon a work on the Iconography of Andreas Vesalius, I should be grateful if you will allow me to appeal to those of your readers with whom I have not already corresponded on the subject and who own, or know of, any such portraits, painted or sculptured, to have the kindness to communicate with me. It is believed that certain of the portraits which at present are regarded as untraceable are to be found in institutions, in universities, medical schools, and the like, or in semi-public or private galleries. I may add that the book, which is to contain all the accessible portraits of the Father of Modern Anatomy, will be worthily produced under the authority, and with the support, of the "Annals of Medical History."

I am, Sir, yours faithfully,
M. H. SPIELMANN.
The Athenæum, Pall Mall, S.W., Nov. 26th, 1919.

MENTALLY DERANGED SOLDIERS IN PAUPER ASYLUMS.

To the Editor of THE LANCET.

SIR,—The Parliamentary answer on this subject, reported on p. 950 of your issue of the 22nd, is misleading. The fact that discharged soldiers who become insane are treated as private patients in asylums is, of course, all to the good, but, nevertheless, to gain admission to the asylum the unfortunate man has to be certified by the Poor-law medical officer, and goes in as a pauper. Transferring him to the private patient's side afterwards does not therefore meet the case.

Is it not possible to amend the law so that an insane pensioner can be treated as an insane serving soldier—i.e., be admitted (without certification) for observation, certification only being resorted to later if found to be necessary?

I am, Sir, yours faithfully,
Nov. 24th, 1919. MEDICAL SUPERINTENDENT.

THE LATE SIR T. LAUDER BRUNTON.

To the Editor of THE LANCET.

SIR,—In response to requests I propose to publish shortly a memoir of the late Sir T. Lauder Brunton. All profits from the sale of this book will be given to the sustentation fund of St. Bartholomew's Hospital. I should be very grateful for any communications from old friends of his, or for any letters of interest written by him. These would be carefully preserved and returned.

I am, Sir, yours faithfully,
7, Poole-road, Bournemouth. THOMAS BODLEY SCOTT.

Medical News.

UNIVERSITY OF LONDON.—At a meeting of the Senate held on Nov. 19th Sir Cooper Perry was appointed principal officer, an appointment which has been in abeyance since 1915. A resolution was passed expressing appreciation of the Goldsmiths' Company in presenting £15,000 National War Bonds to the London Hospital Medical College for the endowment of a University Chair of Bacteriology, and intimation was received of a bequest of about £3000 under the will of Mr. T. S. Hughes for the encouragement of original medical research in the University. It was also announced that the Graham Legacy Committee had made their first award of the gold medal to Dr. Charles Bolton, F.R.S., in recognition of original work in experimental pathology which he had conducted at the medical school of University College Hospital.

At examinations held recently the following candidates were successful:—

THIRD (M.B., B.S.) EXAMINATION FOR MEDICAL DEGREES.

Gerald Victor Wright Anderson, Univ. Coll. Hosp.; Owen Deane Brownfield, St. Thomas's Hosp.; Michael Waldo Boone Bulman, London Hosp.; Charles Hugh Colclough B rne, St. Thomas's Hosp.; Alix Jeanne Churchill, London Sch. of Med. for Women and St. George's Hosp.; Simeon Moses Cohen, St. Bart.'s Hosp.; Rolf Creasy, Guy's Hosp.; Nora Annie Crow, London Sch. of Med. for Women; Mary Day (honours, distinguished in forensic medicine and midwifery), St. Mary's Hosp.; Florence Marjory Edwards, London Sch. of Med. for Women; Reginald Stafford Foss, St. Thomas's Hosp.; Pinkus Joseph Freilich and John Norman Glaister, Univ. Coll. Hosp.; St. George Bernard Delisle Gray, Guy's Hosp.; Hubert Oliver Gunewardene, King's Coll. Hosp.; Cyril Edward Harrison, Middlesex Hosp.; Henry Nevill Hornibrook, St. Bart.'s Hosp.; Jack Joffe (honours, distinguished in pathology and surgery), Guy's Hosp.; Shankar Ramchandra Joglekar, Univ. Coll. Hosp.; Rhys Trevor Jones (honours, distinguished in medicine, forensic medicine, and surgery, University medal), St. George's Hosp.; Samuel Walter Maslen Jones, Middlesex Hosp.; Vivian Emrys Jones, Liverpool Univ.; Vasant Ramji Khanolkar, Univ. Coll. Hosp.; Hyman Jacob Levy, Univ. Coll., Cardiff, and St. Bart.'s Hosp.; Naunton Morgan Lewis, Westminster Hosp.; Ronald Guy Lyster, St. Bart.'s Hosp.; Charles Dundas Maitland, St. Thomas's Hosp.; Framroz Nanabhoy Moos, Univ. Coll. Hosp. and Grant Med. Coll., Bombay; Marie Mathilda Alice Moralt, London Sch. of Med. for Women; Edith Mary Ponsonby Morris, St. Mary's Hosp.; Manek Jamshedji Panthaky, King's Coll. Hosp.; John Ernest Pearce, St. Bart.'s Hosp.; George Stuart Bain Phillip, Charing Cross Hosp.; Frank Portas (honours, distinguished in pathology), Westminster Hosp.; Dorothy Priestley Priestley, Leeds Univ.; Mary Millicent Prior, St. Mary's Hosp.; William Arthur Richards, Charing Cross Hosp.; John Francis Ryan, St Thomas's Hosp.; Emmanuel Prinski Scott, London Hosp.; Evelyn Dennis Scott, Guy's Hosp.; George Harold Sims, St. Thomas's Hosp.; Herbert William Southgate, Guy's Hosp.; Frances Minnie Spickett, London Sch. of Med. for Women; Raymund Theron, London Hosp.; Austin Darley Wall, St. Bart.'s Hosp.; Alfred Basil Keith Watkins (honours, distinguished in medicine and surgery), London Hosp.; Cyril James Berkeley Way, Middlesex Hosp.; John Woollaston Wayte, St. Thomas's Hosp.; William Ronald White-Cooper, St. Bart.'s Hosp.; Alfred Williams Walker, Birmingham Univ.; and Arthur Graham Winter, London Hosp.

The following candidates have passed in one of the two groups of subjects:—

Group I.—David William Jabez Andrews, Middlesex Hosp.; Mary Rushton Barkas, London Sch. of Med. for Women and St. Mary's Hosp.; William Wallace King Brown, St. Thomas's Hosp.; Egbert Aubrey Lennox Crichlow, King's Coll. Hosp.; William Edward Kyle Coles, Univ. Coll. Hosp.; Joyce Emily Craggs, St. Mary's Hosp.; Ernest Ivon Davies, Charing Cross Hosp.; Elizabeth Cowper Eaves, Sheffield Univ.; Harold Ellis and Thomas Leslie Ellis, St. George's Hosp.; Ronald Kelson Ford, London Hosp.; Graydon Oscar Hume, Guy's Hosp.; Norah Dorothy Pinkerton, London Sch. of Med. for Women; Walter Ernest Karl Adolf Quitmann, Univ. Coll. Hosp.; John Augustus Waring Robinson, King's Coll. Hosp.; and Beriah Melbourne Gwynne Thomas, Univ. Coll., Cardiff, and St. Bart.'s Hosp.

Group II.—Christian Frederick Beyers, St. Bart.'s Hosp.; Ella Marianne Britten, St. George's Hosp.; Jacob Brodetsky, London Hosp.; John Ralph Dingley, Univ. Coll. Hosp.; Abel Evans, Charing Cross Hosp.; Algernon Sanders Green, Univ. Coll. Hosp.; Cecil Edward Eede Herington and Christopher Langton Hower, St. Bart.'s Hosp.; Eric Clark Hinde, Guy's Hosp.; Oscar Hyam Hyman, St. Thomas's Hosp.; George Edwin Kidman, Guy's Hosp.;

Reginald Heber Leigh, King's Coll. Hosp.; Sidney Simon Lindsay, St. Thomas's Hosp.; Kenneth McFadyean, Univ. Coll. Hosp.; Humphrey Ingilby Marriner, St. Thomas's Hosp.; Henry Elliott Reburn, King's Coll. Hosp.; William Thomas, St. Thomas's Hosp.; Morris John Theodore Wallis, Guy's Hosp.; John Prichard Williams, Westminster Hosp. and Univ. Coll., Cardiff.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—At the special and ordinary Primary Examination for the Fellowship of the College, held from Nov. 5th to 14th, 141 candidates presented themselves, of whom 67 (including 9 women) were approved and 74 were rejected. The following are the names of the successful candidates:—

W. Anderson, Aberdeen and Edinburgh Univs.; Helen Rosaline Ashton, London Sch. of Med. for Women; E. M. Atkinson, St. Bart.'s Hosp.; J. T. Blackburn, Leeds Univ.; L. R. Broster, Oxford Univ. and Guy's Hosp.; Edith Kathleen Budden, London Sch. of Med. for Women; N. St. J. G. D. Buxton, Univ. Coll. Hosp.; H. W. B. Cairns, Adelaide Univ. and Middlesex Hosp.; C. L. Chapman, Sydney Univ. and Univ. Coll. Hosp.; R. M. Clarke, Melbourne Univ.; J. H. Cobb, Sheffield Univ. and St. Bart.'s Hosp.; A. J. Cokkinis, St. Mary's Hosp.; Gwendolen Coode Cotton, London Sch. of Med. for Women; E. A. Crooke, Oxford Univ. and St. Bart.'s Hosp.; D. I. Currie, Leeds Univ.; P. D. Debono, Malta and St. Bart.'s Hosp.; H. R. Dew, Melbourne Univ. and St. Mary's Hosp.; L. A. Dingley, Univ. Coll. Hosp.; R. Fowler, Melbourne Univ. and St. Mary's Hosp.; Hilda Margaret Garlick, London Sch. of Med. for Women; Satyapriya Ghosh, Calcutta and London Sch. of Med. for Women; J. F. Gill, Aberdeen Univ. and St. Bart.'s Hosp.; C. L. Gimblett, Cambridge Univ. and St. Thomas's Hosp.; Marie Louise Pauline Goetze, London Sch. of Med. for Women; W. A. Hewitson, Durham Univ. and King's Coll.; F. C. Hunt, London Hosp.; Lily Graham Iliff, London Sch. of Med. for Women; L. M. Ingle, Cambridge Univ. and London Hosp.; J. A. Jenkins, Otago Univ. and Middlesex Hosp.; Gladys Hilda Emma Harriette Jane Jones, London Sch. of Med. for Women and London Hosp.; J. M. Keegan, Cork and St. Mary's Hosp.; T. P. Kilner, Manchester Univ.; D. Krestin, London Hosp.; C. Lambrinudi, Cambridge Univ. and Guy's Hosp.; J. V. Landau, St. Bart.'s Hosp.; B. L. Laver, Guy's Hosp.; R. J. M. Love, London Hosp.; K. MacCormick, Otago Univ. and Univ. Coll.; A. L. McGregor, Edinburgh Univ.; W. MacMurray, Glasgow Univ.; R. P. S. Mason, Middlesex Hosp.; Isabella Mary Mears, Edinburgh Univ.; C. H. Medlock, Guy's Hosp.; J. M. D. Mitchell, Aberdeen Univ. and King's Coll.; W. E. M. Mitchell, St. Bart's. Hosp.; J. G. B. Muir, Middlesex Hosp.; T. P. Noble, Edinburgh Univ. and Univ. Coll.; H. C. W. Nuttall, Liverpool Univ.; C. A. Raison, Middlesex Hosp. and Birmingam Univ.; C. S. L. Roberts, Guy's Hosp.; A. E. Roche, Cambridge Univ. and St. Bart's. Hosp.; J. J. M. Shaw, Edinburgh Univ.; W. Shaw, Cambridge Univ. and St. Bart.'s Hosp.; J. L. Shellshear, Sydney Univ. and Univ. Coll.; L. R. Shore, Cambridge Univ. and St. Bart.'s Hosp.; A. I. Silverman, Middlesex Hosp.; H. J. D. Smythe, Bristol Univ.; L. A. Spedding, Otago Univ. and Middlesex Hosp.; H. E. R. Stephens, Manchester Univ. and London Hosp.; H. C. Trumble, Melbourne Univ. and Middlesex Hosp.; N. S. B. Vinter and H. M. Wharry, St. Bart.'s Hosp.; F. W. Widgery, Guy's Hosp.; N. J. Wigram, Sheffield Univ. and Middlesex Hosp.; E. A. Wilson, Middlesex Hosp.; H. H. Wollard, Melbourne Univ.; and H. W. S. Wright, Univ. Coll. Hosp.

ON the occasion of his retirement from the office of medical officer of health to the Metropolitan Borough of Bethnal Green, after 44 years' service in the area, Dr. George Paddock Bate, J.P., has received the congratulation of the Borough Council in the form of a resolution engrossed on vellum.

AT a meeting of the University Court of the University of Manchester held recently an appeal for funds was issued, to obtain a sum certainly not less than £250,000. Since 1913 the number of students had increased by 1000, and now totalled 2550. Students of medicine alone had increased from 270 to 700. The immediate result is overcrowding of all departments, the medical school and the chemical departments being specially incommoded. The receipts for the year were £88,000, as against £73,000 in the previous year; the expenditure £89,000, as against £73,000. At the present time only four local authorities, in addition to Manchester and Salford, give any contributions to the University funds.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH.—At a meeting of the College held on Nov. 4th, Sir Robert Philip, the President, in the chair, the following, among others, were elected Honorary Fellows of the College, in recognition of their distinguished services during the war: Mr. Henry P. Davison, chairman of the American Red Cross; Professor A. Laveran, of Paris; Professor Marchiafava, vice-president of the Italian Red Cross; Professor E. Roux, director of the Institut Pasteur in Paris; Sir Arthur Stanley, chairman of the Joint War Committee of the British Red Cross; and Professor William H. Welch, director of the School of Hygiene and Public Health in Johns Hopkins University, Baltimore.

On a ballot the following members of the College were admitted to the Fellowship:—Dr. T. A. Ross, Ventnor; and Mr. R. B. Johnston, Penrith. The following were admitted to the Membership of the College after examination:—Dr. J. L. Boyd, Dr. C. H. Tewsley, Dr. R. C. Robertson, Dr. J. B. McDougall, and Dr. L. B. Cox.

The Morison Lectures for 1920 will be delivered in March by Lieutenant-Colonel Richard G. Rows, M.D.

ROYAL INSTITUTION OF GREAT BRITAIN.—A general meeting of the members will be held at Albemarle-street Piccadilly, London, W. 1, on Monday, Dec. 1st, at 5 P.M.

Sir William T. Lister, K.C.M.G., has been elected a surgeon to the Royal London Ophthalmic Hospital (Moorfields Eye Hospital).

THE Countess of Athlone (H.R.H. The Princess Alice) will open a hostel in connexion with the National Children Adoption Association at Tower Cressy, Campden Hill, London, W., on Monday next, Dec. 1st, at 3.30 P.M.

A THIRD edition of Sir George Newman's Memorandum, "An Outline of the Practice of Preventive Medicine" has been printed and copies are available through the usual channels.

HONORARY DEGREES AT LEEDS UNIVERSITY.—At a Congregation of Leeds University on Nov. 20th the honorary degree of D.Sc. was conferred upon Surgeon-General Sir Alfred Keogh and Sir Almroth Wright.

THE annual dinner of the Bristol Medical School, which has been in abeyance during the war, will be held on Thursday next, Dec. 4th, at the Royal Hotel, Bristol. Mr. R. G. P. Lansdown will be the President, and Sir Anthony Bowlby the guest of the evening.

A COTTAGE HOSPITAL FOR NEWQUAY.—At a public meeting recently held at Newquay, Cornwall, it was decided to erect a cottage hospital as a war memorial. A site has been promised, and several donations have been received. The estimated cost of the building is stated as £5000, and that of maintenance about £500 per annum.

THE TUBERCULOSIS SOCIETY.—A joint meeting of the society and the Association of School Medical Officers will be held at the rooms of the Medical Society, 11, Chandos-street, London, on Monday, Dec. 1st, at 8 P.M., when Dr. J. Kerr will open a discussion on the Various Aspects of Tuberculosis in Relation to School Life. Dr. Clive Riviere, Dr. F. S. Langmead, Dr. F. C. Shrubsall, and Dr. F. Kay Menzies are expected to take part in the discussion.

HAYWARDS HEATH HOSPITAL.—On Nov. 22nd H.R.H. Princess Alice, Countess of Athlone, with whom was Lord Athlone, paid a visit to the King Edward VII. and Eliot Memorial Cottage Hospital at Haywards Health, and opened the X ray room given by Miss Elizabeth Short "in memory of the late W. E. Davis, Esq., of Hillcrest, Paddock Hall-road, Haywards Heath," and the electrical massage and treatment room "in memory of Reginald C. Hind, Second Lieutenant, R.F.A., killed in France, February 8th, 1918. Given by his mother." It is proposed to convert the matron's and nurses' quarters into a children's ward and to build a nurses' home, and the scheme was warmly approved of by Lord Athlone, who spoke of the institution as an ideal little hospital. During the war period over 1000 soldiers were treated, not one death occurring among them.

THE Yarrow Convalescent Home for Children, Broadstairs, was opened 24 years ago, and Broadstairs was selected as a very suitable place, because it is in a notoriously healthy district with a large amount of bright sunshine, according to meteorological tables, as well as experience. The home accommodates 100 children—50 boys and 50 girls—the boys' age being from 4 to 12 years, and girls' from 4 to 14. These age limits can be extended for cases found by the medical attendant to be serious. There is facility for the treatment of such cases in what may be looked upon rather as a hospital than a convalescent home. There is provision for surgical operations and an X ray apparatus. A physician, who resides at Broadstairs, pays daily visits to the home, and medical men attached to an honorary staff visit when necessity requires it.

At the outbreak of war, owing to the position of the home in case of air raids or bombardment, the children were disbanded, and the committee of management placed the home at the disposal of the War Office authorities for the reception of sick and wounded soldiers. The home was used as a military hospital for nearly two years, and run by the committee of management. Later the Canadian military authorities took it over, working it entirely by the Canadian staff and at their own expense. It continued in the hands of the Canadians, who used it for limbless convalescent men waiting to return to Canada, up to June, 1917, when, in consequence of the frequent air raids and bombardments, the home was finally vacated, remaining closed until August of this year. Now it has been reopened for its original purpose, but the charge, which was 8s. per week per child prior to the war, has been raised to 15s. a week. The class of patients catered for is the children of middle- and upper middle-class families whose parents, in the existing high prices, cannot meet the cost of medical attendance and invalid treatment.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

NURSES REGISTRATION (No. 2) BILL.

THE text of the Bill as read a second time in the House of Commons on Nov. 18th is substantially as follows:—

A General Nursing Council.

Clause 1 sets up a General Nursing Council, the constitution of which is set out in a schedule. The Council on its first constitution is to consist of 25 members, composed of two persons, who shall not be registered medical practitioners, or nurses, or persons concerned with the regular direction or provision of the services of nurses, appointed by the Privy Council; two persons appointed by the Board of Education; five persons appointed by the Minister of Health, after consultation with persons and bodies having special knowledge and experience of training schools for nurses, of the work of matrons of hospitals, of general and special nursing services, and of general and special medical practice; 16 persons, who are or have at some time been nurses actually engaged in rendering services in direct connexion with the nursing of the sick, appointed by the Minister of Health after consultation with the Central Committee for the State Registration of Nurses, the College of Nursing, the Royal British Nurses Association, and such other associations or organised bodies of nurses or matrons as represent to the Minister that they desire to be consulted in the matter. The schedule further provides that the first members of the Council shall hold office for such term not exceeding three years from the commencement of the Act as the Minister of Health may provide. After the expiration of the term of office of the first members, the Council shall be composed of 9 persons appointed respectively by the Privy Council, the Board of Education, and the Minister of Health, and of 16 persons, being persons registered as nurses under the Act, elected in accordance with the prescribed scheme and in the prescribed manner by the persons so registered at the date of election. Any members of the Council other than the first members shall hold office for a term of five years. If the place of a member of the Council becomes vacant before the expiration of his term of office, whether by death, resignation, or otherwise, the vacancy shall be filled by appointment by the body or persons by whom the member was appointed, or if the vacating member was an elected member, by the Council.

Register of Nurses.

Clause 2 establishes a register of nurses which shall consist of the following parts: (*a*) a general part containing the names of all nurses other than nurses to be included in some other part of the register; (*b*) a supplementary part containing the names of male nurses; (*c*) a supplementary part containing the names of mental nurses; (*d*) a supplementary part containing the names of nurses trained in the nursing of sick children; and (*e*) any other prescribed part.

Rules.

Clause 3 lays down that the Council shall make rules for the following purposes: (*a*) for regulating the formation, maintenance, and publication of the register; (*b*) for regulating the conditions of admission to the register; (*c*) for regulating the conduct of any examinations which may be prescribed as a condition of admission to the register, and any matters ancillary to or connected with any such examinations; (*d*) for prescribing the causes for which, the conditions under which, and the manner in which nurses may be removed from the register, the procedure for the restoration to the register of nurses who have been removed therefrom, and the fee to be payable on such restoration; (*e*) for regulating the summoning of meetings of the Council and the proceedings (including quorum) of the Council; and (*f*) generally for making provision with respect to any matters with respect to which the Council think that provision should be made for the purpose of carrying the Act into effect (including provision with respect to the issue of certificates to nurses registered under the Act and with respect to the uniform or badge which may be worn by nurses so registered), and for prescribing anything which under the Act is to be prescribed.

The clause further provides that rules made in pursuance of it shall contain provisions (*a*) requiring as a condition of the admission of any person to the register that that person shall have undergone the prescribed training, and shall possess the prescribed experience, in the nursing of the sick; and (*b*) requiring that the prescribed training shall be training either in an institution approved by the Council in that behalf or in the service of the Admiralty, the Army Council, or the Air Council; and (*c*) enabling persons who, within a period of two years after the date on which the rules come into operation, make an application in that behalf to be admitted to the register on producing evidence to the satisfaction of the Council that they are of good character, are of the prescribed age, are persons who were for at least three years before Nov. 1st, 1919, bona fide engaged in practice as nurses in attendance on the sick under conditions which appear to the Council to be satisfactory, and have adequate knowledge and experience of the nursing of the sick.

Rules made under the clause are not to come into operation until they are approved of by the Minister of Health, and every rule is to be laid for 21 days on the table of each House of Parliament.

Clause 4 makes provision for the appointment of a registrar and staff.

Fees.

Clause 5 deals with fees, but in the case of an existing nurse's application the amount payable on application shall not exceed a guinea. The annual fee payable in respect of the retention of a name on the register shall not exceed 2*s.* 6*d*.

Clause 6 prescribes the conditions for the admission to the register of persons trained outside the United Kingdom in any part of His Majesty's dominions. There is further a provision insisting upon reciprocity. As the Act does not extend to Scotland or Ireland a proviso is inserted to provide that in the event of the establishment of a register of nurses in Scotland or Ireland the Council shall make rules enabling persons registered as nurses in these countries to obtain admission to the register of nurses established in England and Wales.

Clause 7 gives an appeal against the removal of a name from the register and against refusal to approve of an institution for training.

Penalties.

Clause 8 deals with penalties for the unlawful assumption of the title of registered nurse and for the falsification of the register. It reads: "(1) If any person, not being a person duly registered under this Act, at any time after the expiration of three months from the date on which the Minister of Health gives public notice that a register of nurses has been compiled under this Act, takes or uses the name or title of registered nurse, either alone or in combination with any other words or letters, or any name, title, addition, description, uniform, or badge, implying that he is registered under this Act or is recognised by law as a registered nurse, or with intent to deceive makes use of any certificate of registration as a nurse issued under this Act to him or any other person, he shall be liable on summary conviction to a fine not exceeding, in the case of a first offence, £10, and in the case of a second or any subsequent offence £50. (2) If any person wilfully makes, or causes to be made, any falsification of any matter relating to the register, he shall be guilty of a misdemeanor and shall, on conviction thereof, be liable to a fine not exceeding £100."

Second Reading of the Bill.

On Tuesday, Nov. 18th, Dr. ADDISON (Minister of Health) moved the second reading of the Nurses Registration (No. 2) Bill. In explaining the provisions of the Bill he emphasised the necessity of a register in the steps for the improvement of the profession of nursing.—Sir W. WATSON CHEYNE gave general approval to the Bill, but hoped there would be an opportunity to discuss the regulations under it for the registration of nurses after they were drawn up. He was disappointed that the Bill was limited to England.—Captain ELLIOT commented on the fact that the Bill did not apply to Scotland.—Mr. MUNRO (Secretary for Scotland) said that a similar Bill for Scotland was already drafted, and he hoped to bring it in without delay.—Major MOLSON, Lieutenant-Colonel RAW, and Major FARQUHARSON supported the Bill, although the last mentioned regretted that the Bill did not do certain things.—Sir W. WHITLA expressed regret that the case of Ireland in regard to nursing had not been mentioned.—Dr. ADDISON thought it might reasonably be expected that a similar proposal for Ireland would be forthcoming.

The Bill was read a second time.

The Rats and Mice (Destruction) Bill passed through the report stage in the House of Lords on Tuesday, Nov. 25th.

HOUSE OF COMMONS.

TUESDAY, NOV. 18TH.

Military Hospitals in South Wales.

Mr. SIDNEY ROBINSON asked the Secretary for War whether it was intended to establish and maintain a military hospital in South Wales at Neath or elsewhere; and whether, before a decision was arrived at, consideration would be given to the fact that there was a school of medicine already existing at Cardiff which would be of great value to such hospital if situated in its neighbourhood.—Sir JAMES CRAIG (Parliamentary Secretary to the Ministry of Pensions) replied: The Ministry of Pensions is opening a hospital at

Neath almost immediately for the reception of disabled ex-Service men. Every effort has been made to establish a hospital in or near Cardiff, but it is found that no suitable accommodation is available.

Mr. ROBINSON: Is it the intention of the authorities to disband the hospital erected at Chepstow?—Sir J. CRAIG: I do not think so, but I am not in a position to answer a supplementary question. If the honourable Member gives me any information I shall be glad to consider it.

Medical Benefit Regulations for Scotland.

Mr. J. JOHNSTONE asked the Under Secretary for the Scottish Board of Health whether he was aware that draft medical benefit regulations containing proposed new conditions of service in England had been laid by the Minister of Health for England before the representatives of the medical profession and insurance committees; whether draft regulations had yet been prepared for Scotland; and, if so, whether these regulations had yet been submitted to the medical profession and insurance committees in Scotland, or, if not, when he proposed to do so.—Mr. PRATT replied: I am aware that advance copies of a draft of proposed medical benefit regulations have been circulated to panel and insurance committees in England. The matter of new medical benefit regulations for Scotland is engaging the attention of the Scottish Board of Health, who have arranged to consult representatives of insurance practitioners and insurance committees on the subject on Nov. 20th.

Spirit Restrictions Removed.

Lieutenant-Colonel POWNALL asked the Food Controller by private notice whether he was yet in a position to state the decision of the Cabinet with regard to allowing extra quantities of spirit to be cleared in view of the increased demand at this period of the year for medicinal and other purposes.—Mr. ROBERTS replied: I am now able to announce that the Cabinet have decided that all restrictions on clearances of spirits from bond shall be removed forthwith.

Infectious Diseases in London.

Mr. GRUNDY asked the Minister of Health if he could state the number of cases of scarlet fever and of diphtheria notified in the County of London in the months of September and October, and how many cases had been treated in the institutions of the Metropolitan Asylums Board; and whether any difficulty had been experienced by the various borough councils in finding accommodation for infectious diseases.—Dr. ADDISON replied: The following was the number of cases notified in the County of London during the months of September and October:—

	September.	October.
Scarlet fever	1205	2017
Diphtheria	775	1074

The following are the number of cases admitted to hospitals of the Metropolitan Asylums Board:—

	September.	October.
Scarlet fever	1100	1502
Diphtheria	750	925

Some difficulty has been experienced during the last six weeks in accommodating all the cases for which admission was sought, the chief causes being (*a*) the substantial increase in the number of fever cases this autumn, as compared with the numbers for the past five years (on Nov. 13th there were 1589 more cases in hospitals of the Metropolitan Asylums Board than on any date last year); (*b*) the fact that the military who have had the use of six of the Board's hospitals during the war have not yet evacuated all of them; (*c*) the difficulty in securing all the nurses and domestic staff required, a difficulty accentuated by the reduction of working hours; (*d*) the allocation of beds in some hospitals to meet urgent demands for accommodation for tuberculous soldiers. At the present date (Nov. 17th) the difficulty has virtually been overcome, so far as can be judged from the cases now being applied for from day to day by the Borough Councils.

WEDNESDAY, NOV. 19TH.

Discontent among Medical Officers.

Sir WATSON CHEYNE asked the Secretary for War if he was aware of the discontent among the temporary Royal Army Medical Corps officers with the army in India on account of the manner in which their contracts of service were being interpreted; that men who had signed contracts in 1917 until the termination of the present emergency or until their services were no longer required, whichever should happen first, were informed in February, 1919, that the period of the emergency during which officers might count service for gratuity would expire on August 3rd, 1919; that on August 4th, 1919, they were asked to sign a fresh contract, which they almost unanimously refused to do; that shortly afterwards another contract, with somewhat better terms of pay, was offered to them, and they were told that those who refused to sign would be retained in the service whether they liked it or not; that some men who refused to sign have since been sent home to England and posted to hospitals there instead of being demobilised and allowed to resume their private practices, in one case at least the medical man being a volunteer and not a conscript; and whether he would reconsider this matter, especially in view of the uncertainty occasioned by the discontinuance of the gratuity and the offer of fresh contracts.—Mr. CHURCHILL replied: I am not aware that any discontent exists amongst temporary Royal Army Medical Corps officers in India on account of the manner in which their contracts of service are being interpreted. These officers were offered a new contract at 800 rupees per mensem if they would undertake to serve in the country for another year. Those eligible for demobilisation and who did not sign the new contract, but whose services could not immediately be spared were granted 750 rupees per month with effect from July 1st, 1919. The new rates of pay, although they did not include a gratuity, were better than those rates upon which they had been serving up to July 1st. Royal Army Medical Corps officers in India, as elsewhere, who are serving on a contract for the duration of the present emergency are liable to be retained until the statutory date for the end of the war, and they were doubtless so informed, but a certain number of these have been sent home on public or compassionate grounds, or because they were en route for the United Kingdom from Mesopotamia, but detained in India on account of the emergency in the country. Junior officers, if on a "duration of the war" contract, sent to the United Kingdom may be retained and posted to commands at home for duty, and their claims for release may not be considered as pressing as those of other officers whom they relieve.

Control of Patent Medicines.

Sir PHILIP MAGNUS asked the Prime Minister whether, having regard to the further demands on the country connected with public health and the ill-effect of the use and advertisement of certain patent medicines, the Government would take an early opportunity of introducing a Bill dealing with some of the recommendations of the Select Committee on Patent Medicines, whose report was published in 1913.—Dr. ADDISON replied: The subject referred to in the question has been having my careful consideration, and I am hoping before long to be able to take some practical steps in regard to it. But I am not to-day in a position to state the nature of those steps nor the date. I may assure the honourable Member that I appreciate the importance of the subject, but I must have regard also to numerous other matters of a more pressing character.

R.A.M.C. Major's Pension.

Sir HERBERT NIELD asked the Financial Secretary to the War Office whether he was aware that, under the Royal Warrant published on Sept. 13th, 1919, the pension of a Royal Army Medical Corps major, payable after 20 years' service, was reduced from £365 to £321, and that, in effect, such an officer would be worse off, so far as regards pension, than the infantry officer who joined the army straight from school; and whether he would state what was the reason for this anomaly and injustice, seeing that the Royal Army Medical Corps major had to go through an expensive technical course to qualify before entering the army, while the higher rate of pension was given to those whose military education was largely furnished at the expense of the State.—Mr. FORSTER replied: My attention has already been called to this point, and it is under consideration.

Beckett's Park Hospital.

Colonel ASHLEY asked the Minister of Pensions whether he would give a definite assurance that the Beckett's Park Hospital, Leeds, would not be closed down until there is no longer need for its maintenance.—Sir J. CRAIG replied: The answer is in the affirmative.

THURSDAY, NOV. 20TH.

Convalescent Training Centres.

Mr. HALLAS asked the Pensions Minister whether there had been several schemes under consideration for the establishing of convalescent training centres for disabled service men; and, if so, how many were in operation, how many men were undergoing such training, and at what cost up to date.—Sir L. WORTHINGTON-EVANS replied: The establishment of convalescent centres for the concurrent treatment and training of discharged disabled men has engaged my earnest attention for some time past. Labour and other difficulties have hindered progress, but a centre at Blackpool to accommodate from 600 to 1000 men will be opened on Nov. 25th, to be followed by others in different parts of the country. Another large centre at Epsom has been delayed for nearly six months owing to a wage difficulty which has stopped all progress. In addition to these large institutions smaller centres have been established. So far the number of men undergoing concurrent treatment and training is negligible, but with the establishment of the larger centres it is hoped within the next few months to have full facilities for 2500 cases. It is proposed in addition to increase the number of smaller centres. Figures of the cost to date are not at present available, as the Office of Works is still engaged in the necessary structural alteration of premises.

Major E. WOOD: How many men are there for whom no provision has yet been possible?—Sir L. WORTHINGTON-EVANS replied: I am afraid it is impossible to make any estimate of how many could be treated in the convalescent training centres until we are able to sort out the men suitable for those centres.

Captain COOTE: Has there been any difficulty in preparing the necessary buildings for setting up these training centres?—Sir L. WORTHINGTON-EVANS: I think the answer to the original question shows that there have been grave difficulties which I hope are being overcome.

Psycho-Therapy for Ex-Service Men.

Mr. MACQUISTEN asked the Pensions Minister whether he proposed to establish throughout the country cliniques for the treatment by means of psycho-therapy of functional nervous affections (including so-called shell-shock); whether, if he was to do so, he would issue instructions that all pensioners recommended to these cliniques for treatment would be informed of the nature of psycho-therapy, that it was a form of treatment in which more or less hypnotic suggestion was used; and whether, in the event of pensioners refusing to accept psycho-therapeutic treatment, he would ensure that the pensioners in question would not be prejudiced by such refusal, but that all pensioners would have offered to them the alternative of ordinary therapeutic treatment.—Sir L. WORTHINGTON-EVANS replied: The answer to the first part of the question is in the affirmative. With regard to the remainder of the question, I would remind the honourable Member that psycho-therapy is a comprehensive term, including many forms of treatment of which hypnotic suggestion is the form least frequently used. If in any case hypnotism should be proposed as the most desirable form of treatment the man would be perfectly free to refuse it and no penalty whatever would attach to his refusal.

Medical Treatment of Children in Ireland.

Mr. THOMAS GRIFFITHS asked the Chief Secretary to the Lord Lieutenant of Ireland whether the regulations for the carrying out of the Public Health (Medical Treatment of Children) (Ireland) Act had not yet been made; whether he could explain the reason for the delay in this matter; and whether the regulations when made would ensure that only fully trained nurses should be employed in connexion with the medical inspection and treatment of school children.—Mr. MACPHERSON replied: The Irish Public Health Council are at present engaged in drawing up these regulations, which are of a detailed and comprehensive character, and cannot be completed until the various interests affected have been consulted. The Council, however, realise the importance of formulating them at the earliest possible moment, and no time is being lost in the matter. The answer to the last part of the question is in the affirmative.

London Medical Benefit Fund.

Colonel BURN asked the Minister of Health if he would give the date upon which the London Insurance Committee were notified by him of the amount of the Medical Benefit Fund for the year ended Dec. 31st, 1918, the date upon which the Committee might be expected to make a settlement with the practitioners for the year 1918, the explanation of the delay in making the settlement; and whether the Minister would arrange for the payment to practitioners of interest at the current bank rate on the amount of the overdue settlement.—Dr. ADDISON replied: The London Insurance Committee were notified of the amount of the Medical Benefit Fund for 1918 on Sept. 9th, 1919. I am informed that the Committee hope to complete the accounting arrangements and to issue the cheques for the balances due to practitioners on the final settlement within the next few days. The accounting operations have been delayed by a few weeks as compared with previous years, because the same staff have been engaged in calculating and making payment of the current half-quarter's instalment of the doctors' remuneration and of the instalments of their 1919 war bonus. No funds are available to the Insurance Committee for the purposes of a payment such as is suggested in the last part of the question. I would add that the London doctors had instalments amounting to 84 per cent. of their money during 1918 and shortly after the end of the year. Some considerable delay before the final settlement for the year can be effected is unavoidable under present arrangements, but a new system is being introduced to which the profession have agreed from 1920 onwards which will entirely obviate these long delays in making a final settlement.

Maintenance of Hospitals.

Colonel NEWMAN asked the Minister of Health whether the Government had any intention of converting the hospitals, hitherto maintained by voluntary contributions, into institutions partially or wholly assisted from public funds?—Dr. ADDISON replied: The step suggested in the question would not be within the power of the Ministry of Health without legislation in respect of any hospitals not willing to receive such subsidies.

Anti-Influenza Vaccine.

Mr. WATERSON asked the Minister of Health whether instructions had been issued by his department to medical officers of health to arrange for a supply of anti-influenza vaccine for the public, or whether those medical officers of health who were notifying the public in their districts that such vaccine was available at a certain specified charge were acting independently of the Ministry of Health.—Dr. ADDISON replied: The answer to the first part of the question is in the negative, but the Ministry are now making arrangements for the preparation of a new supply of anti-influenza vaccine to be made available to medical officers of health for distribution to all practitioners in their areas who desire it. A circular and instructions will be issued, I hope, in a few days.

Infectious Disease in London.

Mr. GRUNDY asked the Minister of Health whether he was aware that at the present time infectious diseases were spreading in London, because the patients could not be isolated, and what steps he was taking in the matter.—Dr. ADDISON replied: The statement and figures which I handed in on Nov. 18th in reply to the honourable Member's question on the same subject showed that the matter is well in hand, and there seems no reason for thinking that any abnormal spreading of infectious disease is taking place or that there is any such shortage of beds as to have that effect.

Prices and Supplies of Quinine.

Mr. HURD asked the President of the Board of Trade if he would state why the report of the Committee on Prices and Supplies of Quinine Sulphate had not been published as promised, and what was the cause of the delay.—Sir A. GEDDES replied: I regret that it has not yet been found possible to publish the findings of the Committee appointed to investigate the prices and supplies of quinine sulphate; the delay has been occasioned by the necessity of considering certain legal questions connected with the publication of the report.

MONDAY, NOV. 24TH.

The Law of Death Certification.

Mr. ROWLANDS asked the Prime Minister whether he was aware that the Select Committee on Death Certification, 1893, reported that they were much impressed with the serious possibilities implied in a system which permitted death and burial to take place without the production of satisfactory medical evidence of the cause of death, and that the Departmental Committee on the Law Relating to Coroners, in their Report of 1910, stated that the present Law of Death Certification offered every opportunity for premature burial and every facility for the concealment of crime; that nothing had been done since the dates mentioned to remedy these evils; and if he would bring in legislation to give effect to the recommendations of these committees and to guard against the dangers to which they call attention. Mr. Rowlands asked the Minister of Health if he would state what was the number of uncertified deaths in England and Wales for the five years 1914 to 1918 respectively; and what was the proportion per 100 of such uncertified deaths to the total number of deaths in England and Wales in each of these years.—Sir J. TUDOR WALTERS (Paymaster General), replying for Dr. Addison (Minister of Health), said: The figures asked for are as follows:—

	Total deaths.	Uncertified deaths.	Proportion
1914	516,742	6279	1·22
1915	562,253	7684	1·37
1916	508,217	7528	1·48
1917	498,922	7552	1 51
1918	611,861	8244	1·37

Steps were taken in 1914 to reduce, so far as this object could be secured by administrative action, the dangers alluded to by requiring registrars to report all uncertified deaths to a coroner; so that all of the cases included in the above figures as "uncertified" have in fact been considered by a coroner and either been made the subject of an inquest or been decided by the coroner not to need one. But in my opinion the present law of death certification needs reform, and the matter is receiving attention with a view to its being dealt with so far as possible in legislation as soon as possible.

Treatment and Training of Tuberculous Men.

Lieutenant-Colonel RAW asked the Minister of Health if he had considered the recommendations of the committee with regard to treatment and training of tuberculous ex-Service men, as the matter was one of serious urgency to the men concerned.—Sir J. TUDOR WALTERS replied: Yes, Sir; immediately the report was received steps were taken to expedite the carrying into effect of its recommendations as indicated in my reply to the honourable Member on 10th inst. on the same subject. And I have just received a further letter of consent from the Treasury in respect of the development of training facilities.

A Question of Medical Evidence.

Mr. NEIL MACLEAN asked the Parliamentary Secretary to the Ministry of Munitions whether he was aware that F. C. Thompson was injured on May 7th when at work at the Royal Small Arms Factory at Enfield Lock, and as a result had been unable to work since, and that the factory doctor's examination of his condition coincided with his panel doctor's; if he was aware that this man had received no compensation despite repeated applications; and whether he was in a position to state what action his department intended to take in the matter.—Mr. HOPE (Financial Secretary to the Ministry of Munitions) replied: The man referred to did not make any report at the time of the alleged injury while at work, nor did the medical evidence which was forthcoming support his subsequent claim that his incapacity was due to such an injury. In view, however, of further medical evidence it has recently been decided to pay him compensation under the Workmen's Compensation Act at a rate regarded as commensurate with the degree of incapacity, which appears to be only partial. A payment on account of arrears has already been made.

Poor-law Nurses and the Registration Bill.

Lieutenant-Colonel Sir SAMUEL HOARE asked the Minister of Health whether it was proposed to put upon the council to be set up under the proposed Registration of Nurses Bill a representative of the Poor-law nursing services.—Sir J. TUDOR WALTERS replied: It would be premature at this stage to make any statement in regard to appointments to be made to the first council, but I am fully alive to the importance of securing that the council shall be as representative as possible of all types of nursing service.

Vaccination.

Mr. WATERSON asked the Minister of Health whether, before introducing a Bill for the separation of the medical work of boards of guardians from their duties under the Poor-law, he would institute an inquiry into the present position of vaccination in England and Wales, with a view to the abolition of all compulsion, seeing that the compulsory vaccination law was opposed by more than half the parents of Great Britain, as shown by the vaccination returns.—Dr. ADDISON replied: It goes without saying that the question of public vaccination work and administration must be considered when the Poor-law machinery is dealt with, but I see no reason for "inquiry" such as is here suggested.

TUESDAY, NOV. 25TH.

Payment to Doctors at V.A.D. Hospitals.

Mr. WATERSON asked the Financial Secretary to the War Office whether he was aware that on June 16th, 1915, a circular letter was issued to all general officers, commanding-in-chief, Home forces, reference No. 24/, general No. /3952 (F 2), and sent out granting payment to medical practitioness at Voluntary Aid Detachment hospitals at a certain amount per diem per patient under treatment, and that at the close of this circular it was stated that the authority was not published for general information; and whether he would explain why, although payment would be made if asked for, doctors who were rendering service, sometimes at financial loss to themselves, were not to be informed of the provisions of this order.—Mr. FORSTER replied: This question, now more than four years old, has been fully dealt with in the House some two and a half years ago; but I may say briefly that the circular did not grant payment for services generally, but only instructed the local military authorities as to the limits within which they might remunerate doctors who were no longer prepared to tend the sick and wounded in Voluntary Aid Hospitals without payment. I gladly recognise the fact that the majority of members of the medical profession other than those called upon to give whole-time service did not ask for payment.

Houses for Nurses in Lewis.

Dr. MURRAY asked the Secretary for Scotland whether he was aware of the need for dwelling-houses for district nurses in the island of Lewis; and whether the Scottish Board of Health had made any progress in the direction of providing these houses.—Mr. MUNRO replied: I am aware of the need for dwelling-houses for district nurses in Lewis, and the Scottish Board of Health are at present in communication with the Lewis District Committee on the subject. The Board are prepared to give assistance where required from the Highlands and Islands (Medical Service) Funds towards the provisions of nurses' houses.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institution and others possessing information suitable for this column, ar invited to forward to THE LANCET *Office, directed to the Sul Editor, not later than 9 o'clock on the Thursday morning of eac week, such information for gratuitous publication.*

DE MORGAN, H. A., L.R.C.P., M.R.C.S., L.M.S.S.A., has bee appointed House Surgeon at the Torbay Hospital, Torquay.

LISTER, Sir W. T., K.C.M.G., Surgeon to the Royal Londo Ophthalmic Hospital (Moorfields Eye Hospital).

MOXEY, P., M.B., Ch.B., D.P.H. Bristol, L.S.A., Medical Officer Health and School Medical Officer to the County of the Is of Ely.

SPILSBURY, B. H., M.B., B.Ch. Oxon., Pathologist and Lecturer Morbid Anatomy and Histology at the Medical School of S Bartholomew's Hospital.

TANGYE, C. E., B.A., M.D., B.S. Lond., L.R.C.P., M.R.C.S., D.P. Birm., County Medical Officer of Health for Wiltshire.

Royal Dental Hospital: STEADMAN, S. F. St. J., D.P.H., M.R.C. L.R.C.P., L.D.S., Lecturer on Dental Diseases in Childre STOBIE, H., M.R.C.S., L.R.C.P., L.D.S., Lecturer on Operati Dental Surgery.

Royal Devon and Exeter Hospital: BRASH, E. J. Y., B.A., M. B.C. Cantab., L.R.C.P., M.R.C.S., Surgical Registrar; COOKSO H. A., M.B., B.Ch. Edin., F.R.C.S. Edin., D.P.H. Canta Assistant Pathologist; LOCK, N. F., F.R.C.S. Eng., M. M.B., B.C. Cantab., L.R.C.P. Lond., Honorary Assistant Surgeo

Certifying Surgeons under the Factory and Workshop Act KILFEATHER, J. P., M.B., B.Ch. N.U.I. (Riverstown); DAL C. B., L.R.C.P. Lond., M.R.C.S. Eng. (Birmingham, East).

Vacancies.

For further information refer to the advertisement columns.

Aylesbury, Royal Buckinghamshire Hospital. H.S. £200.
Belfast District Asylum.—Two Asst. M.O.'s. £300.
Birkenhead County Borough.—Asst. M.O.H. and Clin. Tuberc. £500.
Bolingbroke Hospital, Wandsworth Common, S.W.—H.S. £150.
Bristol Eye Hospital.—Hon. S. Hon. Asst. S.
Cambridge, Addenbrooke's Hospital.—H.P. £130.
Cancer Hospital (Free), Fulham-road, S.W.—Surg. Reg. £100.
Central London Ophthalmic Hospital, Judd-street, W.C.—Asst. Path. £75.
Chester Royal Infirmary.—H.P. £150.
City of London Maternity Hospital, City-road, E.C.—R.M.O. £10
Colchester, Essex County Hospital.—H.P. £200.
Countess of Dufferin's Fund, India, Women's Medical Service. Two Medical Women.
Croydon County Borough, Hospital for Infectious Diseases.—Re M.O. £500. Asst. Res. M.O. £250. Also Res. M.O. for the San torium, North Cheam, Surrey. £525.
Darlington Union.—M.O. and Pub. Vac. £350.
Deptford Metropolitan Borough.—M.O.H. £800.
Derby, Royal Derby and Derbyshire Nursing and Sanitary Associ tion.—Two Hon. Obst. P.'s to Nightingale Nursing Home.
Dorchester, Dorset County Council.—Asst. County M.O. £400.
Dumfries, Crichton Royal.—Asst. P. £350.
East London Hospital for Children and Dispensary for Wome Shadwell, E.—Pathol. and Reg. £200.
Gloucestershire Royal Infirmary and Eye Institution.—Asst. Ophthal. S.
Hackney Union Infirmary.—Jun. Asst. M.O. £314.
Halifax, Royal Infirmary.—H.S. £200.
Hampstead General and North-West London Hospital, Haverstoc hill, N.W.—H.S. and H.P. £150 each. Phys. for Dis. of Skin.
Hospital for Women, Soho-square, W.—Clin. Assts.
Hull Royal Infirmary.—H.P. £200. Asst. H.S. £150.
Ilford Urban District Council.—Asst. M.O.H. £450.
Leamington Spa, Warwickshire United Districts.—M.O.H. £700.
Leicester, North Evington Poor-law Infirmary.—Res. M.O. £300.
Liverpool, Royal Southern Hospital.—Non-Res. Path. and Bact. £1
London County Mental Hospitals.—Asst. M.O.'s. £300.
London Temperance Hospital, Hampstead-road, N.W.—Clin. Asst.
Maidstone, Kent County Ophthalmic Hospital.—Hon. Aural S.
Manchester City Education Committee.—Female Asst. Sch. M. £450.
Meathop, Grange-over-Sands, Westmorland Sanatorium a Home.—Second Asst. M.O. £250.
Metropolitan Hospital, Kingsland-road, E.—H.P. and H.S. £1 Asst. H.P. and Asst. H.S.
Middlesbrough, North Riding Infirmary.—Hon. Oph. S., Ho Asst. S., and Hon. Anæsth.
Miller General Hospital for South-East London, Greenwich-roa S.E.—Sen. Res. M.O. £350.
Northamptonshire Sanatorium.—Interim Med. Supt. £400.
Oldham County Borough.—Asst. Tuberc. O. £390.
Oldham Royal Infirmary.—Ophthal. S. £50.
Portsmouth, Royal Hospital.—H.S. £150.
Prince of Wales's General Hospital, Tottenham, N.—Hon. Asst. Hon. P., Hon. Asst. Ophth. S., and Hon. Asst. S.
Queen Mary's Hospital for the East-End, Stratford, E.—Ho Asst. P.'s.
Rochester, St. Bartholomew's Hospital.—Res. H.S. £300.
Royal Free Hospital, Gray's Inn-road, W.C.—Asst. P. M.O.'s Charge of Electro-Therapeutic, &c., Depts.
Royal Surgical Aid Society.—Jun. S. 100 gs.
St. Albans, Herts County Asylum, Hill End—Second Asst. M. £400.
St. Thomas's Hospital.—Phys. in Charge of Tuberc. Dept.
Salford Royal Hospital.—Cas. H.S. £100.
Southport General Infirmary. Sen. H.S. £250.

Stafford, Staffordshire Education Committee.—Asst. Sch. Med. Inspectors. £450.
Stafford, Staffordshire General Infirmary.—H.S. £250. H.P. £200.
Surrey, Downs Sanatorium for Male Adults, near Sutton.—Asst. M.O. £250.
Surrey, Virginia Water, Holloway Sanatorium (Hospital for the Insane).—Jun. Asst. M.O. £300.
Swansea County Borough.—Asst. M.O. £450.
Taunton, Taunton and Somerset Hospital.—Sen. and Jun. H.S.'s. £200 and £150.
University of Birmingham.—Female Demonstrator in Anat.
Ventnor, Isle of Wight, Royal National Hospital for Consumption and Diseases of the Chest.—Asst. Res. M.O. £200.
Victoria Hospital for Children, Tite-street, Chelsea, S.W.—Sen. Res. M.O. £250.
Wolverhampton and Staffordshire General Hospital.—H.S. £200.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Batley and at Nantwich.

Births, Marriages, and Deaths.

BIRTHS.

COMYN.—On Oct. 24th, at Simla, India, the wife of Captain Kenneth Comyn, R.A.M.C., of a son.

HART.—On Nov. 15th, at Nursing Home, Norwich, the wife of J. Duncan Hart, North Walsham, Norfolk, of a daughter.

JAMESON.—On Nov. 18th, at Philbeach-gardens, S.W., the wife of Captain G. D. Jameson, R.A.M.C., of a son.

KELLY.—On Nov. 21st, at Eastern House, Hurstpierpoint, Hassocks, the wife of Dr. Francis H. Kelly, of a daughter.

THORN.—On Nov. 22nd, at "St. Martin," 28, College-road, Harrow, the wife of Harold E. Thorn, M.B., B.S., of a son.

DEATHS.

BORROW.—On Nov. 16th, at Alexandria, Frederick Charles Borrow, M.B. Lond., Surgeon, H.M. Transport *Tagus*, aged 43.

EVERSHED.—On Nov. 17th, at Fishbourne, near Chichester, Arthur Evershed, M.R.C.P. Lond., in his 84th year.

GRAY.—On Nov. 23rd, Temporary Captain William Harrington Gray, R.A.M.C., of 169, Auckland Hill, West Norwood, in his 44th year.

ROSS.—On Nov. 20th, at Thistle Mount, Waterfoot, Alexander Munro Ross, M.B., Ch.B. Aberd., aged 45 years.

STEVENS.—On Nov. 18th, at Lyncourt, Paignton, Cecil Robert Stevens, Lieutenant-Colonel, I.M.S., aged 51.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Communications, Letters, &c., to the Editor have been received from—

A.—Mr. F. L. Apperly, Lond.; Capt. H. St. A. Agate, M.C., R.A.M.C.

B.—Dr. A. F. Bill, Davos-Platz; Dr. G. Blacker, Lond.; Col. R. J. Blackham, C.B., C.M.G., C.I.E.; Dr. A. E. Boycott, Lond.; Dr. W. Langdon Brown, Lond.; Dr. H. W. Bayly, Lond.; Board of Agriculture and Fisheries, Lond.; Dr. J. Blomfield, O.B.E., Lond.; Prof. F. A. Bainbridge, Sidmouth; Messrs. Butterworth and Co. (India), Ltd., Calcutta.

C.—Mr. J. F. Colyer, Lond.; Dr. J. P. Cullen, Lond.; Dr. H. Carlill, Lond.; Mr. H. G. Chessher, Lond.; Mr. A. C. Chapman, Lond.; Mr. N. L. Chatterjee, L.M.S., Calcutta; Dr. H. P. Cholmeley, Forest Row.

D.—Mr. R. E. M. Delpech, Lond.

E.—Mr. W. H. Evans, Lond.; Miss M. L. Eyles, Bexhill-on-Sea; Dr. E. Evans, Cardiff.

F.—Dr. A. T. W. Forrester, Narborough.

G.—Dr. R. L. Gamlen, Stockport; Mr. G. E. Gask, Lond.; Sir A. P. Gould, K.C.V.O., Lond.

H.—Dr. S. Hastings, Lond.; Dr. C. T. W. Hirsch, Lond.; Dr. A. J. Hall, Sheffield.

I.—Dr. E. C. B. Ibotson, Corris.

J.—Dr. A. J. Jex-Blake, Lond.; Mr. F. W. Joshua, Great Malvern; Lieut.-Col. S. P. James, I.M.S.; Dr. D. W. Carmalt Jones, Lond.

K.—Dr. E. H. Kettle, Lond.; Dr. J. Kirkland, Lond.; Mr. C. L. Kingsford, Lond.

L.—Dr. J. G. Ledingham, Lond.; Dr. G. C. Low, Lond.; Mr. R. Lake, Lond.

M.—Dr. P. Manson-Bahr, D.S.O., Lond.; Mr. T. H. Morse, Deal; Ministry of Health, Lond.; Dr. R. O. Moon, Lond.; Dr. R. W. MacKenna, Liverpool; Dr. E. D. Macnamara, Lond.

N.—National Children Adoption Association, Lond.; National Safety Council, Chicago.

P.—Dr. W. A. Potts, Edgbaston; Mr. J. F. Peart, Lond.; Surg.-Lieut.-Comdr. R. J. S. Parnell, R.N.

R.—Röntgen Society, Lond.; Dr. H. F. Renton, Doncaster; Royal College of Physicians of Edinburgh, Sec. of; Mr. S. S. Rao, Shimoga; Mr. R. P. Ratnakar, Manchester; Major T. S. Rippon, O.B.E.; Dr. W. C. Rivers, Worsboro' Dale; Dr. F. A. Roper, Exeter.

S.—Dr. A. G. Shera, Eastbourne; Prof. W. Stirling, Manchester; Scottish Midwives Association, Lond., Sec. of.

T.—Dr. F. E. Tylecote, Manchester; Mr. A. H. Tubby, C.B., C.M.G., Lond.; Mr. H. Tilley, Lond.

U.—University of London, Academic Registrar of.

V.—Mr. R. M. Vick, C.B.E., Lond.

W.—Dr. G. A. Watson, Rainhill; Dr. J. D. Wynne, Norwich; Dr. J. H. F. Wilgress, Folkestone; Dr. E. Ward, Paignton; Dr. N. Walker, Edinburgh; Messrs. J. Weiss and Son, Lond.

Communications relating to editorial business should be addressed exclusively to the Editor of THE LANCET, 423, Strand, W.C. 2.

DONATIONS AND BEQUESTS.—By the will of the late Mr. Frederick Burgoyne, of Harley-street, London, W., the testator bequeathed £1000 each to the Middlesex Hospital and St. Bartholomew's Hospital.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY, Burlington House, London, W.

THURSDAY, Dec. 4th.—Mr. A. M. Williams: The Adsorption of Gases at Low and Moderate Concentrations. Part I., Deduction of the Theoretical Adsorption Isotere and Isotherm. Part II., Experimental Verification of the Form of the Theoretical Isoteres and Isotherms. Part III., Experimental Verification of the Constant in the Theoretical Adsorption Isotere (communicated by Prof. J. Walker).—Mr. T. R. Merton: (1) On the Secondary Spectrum of Hydrogen (communicated by Prof. A. Fowler); (2) On the Spectra of Isotopes (communicated by Prof. A. Fowler).—Mr. E. F. Armstrong and Mr. T. P. Hilditch: A Study of Catalytic Actions at Solid Surfaces. Part II. (communicated by Prof. H. E. Armstrong).—Mr. F. Horton and Ann C. Davies: An Experimental Determination of the Critical Electron Velocities for the Production of Radiation and Ionisation on Collision with Argon Atoms (communicated by Mr. C. T. R. Wilson).

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

Monday, Dec. 1st.

SOCIAL EVENING: The first Social Evening will be held on Monday next at 8.30 P.M., when the President, Sir Humphry Rolleston, and Lady Rolleston will receive guests.

The Library will be open with a display of interesting exhibits. Light refreshments and smoking.

MEETINGS OF SECTIONS.

Tuesday, Dec. 2nd.

SURGERY: SUB-SECTION OF ORTHOPÆDICS (Hon. Secretaries—A. S. Blundell Bankart, R. C. Elmslie): at 5 P.M.

Cases:

Mr. Fairbank: (1) Two Cases of Multiple Deformities of the Limbs; (2) Sterno-mastoid Tumour in a Child born by Cæsarean Section.

Mr. Rowley Bristow: (1) Congenital Defect of Femur; (2) Multiple Enchondromata.

Mr. Laming Evans: Flexion of the Knee in Arthritis after 13 Years Unsuccessful Treatment.

Mr. Elmslie: (1) Multiple Deformities of the Limbs; (2) Result of Suture of Median and Ulnar Nerves in the Forearm.

PATHOLOGY (Hon. Secretaries—J. A. Murray, Cecil Price-Jones): at 8.30 P.M.

Dr. F. A. Teale; Antitrypsin in its Relation to Bacterial Toxicity and Infection.

Other Communications.

Wednesday, Dec. 3rd.

SURGERY (Hon. Secretaries—Cyril A. R. Nitch, Herbert J. Paterson): at 5.30 P.M.

Discussion:

Mr. Percy Sargent, C.M.G., D.S.O., will open a discussion on "The Surgery of the Pituitary Gland.

MEDICINE NEUROLOGY OPHTHALMOLOGY	Members of these Sections are cordially invited to be present and to take part in the discussion referred to above.

OPHTHALMOLOGY (Hon. Secretaries—Malcolm Hepburn, W. H. McMullen): at 8.30 P.M.

Cases (to be shown at 8 P.M.):

Mr. G. Potts; (1) Keratitis following Explosion of Gunpowder; (2) Detached Retina with Unusual Condition of the Conjunctiva; (3) Case of "Gassing" followed by Tubercular Iritis.

Mr. Malcolm Hepburn: Aneurysmal Varix of Cavernous Sinus.

Discussion:

On Dr. Rayner Batten's paper "On the Need for Ophthalmic Physicians for the Advancement of Ophthalmology (read at meeting of Section held on Nov. 5th—for paper see THE LANCET, Nov. 29th, 1919).

Thursday, Dec. 4th

BALNEOLOGY AND CLIMATOLOGY (Hon. Secretaries—J. Campbell McClure, C. F. Sonntag, F. G. Thomson): at 5.30 P.M.

Paper:

Dr. C. F. Sonntag: The History of Baths and Bathing in Britain before the Norman Conquest.

Members will dine at Pagani's Restaurant at 7 P.M. Those intending to be present are requested to send their names to Dr. C. F. Sonntag, 80a, Belsize Park-gardens, by the first post on Thursday, Dec. 4th.

HISTORY OF MEDICINE.—Members of this Section are cordially invited to attend the meeting of the Section of Balneology.

OBSTETRICS AND GYNÆCOLOGY (Hon. Secretaries—J. S. Fairbairn, Herbert Williamson): at 8 P.M.

Discussion:

On the Recently Published Report on the Teaching of Obstetrics and Gynæcology to Medical Students and Graduates in London. (See Proceedings of the Section of Obstetrics and Gynæcology, vol. xii., pp. 108-134.) Dr. T. W. Edon, Chairman of the Teaching Committee, will introduce the discussion, and a Criticism of the Report will be read by Dr. Herbert Spencer.

Copies of the Report and of the Criticism may be obtained on application to the Royal Society of Medicine.

Friday, Dec. 5th.

LARYNGOLOGY (Hon. Secretaries—Irwin Moore, Charles W. Hope): at 4 P.M.

Cases and Specimens will be shown by

Dr. G. A. Carter, with Sir StClair Thomson and Mr. Charles W. Hope, Mr. Colledge, Mr. Dawson, Dr. Dundas Grant, Mr. Douglas Guthrie, Dr. William Hill, Dr. Jobson Horne, Mr. Mollison, and Dr. Irwin Moore.

ANÆSTHETICS (Hon. Secretaries—R. E. Apperly, Ashley S. Daly): at 8.30 P.M.

Paper:

Dr. C. H. Mott: Intratracheal Insufflation of Chloroform; a Report on 357 Cases.

Exhibition of Apparatus and Documents of the late Mr. Clover.

THE TUBERCULOSIS SOCIETY AND THE ASSOCIATION OF SCHOOL MEDICAL OFFICERS (JOINT MEETING), at the Rooms of the Medical Society, 11, Chandos-street, Cavendish-square, W.

MONDAY, Dec. 1st.—8 P.M., Discussion on the Various Aspects of Tuberculosis in Relation to School Life, opened by Dr. J. Kerr. Dr. C. Riviere, Dr. F. S. Langmead, Dr. F. C. Shrubsall, and Dr. F. K. Menzies are expected to take part in the discussion.

ROYAL SOCIETY OF ARTS, John-street, Adelphi, W.C.

MONDAY, Dec. 1st.—8 P.M., Cantor Lecture:—Dr. J. T. Hewitt: Synthetic Drugs. (Lecture I.)

RÖNTGEN SOCIETY, at the Rooms of the Medical Society of London, 11, Chandos-street, Cavendish-square, W.

TUESDAY, Dec. 2nd.—8.15 P.M., Paper:—Dr. E. T. Jones: The Action of Induction Coils. Major Cooper, R.A.M.C.: Description and Demonstration of New High-speed Interrupter for Induction Apparatus and Frimandeau Coils.

MIDLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY, at the Infirmary, Derby.

TUESDAY, Dec. 2nd.—4.30 P.M., Paper:—Mr. B. Whitehouse: The Indications for Cæsarean Section. To be followed by a Discussion in which Mr. J. F. Jordan and Mr. C. Marriot intend to take part.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.

WEDNESDAY, Dec. 3rd.—5 P.M., The Thomas Vicary Lecture:—Sir John Tweedy: The Surgical Tradition.

ROYAL INSTITUTE OF PUBLIC HEALTH, in the Lecture Hall of the Institute, 37, Russell-square, W.C.

Course of Lectures on Housing Problems and Town Planning in Relation to Public Health.

WEDNESDAY, Dec. 3rd.—4 P.M., Lecture VI.:—Mr. R. Unwin: Town Planning, its Influence on the Health and Well-being of the Citizens.

Course of Instruction for Candidates as Tuberculosis Officers, General Practitioners, and others. Bacteriological Demonstrations will be given in the Laboratories of the Institute, and visits arranged to Sanatoriums, Tuberculosis Dispensaries, &c.

THURSDAY, Dec. 4th.—5 P.M., Lecture IX.:—Dr. J. Watt: The Temperature in Pulmonary Tuberculosis.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.

WEDNESDAY, Dec. 3rd.—4.30 P.M., Lecture:—Dr. W. J. Fenton: The Dispensary in Pulmonary Tuberculosis.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, W.C. 1.

MEDICAL SCHOOL.

MONDAY, Dec. 1st.—2-3.30 P.M., Out-patient Clinic: Dr. Collier. 3.30 P.M., Lecture:—Mr. Paton: Papillœdema. I.

TUESDAY, Dec. 2nd.—2-3.30 P.M., Out-patient Clinic: Dr. Grainger Stewart. 3.30 P.M., Ward Cases: Dr. James Taylor.

WEDNESDAY, Dec. 3rd.—2 P.M., Lecture:—Dr. Grainger Stewart: Symptoms of Disease of the Pituitary Gland. 3.30 P.M., Lecture:—Mr. Scott: Menière's Contribution to Neurology.

THURSDAY, Dec. 4th.—2-3.30 P.M., Out-patient Clinic: Dr. Farquhar Buzzard. 3.30 P.M., Lecture:—Dr. S. A. Kinnier Wilson: Involuntary Movements.

FRIDAY, Dec. 5th.—2-3.30 P.M., Out-patient Clinic: Dr. Gordon Holmes. 3.30 P.M., Ward Cases: Dr. Tooth.

Fee for Post-Graduate Course £5 5*s*. C. M. Hinds Howell, Dean.

NATIONAL HOSPITAL FOR DISEASES OF THE HEART POST-GRADUATE COURSE, Westmoreland-street, W.

MONDAY, Dec. 1st.—11 A.M., Out-patients: Dr. Goodall. 2 P.M., In-patients: Dr. Moon.

TUESDAY.—2 P.M., Out-patients: Dr. R. Wells. 2.30 P.M., In-patients: Dr. Gibbes.

WEDNESDAY.—2 P.M., Out-patients: Dr. Moon. 5.30 P.M., Dr. Hamill: Therapeutics of the Circulation.

THURSDAY.—10 A.M., In-patients: Dr. Hamill: 2 P.M., Out-patients: Dr. Price.

FRIDAY.—2 P.M., Out-patients: Dr. Gibbes. 2.30 P.M., In-patients: Dr. Wells.

SATURDAY.—10 A.M., In-patients: Dr. Hamill.

VICTORIA HOSPITAL FOR CHILDREN POST-GRADUATE COURSE, Tite-street, Chelsea, S.W.

MONDAY, Dec. 1st.—4.30 P.M., Lecture:—Dr. R. C. Jewesbury: Congenital Syphilis.

TUESDAY.—4.30 P.M., Lecture:—Mr. C. M. Page: Congenital Dislocation of Hip.

WEDNESDAY.—3 P.M., Dr. S. Wyard: Demonstration of Spirocheta Pallida (in Pathological Laboratory).

THURSDAY.—4.30 P.M., Lecture:—Mr. V. Kay: Care of Primary Dentition.

FRIDAY.—4.30 P.M., Lecture:—Mr. C. A. Joll: Cleft Palate and Hare Lip.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, 49, Leicester-square, W.C.

THURSDAY, Dec. 4th.—5 P.M., Chesterfield Lecture:—Dr. M. Dockrell: Vesicular and Bullous Diseases and their Treatment.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE CLINIC.

TUESDAY, Dec. 2nd.—4.30 P.M., Lecture:—Dr. F. C. Moore: Disordered Action of the Heart.

Notes, Short Comments, and Answers to Correspondents.

SANITARY ENGINEERING IN CONNEXION WITH THE HOUSING PROBLEM.[1]

BY A. P. I. COTTERELL, M.INST.C.E.,

ASSOC. SOCIETY OF MEDICAL OFFICERS OF HEALTH.

HOUSE drainage has to a large extent become standardised One might go farther and say that it has been mummified in our building by-laws, like other formerly virile features of house building. Apparently our forefathers, with the best intentions, thought that they had reached the acme of good practice, and embalmed their wisdom in regulations bound in "shalls" and "musts" that securely encased progress. Again and again attempts have been made to release the victim, but now the perpetrators themselves have seen their error, and in the new Housing Act propose, where they see fit, to relax their by-laws.

There are many details in house drainage in which advantage can be taken of the new freedom. We could, for instance, deal with ventilation more efficiently, and prevent its introduction at places where it does more harm than good. We could also, under certain circumstances, abolish the intercepting trap, as, indeed, has already been recommended by a Departmental Committee.

Water fittings and appliances, both hot and cold, are now largely standardised. Occasionally new developments break out, some of which are retained, and others discarded. The increasing demands for hot water to each house are bringing forward such fittings as the bath geyser and the gas heater to the scullery tap, and also the ingenious thermostat.

A large field begins to open out here to which much more attention should be given in house planning. I refer especially to the respective merits of water heating by coal fires or coke stoves, gas or communal boilers; to the alternatives of cooking by coal, steam, gas, or electricity; to the facilities for artificial lighting; and to the introduction of mechanical appliances for house cleansing and for washing to help reduce manual labour, and to bring the science of housekeeping up to date.

Methods of Obtaining Hot Water.

Let us take first the various methods of obtaining hot water. It is practically agreed that hot water must be provided for in some better way than by a kettle on the kitchen fire. The usual method is to insert a back boiler behind the kitchen range, and to run flow and return pipes, probably quite unprotected from heat radiation, to the bath, wash basins, scullery sink, &c. I see that the Ministry of Health has stated that it is prepared to accept a simple arrangement of this sort for cottages to be built under the housing scheme. The chief comment I can make is that the appliance is time-honoured, and therefore, shall I say, horribly wasteful; that the installation can be put in by any ordinary workman without spending much thought in design; and that the coal consumption, which is considerable, can be masked behind the kitchen fire. The kitchen range is most extravagant in its use of coal, and so productive of dust that it ought to be superseded; the warming of the kitchen should be provided for on the same lines as any other sitting-room.

A hot water-supply worked with a coal cooking range, as is commonly done, has the double disadvantage that it is not only extremely wasteful of heat, but it necessitates a large fire, even in summer, when otherwise cooking might be done on a gas or electric stove and the fire dispensed with altogether. To overcome this a supplementary boiler has been introduced into many larger houses, fired by coke, anthracite, or gas for hot water only, sometimes worked alone and sometimes connected with the pipes from the range boiler for use when the range is out of action. In a circulatory system of this sort a good deal of heat, amounting to 100 per cent. or more of the energy required for actual water heating, may be lost if the system is badly designed or if the pipes are unprotected; in any case, some heat loss has to be reckoned with.

The Communal System.

There remains the alternative of a hot water-supply on a communal system either from a central station or from an installation designed for a group of houses, and combined possibly with a washhouse designed also to serve the group. The Liverpool corporation has supplied continuous hot water from a central station to 66 tenements, each containing a bath, since 1913, at a cost of 6*d*. per tenement per week. A Manchester corporation committee report in 1918 states that it has received estimates for hot water supply to an estate of 200 houses (10 to the acre) of 1*s.* 2*d.* per week per house and for 400 houses 8½*d.* per week, whilst the capital cost per house works out at £22 17*s.* (or £20 17*s.* with 400 houses) against at least £24 per house on the separate system. The Tudor Walters Committee estimate the cost at 9*d.* to 1*s.* 9*d.* per house per week. Most cottagers would not consider 1*s.* per week to high a charge for a constant hot water supply.

---

[1] Abstract of an opening address read at a conference of the Institution of Sanitary Engineers, held at Caxton Hall, Westminster, on Nov. 5th, 1919.

On a larger scale there might be a central system of steam piping for a considerable number of houses, such piping being carried to sub-station calorifiers arranged for groups of 10 to 12 houses, whence hot water would be piped to the respective house fittings. As is sometimes done with electricity, the supplies might be charged at a flat rate per house, with the right to fix a meter and to make an extra charge if the consumption exceeded an agreed maximum. In any such communal system of hot water or steam supply allowance must be made for heat loss and must as far as possible be provided against.

Comparison of Cost of Different Systems of Heating Water.

Coal.—It is estimated in the North that most householders burning only one fire a day consume about 2 cwt. of coal a week on the average, ranging from 3 cwt. in winter to 1 cwt. in summer. In the South it may be a little less. If the summer consumption represents the amount needed for hot water, limited and intermittent as it is at the best, the cost at 3*d.* per cwt. is 3*s.* per week. It may be taken that a moderate hot water-supply per day would be :—

For the bath ... ... 30 gallons at 100° F.
For washing ... ... 15 ,, 150° F.

Gas.—Heating water by gas to 100° requires on the average 1¼ cubic feet of gas per gallon, and to 150° 2¾ cubic feet. The cost of heating the above water-supply at 4*s.* 6*d.* per 1000 cubic feet would, therefore, be 2*s.* 6*d.* per week. Radiation losses, which might easily increase the cost to 7*s.* per week, must be taken into account, as well as the set off of reduced heat-consumption possible by the use of the thermostat.

Electricity.—In heating water by electricity ½ unit is needed to boil one gallon. Therefore, for the same quantity and heat as above given, the cost at 1½*d.* per unit would be 8*s.* 2½*d.* per week, to which again must be added radiation losses, running the cost up to nearly 24*s.* a week. It is out of the question at present.

Communal system.—On a communal system the equivalent quantity of water heated in a boiler and supplied at a steady temperature of 150° would absorb 15 lb. of coal per house per week. Heat radiation losses, reduced by protection to the lowest point, and the cost of supervision, must again be added, but after allowing liberally for the former it is quite possible to supply hot water to groups of houses from 60 upwards within the prices already estimated at Manchester and in the Tudor Walters Report.

Against the extra capital outlay involved in either of the above systems of heating, there should be set the corresponding reduction of cost in the house and its fittings.

Comparisons of Different Types of Cooking Apparatus.

The comparative cost of a supply of the same amount of thermal units for heating purposes by way of coal, gas, or electricity has been estimated to be in the following ratio: coal, 1; gas, 2·2; electricity, 8. But gas and electricity are so much more efficient than a coal fire as to be able to hold their own when all considerations are taken into account, and in small houses where care is taken not to waste gas or electric current it may be even cheaper than a coal fire that has to be maintained in order to deal with cooking requirements as they arrive. Hence the daily heat unit consumption of a coal fire is considerably larger than that of the gas cooker. The electric cooker competes with the gas cooker in that it makes even better use of the heat units consumed.

At the Swanpool Village, Norwich, it is proposed to erect a special electric installation for the supply of current for lighting and cooking. Another feature is the proposal to utilise spare steam from adjoining works for hot water and heating. It is understood that these services will be done for 6*s.* per week, and it is claimed that there will be a saving in the cost of construction. At another projected village in the North it is proposed to instal electric cookers and to put electric fires in all the rooms of the house save one, which will be provided with the ordinary coal fire.

My personal experience with a gas cooker at 2*d.* per 1000 cubic feet and subsequently an electric stove at 1*d.* per unit has been that with care the cost per week runs out to about the same. Economies in construction and maintenance can and should be effected by the provision of gas or electric cookers. These are days when coal consumption is a national concern and the reign of the coal-range, of whatever type, whether open or closed, ought to be brought to an end.

I have not dealt with cooking by steam, but I think it will be obvious that if communal steam piping were introduced a great deal of cooking could be carried out very cheaply, in the same way as is done in large institutions at the present day.

Facilities for Artificial Lighting, Cleaning, and Washing.

Facilities for artificial lighting are generally settled for us beforehand in our large towns by efficient gas and electric installations. But it is an item of importance, and in country districts, where no public supply exists, considerable thought should be given to the most economical and efficient system. At any rate, we ought not to have to fall back upon oil and candles.

I have mentioned facilities for cleaning and for washing. We all hope some day to see electric power universally distributed through our land. When that comes, and even where electric mains exist to-day, it ought to be possible to introduce methods whereby the "donkey work" of the housewife can be very much reduced. For instance, if a house were piped as for gas-piping carried out to the dust receptacle, attachments might be made for a suction sweeper worked by a small motor in the scullery, whereby all dust from carpets, and even walls and furniture, could be carried out of the house without being blown in again by dusters shaken from open windows. A little motor would be useful for household purposes, and could even be made use of for washing appliances. As a matter of fact, makers of laundry appliances are already introducing wringers and other machinery worked by electric power.

As far as washing is concerned, there are great possibilities where hot water supply is adopted on the communal system. If steam were carried to joint washhouses to serve, say, a group of six or eight cottages, and passed through calorifiers, the housewife could do her washing within sight of her home; or, again, the "bag wash" recommended by the Women's Committee could very well be undertaken by a central heating station at an enormous saving in cost. In fact, the communal hot water system would work in with several other communal services. In many village housing schemes the lighting and heating, hot water and sewage disposal services might be worked together. It would then be worth while to devote the time of one or two men to running the communal services for a comparatively small group of houses and make it possible to introduce these amenities into the country districts. Mention has not been made of the national saving of coal effected by the introduction of these engineering facilities, but it is obviously very great.

The work of the sanitary engineer impinges upon many other professions and makes it necessary that he should have a speaking acquaintance with them. His work has much to do with the health and comfort of the future population, and it is, perhaps, not too much to say that the solution of the housing problem will lie not alone in the erection of houses in which have been installed the best sanitary conditions in their broadest sense.

THE PHYSICS OF THE AIR IN RELATION TO HEALTH.

AN interesting paper was read at a meeting of the Royal Meteorological Society on Nov. 19th by C. W. B. Normand, M.A., B.Sc., of the Meteorological Office, Simla, on "The Effect of High Temperature, Humidity, and Wind on the Human Body." The author at the outset dealt with the fatal effects of the simoom, "a suffocating wind like the blast of a furnace." The assumption was made throughout the paper that atmospheric conditions resulting in a net gain of heat to the body must be fatal. Physical experiments were directed to the rate of cooling of wet surfaces at body temperature under atmospheric conditions to supply the data for determining the upper limits of existence. An attempt was made to measure these conditions by noting the movements of the kata-thermometer, the instrument which Professor Leonard Hill has introduced to estimate the cooling powers of the atmosphere. It was found that there was a wide divergence between the kata-thermometer and the ordinary wet-bulb curves for high winds, and, more important still, these curves were found to lie on different sides of the curves for a calm. The explanation offered is that the wet kata-thermometer does not evaporate so freely as a wet bulb, owing to its glove covering reducing the rate of evaporation. This, the author remarked, may be a fault on the right side, for in all ordinary climatic conditions the human body also adjusts its heat loss by restricting the rate of perspiration. When, however, conditions are near the upper limit for existence, and the body is fighting to keep the temperature down to the normal, the sweat glands will pour out sweat and will strive to make the skin function an efficient wet surface up to the point at which the glands can do no more and the maximum rate of perspiration is reached. The author, in view of these considerations, is led to prefer basing any conclusion about the upper climate limit for existence upon the results given by the wet-bulb formula rather than upon the wet kata-thermometer equation. In an interesting discussion which followed, Professor Leonard Hill described the kata thermometer as an empirical instrument introduced for the purpose of determining comfortable and uncomfortable temperatures. The formulæ were worked out in wind-tunnels for comparison with meteorological data, and experiments had never been carried out with the kata-thermometer at temperatures above body temperatures. With regard to the lecturer's remarks that the wet kata-thermometer did not evaporate as quickly as the wet bulb, Dr. Hill suggested that the sheltering effect of the kata-bulb was a factor to be considered, and the sheltering effect obviously was greater in the case of the human body. The sheltering effect was far more likely to be the cause of divergence, but he would like to reserve his opinion on the whole question for experimental and observational work. With regard to heat-stroke there was always a latent period as the whole body had to heat up; a man might thus get through a heat wave, which would otherwise have overpowered him. Many a person could stand 104° for a time, the temperature would come down all right. In Mr. Normand's summing-up of these functions of the body which could be physiologically adapted to conditions, evaporation from the lung was not included. Heat polyhidrosis was the normal reaction to high temperatures; in the case of heat-stroke this mechanism broke down, and the cause would seem to be fatigue of the sweat glands. In temperatures above that of the body there was no other method left of cooling the body, and the man who got heat-stroke was the man whose sweat glands refused to work. In Mesopotamia it was found that the man who was dry begged to have the fans in the wards cut off, while the man who was sweating begged to have them kept on. By means of wet sheets, by spraying the patients with water, and by the use of fans heat-stroke had been successfully dealt with in Mesopotamia as well as in India. The exhaustion of the sweat glands depended on the nerve centres of the sympathetic nervous system generally, and on whether the man was weakened in any way. With regard to the exposure of the body and the wearing of spinal pads, if a person was bending down and the spine was exposed to the sun with no protection, actual heating of the spine would result. It had been experimentally proved that this would cause overheating of the spinal cord, with disastrous results. The sun was an enormously important factor in producing heat-stroke.

Captain R. C. T. Evans, R.A.M.C., said that his Persian servant had told him that the way to circumvent the danger arising from the simoom was to lie down and bury hands and face in one's clothes. This statement agreed with the lecturer's contention. It was the actual velocity and not the heat of the wind which caused death, because it heated the body more than would be compensated for by evaporation. Those who overcame the trouble did so by burying the body from the wind itself. An important factor in this case, he thought, was not the fatigue of the sweat glands, but the beginning of toxic effects from disease. In most of the cases under his care the patient had been ill a day or two beforehand. The power of the human body to stand heat varied enormously. In 1917 in Mesopotamia during some four weeks of the July–August period there was an excessively high temperature which went up in steps. Starting perhaps at 105°, and remaining at this level for four or five days, the temperature rapidly went up to 110°, and after six or seven days rapidly rose again to 115°, stopped, and then went on to 120°. He had actually seen 121½°. Each period was followed by a series of heat-strokes. It was said that a cup of tea was the best thing to prevent heat-strokes. That was true for the average person when the temperature did not exceed 100° to 105°. A cup of tea made the speaker beautifully cool afterwards, but if the temperature was greater than 105° it made him hotter and he had to have ice drinks. On the other hand, a dentist of his acquaintance could drink a cup of tea with good results at a higher temperature than 105°, while he (the speaker) would find his physiological sweat glands already working their hardest and not capable of responding to further stimulation. There were three effects of heat which had to be dealt with in the army—a state of collapse resulting from the effects of heat, heat-stroke not caused by exposure to the sun, and sunstroke; the latter might have the effects of the heat-stroke, or, again, those mental effects commonly called sunstroke, without the classical picture of heat-stroke, but none the less a form thereof. The speaker had seen a patient with a temperature of 109° recover completely; 110° or 111° did not necessarily mean death provided the temperature did not act for too prolonged a period.

Lieutenant-Colonel Martin Flack, R.A.F., called attention to new points discovered with regard to airmen who could stand high altitudes. The fit man could be distinguished from the unfit by his vital capacity—namely, the amount of air he could forcibly expire after a full inspiration. The man who was becoming unfit lost his vital capacity. He believed this to be a very important matter. It was not the power to breathe in which was lost but the power to breathe out. The man who had a large capacity got rid of a large amount of water from his lungs. The man who was fatigued had a small respiratory force and could not bring the lung evaporation into play. Stuffy atmospheres and a sedentary life brought about some diminution of respiratory force. The power of adequately emptying the lungs previously to filling them was one of the most important things.

A FIFTEENTH-CENTURY PRESCRIPTION.

To the Editor of THE LANCET.

SIR,—I was much interested in your note on a Fifteenth-Century Prescription, which appeared in THE LANCET for to-day. I would add to your account that the word "acedule" certainly means "sorrel," not the wood-sorrel but the large-leaved kind, of which the common English name was "souredock." As to "manus Christi" I suspect there is little doubt that this term is a variant for "palma Christi"—i.e., the castor-oil plant. It derived its name from the five, or sometimes seven, digitations of the leaves, which were supposed to resemble a hand with the fingers spread out.

I am, Sir, yours faithfully,
H. P. CHOLMELEY.

Forest Row, Nov. 22nd, 1919.

PUBLIC HEALTH AT CAYMAN ISLANDS (JAMAICA) IN 1918.

ACCORDING to the last Census the total population was 5564, of whom 2322 were white, 2211 coloured, and 1031 black. The death-rate for 1917–18 was 12 per 1000 and the birth-rate 27 per 1000. The report of Dr. J. L. Hydrick on the hookworm survey of the Cayman Islands, conducted during the previous year under the auspices of the International Health Board, Rockefeller Foundation, has been received. It is found that the hookworm infection is not great and not likely to be serious, except in one or two districts. The difficulty of obtaining lumber has hindered the most effective remedy of the building of closets. Dr. G. N. D. Overton has been confirmed in his appointment as Government medical officer, and from his annual report it would appear that typhoid fever, represented by 22 cases with four deaths, has been during the year the most serious enemy to the people's health. There has not been found to be any indigenous malaria or other insect-borne disease. "The Cayman Islands," writes Mr. C. E. Mellish, the acting British Commissioner, "are among the healthiest places in the world. There are no cases of illness attributable to climatic conditions. The prevailing breeze is from the south-east from April until October, when the cool season follows with a change of wind to the north and south-west in the early part of November. In the hot months the average temperature is 83° F. in the morning, 89° at midday, and 86° in the evening; in the cool months (November to March) it is 71° in the morning, 80° at midday, and 74° in the evening."

BOOKS, ETC., RECEIVED.

LONGMANS, GREEN, AND CO., London.
  Manchester Grammar School, 1515–1915. By Dr. A. A. Mumford. Pp. 563. 21*s.*
  Modern Science and Materialism. By Hugh Elliot. Pp. 212. 7*s.* 6*d.*
  Physiology of Muscular Exercise. By Professor F. A. Bainbridge, M.D. Pp. 215. 10*s.* 6*d.*

MACDONALD AND EVANS, London.
  Plain Guide to Investment and Finance. By T. E. Young, B.A. 3rd ed. Pp. 324. 7*s.* 6*d.*

MASSON ET CIE, Paris.
  Arcachon Ville de Santé. Par le Dr. F. Lalesque. Pp. 798. Fr.25.
  Le Mythe des Symbiotes. Par M. Auguste Lumière. Pp. 209. Fr.6.
  Leçons de Pathologie Digestive, 4e Série. Par M. Loeper, Professeur agrégé à la Faculté de Médecine de Paris. Pp. 298. Fr.11.
  Toxines et Antitoxines. Par M. Nicolle, E. Césari, C. Jouan, de l'Institut Pasteur. Pp. 123. Fr.5.
  La Pratique du Pneumothorax Thérapeutique. Par F. Dumarest, Médecin en Chef, et C. Murard, Médecin adjoint du Sanatorium d'Hauteville. Pp. 264. Fr.12.
  Anesthésie à la Stovaïne en Chirurgie et en Médecine Vétérinaires. Par Gustave Pérol, Médecin Vétérinaire. Pp. 32 and plates. Fr.3.

MILLS AND BOON, London.
  The Problem of Nervous Breakdown. By Edwin Ash, M.D. Pp. 299. 10*s.* 6*d.*

SAUNDERS, W. B., Co., London and Philadelphia.
  Teaching the Sick. A Manual of Occupational Therapy and Re-Education. By G. E. Barton, Director of Consolation House and President of Consolation House Convalescent Club, Inc. Pp. 163. 6*s.* 6*d.*
  Reconstruction Therapy. By W. R. Dunton, jun., M.D., Instructor in Psychiatry at the Johns Hopkins University. Pp. 236. 6*s.* 6*d.*
  Diet Lists of the Presbyterian Hospital, New York City. Compiled with notes by H. S. Carter, A.M., M.D. 2nd. ed., thoroughly revised. Pp. 165. 6*s.*
  Outline of Genito-Urinary Surgery. By G. G. Smith, M.D., Captain, Medical Corps, U.S.A. Pp. 301. 12*s.* 6*d*
  Pocket Medical Dictionary. Edited by W. A. Newman Dorland, A.M., M.D. 11th ed., revised. Pp. 717. 7*s.* 6*d.*
  The Collected Papers of the Mayo Clinic, Rochester, Minnesota. Edited by Mrs. M. H. Mellish. Vol. X 1918. Pp. 1196 36*s.*
  Diet in Disease and Health. By J. Friedenwald, M.D., and J. Ruhrah, M.D. 5th ed., reset. Pp. 919. 25*s.*
  Neoplastic Diseases. A Text-book on Tumours. By J. Ewing, M.D. Pp. 1027. £2 2*s.*
  Milk. By Paul G. Heineman, Ph.D. Pp. 684. 25*s.*
  A Text-book upon the Pathogenic Bacteria and Protozoa for Students of Medicine and Physicians. By J. McFarland, M.D. 9th ed., revised. Pp. 858. 21*s.*

THE

Thomas Vicary Lecture

ON

THE SURGICAL TRADITION.

Delivered in the Royal College of Surgeons of England on Dec. 3rd, 1919,

BY SIR JOHN TWEEDY, LL.D., F.R.C.S.,

PAST PRESIDENT OF THE COLLEGE AND EMERITUS PROFESSOR OF OPHTHALMIC MEDICINE AND SURGERY IN UNIVERSITY COLLEGE, LONDON.

MR. PRESIDENT AND GENTLEMEN,—In the year 1646 Mr. Edward Arris, a member of the Company of Barbers and Surgeons, paid to the Company the sum of £300 for the use of the "New Publique Anatomy." This sum was subsequently repaid to Mr. Arris, and in lieu thereof he settled upon the Company an annuity of £30, which shortly before his death he redeemed by the payment of £510. Nine years later Mr. John Gale, a member of the Company, left to the Company an annuity of £16 for one anatomy lecture in every year, to be called "The Gale's Anatomy." By an Act of Parliament of the year 1745, for dissolving the union between the Barbers and Surgeons, the Arris gift and the Gale's annuity were given to and vested in the Company of Surgeons then incorporated, and upon the dissolution of that Company in the year 1800 they became vested in the Royal College of Surgeons on its incorporation by Royal Charter. Owing to building operations no lectures were delivered in the College until the year 1810, but since that time the Arris and Gale lectures have been delivered every year in this College with only one break. These lectures constitute a memorial of the long association of the Barbers and the Surgeons of London; and the transference of these trusts to the College mark the official dissolution of that association. Although there has been no official connexion between the two bodies since the separation in the year 1745, friendly relations have existed between them for the last 120 years. Several Members and some Fellows of the College have been Freemen, or Liverymen, and even Members of the Court of the Barbers' Company.

THE FOUNDATION OF THE LECTURESHIP.

Early in the present year the Court of the Company, which for some years has maintained one or two exhibitioners at Epsom College and one or two at one or more of the medical schools in London, expressed a desire to found a lectureship in this College on the History of Anatomy and Surgery, and it was suggested that an experiment might be made of giving one lecture a year for five years, the lecture to be called the Thomas Vicary lecture. This offer was readily accepted by the Council of the College.

The idea of associating the name of Thomas Vicary with this historical lecture was a happy one. Vicary was Master of the Barbers' Company in the year 1540, when the Surgeons and the Barbers were formally united by Act of Parliament. He had been Master of the Company ten years before this, and he served the office on three other occasions after the union. The most eminent surgeon of the time, he was Serjeant Surgeon to Henry VIII., Edward VI., Mary, and Elizabeth, and surgeon to Philip of Spain. In the year 1548 he was appointed governor of St. Bartholomew's Hospital, and later became resident surgical governor there, and in 1552 was made one of the assistants for the term of his life. He is said to have published in the year 1548 his "Anatomie of the Bodie of Man." This was long believed to be the first book on the subject in English, but the late Dr. J. F. Payne showed that the work had been wrongly attributed to Vicary, and that it was a transcript of an early English fourteenth century manuscript, which was itself based on Lanfranc and Henry of Mondeville, with a few brief additional passages. No copy of the first edition is now known to be extant, but the work was re-issued by the surgeons of St. Bartholomew's in the year 1577, and a reprint of this was published for the Early English Text Society in the year 1888, edited by the late Dr. F. J. Furnivall, assisted by his son Percival, now a Fellow of this College.

VICARY'S ASSOCIATION WITH THE BARBERS' UNION.

As the Arris and Gale lectures mark the separation of the Surgeons of London from the Barbers, the name of Thomas Vicary is very intimately associated with their union. In Holbein's well-known picture Vicary is represented as receiving the Act of Union of the two bodies from the hands of King Henry VIII. The Company of Barbers had, however, existed in London as a trade guild, and many of its members had engaged in the practice of surgery for more than two and a half centuries before the date of the union. In the Letters Patent of Edward IV., granted to the Barbers of London in the year 1462, it is declared that "The freemen of the Mystery of Barbers of London, exercising the Mystery or Art of Surgery, as well respecting wounds, bruises, hurts and other infirmities of our liegemen, ... have for a long time undergone and supported, and do daily undergo and support, great and manifold applications and labours," &c. And in the year 1388, in the return of the Company to the writ of Richard II., the Master recites that they "have found a document amongst the articles of their records made of a time to which the memory runneth not."

It is not my intention to give a history either of the Barbers' Company or of its relations to the practice of surgery. This was superbly done by the late Mr. Sidney Young in his "Annals of the Barber-Surgeons of London," published 29 years ago. And the main facts relating to the jurisdiction of the Barbers' Company over the Surgeons of London, and of the constitutional relations of the Company of Barbers and Surgeons with this College, are set forth in the Historical Summary which is published in the Calendar of the College.

Before proceeding with the subject of this lecture I desire to thank the Council of the College for the honour which they have done me in inviting me to deliver the first Thomas Vicary lecture. As a Past President of the College, and as a Past Master of the Barbers' Company, I greatly appreciate the compliment. As this is the first of what I hope may be a long series of lectures, I propose to take a glance at a few salient points of surgical doctrine and practice, rather than some particular subject, of which there is no lack of choice for many years to come. I have therefore taken as the title of my lecture, "The Surgical Tradition."

PREHISTORIC EVIDENCE.

Even from prehistoric times we possess evidences of the practice of operative surgery. The prehistoric evidence is, of course, osseous and furnished by the remains of skulls and bones showing marks of surgical treatment, because the soft parts have perished. In early historic times we may note that the Code of Hammurabi, dating from about 2200 years B.C., contains several records of surgical practice, and prescribes the payment to be made for surgical operations and the treatment of certain injuries and diseases, and the penalties in case of failure. Everyone is familiar with Homer's praise of the surgeons in the Trojan war, more particularly Podalirius and Machaon, whose effigies are represented as the supporters in the heraldic Arms of the College. In several places Homer describes injuries received in battle, and his descriptions of the effects of these injuries manifest a notable acquaintance with anatomy and physiology, and with the effects of loss of blood and of shock. Herodotus records many interesting events of medical and surgical interest, especially in Persia and in ancient Egypt. In ancient Egypt medicine and surgery early attained a high standard of proficiency, but they soon split up into a large number of specialities. Eventually extreme specialism put a stop to progress. Every practitioner was compelled to follow the rules for the treatment of diseases prescribed in the Sacred Books, and departure from these rules was a capital offence if the patient died. Originality and independence of thought and freedom of action were proscribed. Innovation and the trial of new methods were forbidden.

HIPPOCRATES' KNOWLEDGE OF SURGERY.

It is only when we come to the writings of Hippocrates that we have a positive and rational account of surgery and surgical operations. Although Hippocrates is usually thought of more in connexion with medicine than with surgery, there is ample evidence of his knowledge and skill as a practical surgeon. Indeed, it may be argued that his surgery is of more permanent value than his medicine. With the exception of its method, its logic, and its ethics, Hippocratic medicine is antiquated, and its doctrines, being necessarily speculative and theoretical, are mostly obsolete; but Hippocratic surgery, having a more positive basis, retains its actuality. The directions which he gives concerning the arrangements of an operating room; the situation of the patient; the position of the assistants; the disposition of the lighting; the care to be taken of the surgeon's hands; the need of ambidexterity, all indicate a careful and experienced practitioner. The Hippocratic treatises on wounds and ulcers and on the injuries of the head are replete with well-observed facts, and are full of excellent teaching concerning the treatment of wounds, and especially the extreme importance of cleanliness in dressings and instruments. The treatises on Fractures and Dislocations have been happily described by Littré as "the grandest surgical monument of antiquity."

THE LITERARY WORK OF CELSUS.

For the four centuries after the days of Hippocrates there are few literary remains of surgery until the beginning of the Christian era, when Celsus compiled his famous "De Medicina," the sixth and seventh books of which relate almost exclusively to surgery. Celsus's treatise on Medicine is the most complete, the most methodical and didactic medical work that antiquity has transmitted to us. Very little is known of Celsus's personality. Broca remarks that Celsus should be regarded as a book or an epoch rather than as a man. He is almost the only source of information in the important period between Hippocrates and the Christian era. But for him we should know little of the famous school of Alexandria, where, under the inspiration of Erasistratus and Herophilus and their disciples, anatomy and surgery were more cultivated than ever before, and where surgery made more progress in 300 years than in the following 13 centuries. Of the 72 authors mentioned by Celsus the only writer who has come down to us is Hippocrates. Celsus is, moreover, the first and only authority for many operative procedures which were employed in the Middle Ages and even down to our days. He mentions the use of ligature for bleeding arteries, and advises the complete division of a wounded blood-vessel after applying a ligature above and below the wound in the artery. His description of the operation for the removal of stone from the bladder is the first we possess, as is also his account of the amputation of a limb for gangrene. Hippocrates speaks of the mortification of a limb, and advises what should be done, but Hippocrates does not recommend *amputation* in our sense of the word; indeed, he is opposed to it. In gangrene of a limb he advises that the dead part should be *ablated* at the joint beyond the line of demarcation as soon as death and insensibility of the soft parts are complete. The remainder of the dead portion should be allowed to separate by natural processes. He records that in a case of this kind he had seen the denuded femur fall off on the eightieth day, the leg having been taken off at the knee on the twentieth day. Celsus's book is of value for another reason. Celsus was probably not a medical practitioner at all, but a learned, judicial, and impartial encyclopædist. In this respect he contrasts with Galen. Galen mentions some of the surgeons and anatomists of the Alexandrian school, but Galen is not always impartial. He is generally controversial and polemical, and too much concerned to defend his own opinions or to attack those of other writers. It is, however, noteworthy that, although the writings of Celsus are so precious to us, they do not seem to have influenced the early surgical tradition. For some reason which is difficult to explain his writings were rarely, if ever, quoted by later medical authors. and they seem to have been almost, if not entirely, forgotten until the fifteenth century, when a copy of the "De Medicina" was found in the year 1443 by Thomas of Sazanne, afterwards Pope Nicholas V., in the church of St. Ambrose at Milan. Celsus soon had his revenge, for on the invention of printing his was one of the first medical writings to be issued from the press. The first edition was printed in the year 1478, five years before the *Ars Parva* of Galen and the *Aphorisms* of Hippocrates.

GALEN'S REPRESSIVE INFLUENCE ON SURGERY.

Galen, a native of Pergamus, who flourished in the second half of the second century, was perhaps the most learned and most intellectual man who ever engaged in the study and practice of medicine. He was the greatest anatomist of antiquity and made several interesting anatomical and physiological discoveries, but in his varied and voluminous writings there is comparatively little relating to Surgery. Perhaps he never wrote the work on surgery which he intended to write, or, if he did write it, the work has not come down to us. We know, however, that he did practise as a surgeon in his younger days. But after his second visit to Rome, about the year 170, he seems to have abstained from surgical operations and confined himself almost entirely to the practice of medicine. Moreover, his practical surgery was always reserved, if not timorous, and his influence upon Surgery was on the whole repressive. For example, his operation of amputation for gangrene was less radical and less bold than that of Celsus. Celsus advises that in amputation the incision should be made in the line of demarcation, but encroaching rather upon the living tissue, while Galen recommends that the incision should encroach on the dead tissues, trusting to the cautery to destroy the remnants of the gangrenous tissues left upon the face of the wound. It is clear that in Galen's time surgery was already beginning to decline. He himself remarks that in the days of Hippocrates all the rules of the surgical art were carefully studied, but that in his own day very little attention was paid to surgery, and often it was neglected altogether.

INTELLECTUAL DECAY OF THE ROMAN EMPIRE.

From the third, fourth, and fifth centuries few remains of surgical writings have been preserved, and those which have come down to us are embodied in the compilations of Oribasius and Aetius of the fourth century and sixth century respectively. By this time, however, intellectual night was beginning to settle upon the Western Roman Empire. The penetration and invasion of the barbarians and the crushing taxation necessary to maintain a large army, an expensive court, and a numerous body of officials involved the Western Empire in economic ruin. Excessive taxation wiped out of existence the middle classes, from which the professions were most likely to be recruited. Whole districts were depopulated and became solitudes. All the remains of Roman civilisation gradually disappeared. There were no schools, no literature, and the inhabitants of the Empire became barbarised. Learning died out and ancient civilisation came to an end. Medicine and surgery shared the same fate. The Germans who invaded the empire did not bring with them a new civilisation as the Romans did when they conquered Gaul, nor did they adopt the customs of antiquity as the Arabians did in the East three or four centuries later. They came with habits of life and government alien to those of the Romans; and yet in the fullness of time, under the organising genius of Charles the Great, the union of the fresh energy of the North with the memories and civilisation of the South constituted the beginning of modern history and of modern culture.

THE HELLENIC TRADITION OF SURGERY.

In the East the Hellenic tradition of surgery was continued, though precariously, chiefly under the influence of the writings of Paulus Ægineta, who flourished in the first half of the seventh century and studied at Alexandria shortly before that city was taken, in the year 640, by the Arabians under Amrou. Historically Paulus Ægineta is in some respects more important than Celsus, chiefly because he carries on the story for 600 years longer. Both were compilers; but while Celsus was, as I have already suggested, probably not a practising medical man at all, Paulus did engage in the practice both of medicine and of surgery, and was evidently an acute observer and skilled practitioner. In compiling his book on Medicine, he states that his object was to give a brief résumé of what had been written by the best authors before his time. His work was confessedly an abridged selection, and it was most intelligently done. He states that his compilation contains few of his own observations, except in a small number of things which he had seen and experienced in actual practice. The source from which he principally drew his material was the collection of Oribasius, most of which is now lost. Paulus Ægineta, like Celsus, is always impartial. He takes his descriptions from what he considers the best authorities, sometimes from one and sometimes from another, but always with regard to their practical superiority. He does not discuss theories or systems, and shows no preference for one school over another. The fifth book of his treatise on Medicine deals with wounds, bites, and poisoned wounds; the sixth with Surgery, which he regards as an integral part of medicine. Paul closes the era of classical Greek medicine and its traditions, and these traditions would apparently have entirely disappeared but for the intervention of the Mohammedans, who in the seventh and eighth centuries overran and conquered Syria, Persia, and Egypt. Strictly speaking there is no Arabian science or medicine; they were Greek, Persian, Spanish, and Jewish. The Arabians themselves had no taste or training for scientific or philosophical pursuits, but in the countries which they conquered they came in contact with much Greek and Oriental learning, which they soon absorbed and assimilated. Perhaps there is no more striking illustration of the continuity of history than the conditions which favoured the adoption and continuation of the Greek learning by the Mohammedans. These conditions had their origin in the conquests of Alexander the Great over 300 years before Christ. In Asia Minor and in Persia, and even in India, Alexander planted Greek settlements and founded Greek cities where Hellenic culture established itself. This culture was continued by Alexander's great successors, the Seleucidæ and the Ptolemies, whose policy was to blend schemes of civilisation and of literary and scientific research with their systems of civil administration. In the East Greek became universally the State language and the exclusive language of all literature and science. The Hellenic character that was thus imparted remained in more or less vigour down to the time of the Mohammedan conquests. Although the Mohammedans at first manifested fanatical hostility against much of the Greek learning, they made an exception in favour of medicine. In Persia and in Asia Minor there were many Greek philosophers and physicians, not a few of whom were Christians, especially the Nestorians. Through the agency of these Christian Syrians many Greek authors were translated into Arabic. Many Nestorian Syrians lived among the Arabians as physicians. Hareth ibn Kalda, the friend and physician of Mohammed himself, was a Nestorian. Schools of translators were established. The most famous of these schools was at Baghdad, the head of the school being the Nestorian Honain ibn Ishak. Amongst the earliest translations were some of the writings of Hippocrates, Galen, Oribasius, and Paulus Ægineta. The last-named was not only one of the first of the Greek medical authors to be translated into Arabic, but remained for many centuries the chief authority of Arabian surgery, of which the most distinguished exponent was Albucasis of Cordova in Spain about the end of the eleventh century. It is a further illustration of the continuity of history that whilst in Asia the

Arab conquerors yielded to the spell of an ancient culture superior to their own, they no sooner crossed the Straits of Gibraltar at the beginning of the eighth century than the rôles were reversed. The inhabitants of Spain rapidly became imbued with Moslem civilisation, and in the course of a few generations the Spanish converts to Islam were completely Arabicised. For several centuries some of the leading cities of Spain, especially Cordova and Toledo, became the principal seats of learning in Western Europe.

ALBUCASIS ON THE DECLINE OF PRACTICAL SURGERY.

Albucasis wrote a compendious treatise on medicine consisting of 30 books entitled, "Kitabu-t-Tasrif, Book of Derivations." The most important portion from our point of view was that on Surgery. Albucasis's surgery is based upon Paulus Ægineta, but without acknowledgment, just as the Latin translations of Albucasis were taken without acknowledgment by the surgeons of Northern Italy in the latter half of the thirteenth century. Practical surgery was then in a low state. In the introduction to his book on Surgery Albucasis remarks:—

> "Surgery is no longer held in honour in our country. It has disappeared almost without leaving any traces. There remain, indeed, a few vestiges in the writings of the ancients, but the transcription of them has been corrupted and error and confusion have been introduced, so that they are almost unintelligible and useless."

He adds that the chief cause why there were no skilful operators in his day was that the study of anatomy as it is described by Galen had been given up, and he states that he had seen an ignorant practitioner, in making an incision upon a scrofulous tumour in the neck of a woman, open the cervical arteries, so that the woman dies forthwith of hæmorrhage. Rhazes, a century before Albucasis, refers to the low state of practical surgery. He called most of those who practised it as "idiotæ, rustici et stolidi," who were unable to read books on the Art and had not been taught by a master who could read them. Owing to their stupidity, he says, they often aggravated the maladies which they undertook to treat.

EMIGRATION OF ITALIAN DOCTORS TO FRANCE.

It was from the translation of Albucasis into mediæval Latin by Gerard of Cremona that the revival of surgery in Northern Italy began. This revival had its chief seat at Bologna, whence surgeons migrated to the famous school of Montpelier and later to Lyons and Paris in the second half of the thirteenth century. Many Italian medical practitioners left their country in consequence of the troubles caused by the quarrels of the Guelphs and Ghibellines. They sought refuge on French soil, taking with them the doctrines and works of Albucasis. One of the first of these emigrants was Roger of Parma, from the school of Salerno. Following him were Bruno of Calabria, Lanfranc, and others. Lanfranc delivered a course of lectures on surgery in Paris about the year 1295. These were the first systematic lectures on surgery delivered in Paris, and were published under the title of "Cyrurgia Magna." He insists that surgery should be regarded as an integral part of medicine. Although himself a cleric, he condemns the physicians for having abandoned surgical operations to laymen and barbitonsors. "Why," he asks, "is there now so great a difference between a physician and a surgeon except that the physicians have relinquished manual operations? The physicians say that it is because they deem work with their hands beneath their dignity; but I believe," he retorts, "it is because they do not know how to do operations."

The influence of Lanfranc in France was, however, transitory, notwithstanding the endeavours of Henry of Mondeville, who shortly after wrote the first on surgery in French.

GUY—AN AUTHORITY IN SURGERY.

Mondeville's work was, however, soon eclipsed by that of Guy of Chauliac, completed in the year 1363. Guy was not only the most learned surgeon of his time, but perhaps the most learned surgeon of all time, and his book is one of the best ever written. Even to-day it may be perused with profit by anyone interested in the history and practice of surgery, especially the surgery of the Middle Ages. The work is largely based upon the writings of Rhazes, Avicenna, and Albucasis. As evidence of Guy's extensive learning, and as an indication of the wide range of his studies, it may be mentioned that he cites Albucasis 175 times, Aristotle, 62 times, Avicenna 661 times, Galen 890 times, Hippocrates 120 times, Lanfranc 102 times, Rhazes 161 times, Paulus Ægineta 10 times, and many other medical authors more or less frequently. He does not mention Celsus for the reason which I have already suggested, that Celsus's writings had been forgotten and lost and were not re-discovered until after Guy's time. In his remarkable introductory chapter entitled "Capitulum Singulare," Guy defines the nature and object of Surgery, amplifying somewhat Galen's definition. It is, he states, "the science which teaches the manner and quality of operating, principally in consolidating, incising, and performing other manual operations, healing men so far as it is possible." In the same chapter he traces briefly the history of surgery from the time of Hippocrates downwards, and remarks that up to the time of Avicenna and Albucasis all medical writers had been both physicians and surgeons, but that after him surgery became separated from medicine and fell into the hands of mechanics.

Guy observes that not only had surgery become separated from medicine, but that surgeons had themselves been split up into sects, of which he enumerates five. Only three of these need be mentioned now: first, that of Roger, Roland, and the Four Masters who sought to produce suppuration in all wounds and abscesses by means of poultices; the second, that of Bruno and Theodoric, who dried all wounds by the application of wine only; the third, that of William of Salicet and Lanfranc, who followed a middle course and dressed wounds with ointments and soothing plasters.

Guy's ideal of a surgeon was a noble one; the surgeon should be well-read, expert, ingenious, and well-mannered; he should be bold when sure but cautious amid dangers. Personally, Guy had great moral courage, as shown by his determination to remain at Avignon and attend to his professional duties during the severe visitation of the plague in the year 1348, while many other practitioners fled from the town. He was himself attacked, but recovered, and was again at the post of professional duties at the time of the next visitation of the plague in the year 1360. As a practical surgeon, however, Guy sometimes erred on the side of over-caution. In his account of the treatment of a gangrenous limb he describes the operation of amputation as it is given in Paulus Ægineta, whose description differs only in some details from that of Celsus and Galen. He concludes by remarking: "As for myself, in these cases I envelope the whole of the mortified limb with many layers of adhesive plaster and then tie it up, maintaining the constriction until the line of demarcation liquefies and the limb drops off of itself. It brings more credit to the surgeon," he remarks, to "let the limb drop off than to cut it off, because when it is cut off there is always a feeling of rancour or regret in the patient's mind that his limb might have remained."

Guy was almost the only authority in surgery for at least two centuries—that is, until the time of Ambroise Paré. Paré was born in the year 1517, and when about 25 years of age went to Paris and became an apprentice to a barber-surgeon, probably his brother. He attended the instruction given to the apprentices of Barbers and Surgeons at St. Côme. This instruction consisted largely of explanations of parts of Guy of Chauliac. Malgaigne, in his learned introduction to Paré's works, says it is almost certain that the principal, if not the only, books read by Paré in his earlier years were those of Guy and a French translation of John of Vigo. As showing the esteem in which these works were held it may be noted here that Vicary bequeathed his copy of Guy's Surgery to the Barbers' Company and his copy of John of Vigo to one of his assistants.

BOILING OIL FOR GUNSHOT WOUNDS.

Malgaigne suggests that Vigo was probably too recent an authority to be admitted to the public course of instruction; but Paré himself tells us that he had read John of Vigo on gunshot wounds, and that when he first went to the wars he knew only what he had read in Vigo about these wounds; Vigo had recommended the use of boiling oil for gunshot wounds, believing them to be venomous. Guy was undoubtedly the more learned, but Paré was the better and bolder practical surgeon. It was perhaps to Paré's advantage that he was not learned. He was not hampered by the trammels of authority. His experience was eminently practical, and in his earlier life was acquired in the wars. He knew little Latin and no Greek, but he possessed what was better, a passion for knowledge, and he could use his eyes and ears and understanding. He is best known for the innovations which he made in the treatment of gunshot wounds and for the suggestion of the use of ligatures to the divided arteries in primary amputations. By a mere accident Paré was led to abandon the use of boiling oil in gunshot wounds, but the employment of the ligature for the divided arteries in primary amputation was the outcome of reasoned observation. Although fire-arms had been used in battle for a couple of centuries or more before Paré's time, it was only at the end of the fifteenth century that they became efficient weapons. The injuries which they inflicted were of an extent and kind previously unknown to surgical experience. The severity of the wounds, the smashing of bones, the laceration of flesh, and even the complete avulsion of limbs, the severe hæmorrhage and shock, were altogether different from anything that had been previously known to surgeons. These new experiences called for new procedures, and ultimately revolutionised the art of operative surgery. Up to Paré's time amputation of a limb was rarely performed except for gangrene, but Paré had to face the necessity of performing primary amputation. In amputation for gangrene, when the incision was made in or near the line of demarcation, the hæmorrhage, as a rule, would be slight and easily controlled by the actual or potential cautery, but in primary amputation Paré soon found the cautery was not sufficient. The copious flow of blood quickly quenched the cauteries, and even if the bleeding was temporarily arrested, secondary hæmorrhage frequently followed. To avoid this danger Paré proposed to tie the divided blood-vessels. There is some evidence that he did this for the first time in the year 1552, and yet two and a half centuries more were to elapse before the true principles of arterial ligation were discovered.

PARÉ'S LIGATURE.

Much controversy has taken place with respect to the originality and value of Paré's innovation; but it must be remembered that Paré did not claim, as is sometimes thought, the credit of being the first to use ligatures to bleeding arteries. He knew that this was one of the modes of arresting hæmorrhage which had been known to and employed by surgeons for many centuries; but he was the first, or, at all events, one of the first, to employ the ligature in primary amputation. He did not, however, know the essential conditions of a successful application of ligature. He was not careful to isolate the artery and, indeed, recommends that it should not be isolated, arguing that the surrounding tissues should be included in the ligature, because the union of the vessels would take place better and more surely when the tissues were included. We know now that such a mode of tying an artery must often have failed, and that secondary hæmorrhage must have been a not uncommon sequel. The practice of tying an artery in amputation did not, therefore, at once commend itself to practical surgeons; and for many years it was opposed and condemned by most surgeons. In this country Alexander Read, lecturing on Surgery in the Barber-Surgeons' Hall in the year 1634, speaks of Paré's ligature as a "troublesome and dangerous toy." And yet the idea was a compelling one. Those who did employ the ligature were usually afraid to damage the coats of the vessels by too tight a constriction, and various contrivances were made to bind the vessel without injuring the coats. Multiple ligatures, reserve ligatures, broad ligatures, tapes and ribbons were used, or the artery was flattened against a roll of wood or other material, lest a fine ligature drawn sufficiently tight to stop the bleeding should damage the arterial tunics. Ligatures made of animal tissues, such as strips of untanned deer skin, were also tried. Even so sagacious a surgeon as John Hunter failed to discover the true path. In his first operation of the tying of the femoral artery for popliteal aneurysm he employed no less than four ligatures, thinking thereby to ensure greater safety. Fortunately, the operation was successful, in spite of the risk incurred by using multiple ligatures.

PROGRESS ALONG TWO LINES.

Notwithstanding the failure and disappointment which attended the use of the ligature for more than two centuries and a half after Paré, observant practitioners were gradually making progress along two lines of advance. One set called attention to the increased safety of isolating the artery before tying it, and the other demonstrated the greater safety of using fine ligatures tightly applied. But the full credit of discovering the true principles of arterial ligation belongs to Dr. J. F. D. Jones, a Member of this College, who published his treatise on the use of the ligature in the year 1805. By means of a few well-designed and skilful experiments on animals, chiefly horses and dogs, Jones discovered that the only safe and sure method of tying an artery was to apply a small ligature with sufficient force to divide the inner and middle coats. Hundreds of surgeons must, of course, have done this without knowing it; but Jones demonstrated why and how it must be done in every case.

When we reflect what a terror the risk of hæmorrhage had been to surgeons for more than 2000 years, and how faulty and misleading clinical and practical observation had been, and when we consider how many thousands of lives must have been lost from hæmorrhage before Jones's investigations, and how many hundreds of thousands of lives have since been saved by the knowledge of the truths which he discovered, it is hardly necessary to make any attempt to justify the use of the experimental method on lower animals. Jones does, however, defend it in noble but simple language, and on this note I will end:

"When we remember," he says, "the incessant carnage of war which has followed man through all the ages of his history, not to mention the consequences of accident and disease, it is not too much to assert that thousands might have been, and may still be, saved by a perfect knowledge of these subjects, which can only be directly obtained by experiments on brutes, and indirectly and very slowly by observations on the injured arteries of man, and even these cannot be made until he has fallen a sacrifice to the want of assistance or to the imperfect knowledge of the surgeon."

Presidential Address

ON

A PLEA FOR THE BETTER TEACHING OF OTO-RHINO-LARYNGOLOGY.

Delivered before the Section of Otology of the Royal Society of Medicine on Nov. 21st, 1919,

BY HERBERT TILLEY, B.S. LOND., F.R.C.S. ENG.,
SURGEON, EAR AND THROAT DEPARTMENT, UNIVERSITY COLLEGE HOSPITAL, LONDON.

GENTLEMEN,—If English otology is to hold its own against other nations of the world I am convinced that our first efforts must be directed to the more efficient teaching of otology, rhinology, and laryngology in the medical schools of the United Kingdom. For until the student is shown the far-reaching importance of these subjects and is imbued with interest in them he will pass into practice ignorant of the diseases of one of the most important regions of the body.

I have used the words "of far-reaching importance" in reference to our subject, and no one of you will accuse me of employing exaggerated phraseology, but there are still many in the profession who do not view the matter from our standpoint. Among them are some whose past work quite rightly ranks high in the records of medicine and surgery, but to-day, unknown to and unsuspected of themselves, they are sitting on the bank while the stream of progress flows by them. Of course, we must bear kindly with such confrères as these and remember that the time may come when our own "pia mater" may lose some of its elasticity. Our efforts, therefore, must be directed to the plastic and impressionable mind of the medical student; and here we shall attain our ends if we place before him in well-balanced perspective the importance of a practical working knowledge of diseases of the ear, nose, and throat.

The task should not be difficult if we confine ourselves to general principles and do not dwell on technical details in diagnosis and treatment.

LIMITATIONS OF PRESENT CLINICAL INSTRUCTION AND NECESSITY FOR MORE TEACHING.

It is only necessary to mention a few of the reasons why the student should possess a more intimate and practical knowledge of diseases of the ear, nose, and throat than he does under the present system of training.

(*a*) Diseased tonsils and adenoids are responsible for a large proportion of the physical defects and backward mental development of young children, and a large proportion of ear disease is due to the same cause. Nevertheless, few senior students can make a satisfactory examination of these regions, and fewer still can treat them efficiently.

The student's appreciation of the portals of entry of systemic infection will be all the clearer if his teacher demonstrates the normal anatomy of the nose, pharynx, and naso-pharynx and then shows him cases in which the natural lymphoid deposits in the latter situations have grown to excess and taken the form of adenoid vegetations and enlarged tonsils. A few naked-eye specimens and microscopical sections of pathological conditions will illumine his mind concerning this great gateway of general infection by which pathogenetic organisms find their way into the cervical glands and to more distant regions. He will understand the basis of the modern views regarding rheumatic fever and rheumatism and see that these are merely names for an infective process which attacks the structures of the heart, joints, and muscles, and that it is probable the specific organisms often gain access to the system by way of the unhealthy lymphatic structures in the fauces and naso-pharynx.

If he once understands the arrangements by which the inspired air is filtered, warmed, and moistened before it arrives at the delicate ramifications of the lower air-passages he will at once grasp as an obvious corollary the evil effects of continuous mouth-breathing.

(*b*) Acute infections of the ear are most common in childhood, and much of the deafness met with in adult life is caused by neglect of treatment of these earlier phases of inflammation. Yet the average senior student and practitioner cannot examine a normal tympanic membrane, and still less could he inspect or treat one which is diseased.

(*c*) It is common knowledge that most cases of septic meningitis are due to neglect of suppurating lesions in the ear or in the accessory sinuses of the nose. It is probably no exaggeration to say that not 2 per cent. of recently qualified students could make a fairly accurate examination of the nose and its accessory sinuses nor, as above stated, of the tympanum and its adnexa.

A suitably sectioned skull, a few diagrams, and a clinical demonstration on a case of this kind in the ward will leave a lasting impression on his mind, and what is more important, he will appreciate the clinical significance and serious potentialities of neglected acute and chronic suppuration in the middle ear.

(*d*) The clinical significance of laryngeal lesions in the early stages of tuberculosis, syphilis, and cancer, and the importance of laryngeal paralyses in diseases of the nervous system, as well as in certain grave intrathoracic affections, is universally recognised. Nevertheless, very few students on the eve of qualification could see the vocal cords in a laryngeal mirror, and fewer still would be able to diagnose or treat the simplest diseases affecting those structures.

(*e*) In the orbital complications due to infections from the nasal accessory sinuses, the ophthalmologist is with increasing frequency seeking the assistance of the nasal surgeon, and it is probable that in the near future most cases of chronic suppuration in the lacrymal sac will be turned over to the rhinologist for operation from within the nasal cavities.

We should show the student how intimate are the anatomical connexions between the eye and the frontal, ethmoid, and sphenoidal sinuses, and he will then take a more intelligent interest in diseases of the eye when he passes into the ophthalmic department of his hospital.

(*f*) During the past twenty years the introduction of the direct method for examining the lower air-passages and the œsophagus has revolutionised the treatment of foreign bodies lodged in those regions, and the same method may often render invaluable aid to the physician both in diagnosis and treatment of disease in these localities. And yet many students have never even seen these methods employed.

A glance down the tube may create such an impression on his mind that it may bring a keen and able worker into our ranks; at the least it will prove to him that there are subjects outside his examination syllabus which he cannot afford to neglect, while a study of them will add an endless fascination to his work.

(*g*) The recent work in connexion with the physiology, pathology, and surgical treatment of the static portion of the "labyrinth" has greatly extended the scope of otology, and has been of material assistance to the neurologist in the diagnosis and treatment of certain hitherto obscure cerebral symptoms.

To the majority of recently qualified students such knowledge is at present a closed book.

To those of us whose daily round of work is wrapped up in these matters no stress need be laid on their importance, but when considering the medical curriculum of the student the question at once forces itself on us, How do we stand at the present moment in this matter?

POSITION OF OTO-RHINO-LARYNGOLOGY IN THE MEDICAL CURRICULUM.

Briefly stated the position is this. A knowledge (tested by examination) of diseases of the ear, nose, and throat is not made compulsory in the final examinations of any of the medical schools in the United Kingdom, nor by the Conjoint Board of the Royal College of Surgeons of England. Consequently, the student feels that he must put in all his time in getting up those subjects in which he knows he is to be examined, and, considering the present overcrowded curriculum, who shall blame him?

Hence it comes about that in this year of grace, 1919, a student may obtain his qualification to practise without ever having seen a normal or diseased tympanic membrane or the common types of nasal obstruction, and he would probably pose as a superior person if he could conscientiously assert that, unaided, he had seen the vocal cords in a laryngoscope. In fact, a large percentage of recently qualified students are well acquainted with the end-results of serious and irremediable diseases which they have seen in hospital wards, while they are innocently ignorant concerning those affections of the upper air passages which are the great portals of systemic infection, and where so much may be done to defeat the enemy before he has had time to entrench himself securely.

To such men, those of us who have been in general practice will extend their sympathy. Around him he will find children with "discharging ears," or suffering from "chronic nasal catarrh"; patients will consult him for sore-throats for which casual inspection gives no satisfactory explanation, and he is dismayed because they are unrelieved by the "Garg. pot. chlor." of his hospital pharmacopœia; one of them may suffer from chronic hoarseness, but he—the medical adviser—cannot get a view of the vocal cords, and when failure attends prolonged trial of anti-gout remedies some higher authority may have to inform the patient that he has an evil type of growth on the vocal cord which will demand an immediate and serious operation, or that the loss of voice is due to paralysis of a vocal cord caused by a grave lesion within the chest, or maybe to some disease which has declared itself in the central nervous system.

Yet again, our medical friend may have to stand helpless before an acutely inflamed tympanum which he can neither see nor treat, while the significance of a rigor associated with acute ear symptoms makes little or no appeal to his imagination. How he must pine to get a case of pneumonia, enteric fever, a "regurgitant mitral," an enlarged cirrhotic liver, a patient with Bright's disease, or an advanced case of pulmonary phthisis, for has he not often seen these in the wards of his hospital and been instructed how to diagnose them? Nay, more, has not the diagnosis frequently been verified in the dull limbo of the post-mortem room? This is no exaggerated or fancy picture, for I was once in general practice myself and speak of what I know.

In what way may this state of things be remedied? You will naturally say, "Why not persuade the examining boards to make otology, rhinology, and laryngology compulsory subjects and examine upon them?" This has been tried, but the reply has been, "The curriculum is already overcrowded, and no further burden can be placed on the student."

I have been at some pains during the past year to find out what regulations are in force in the medical schools of the United Kingdom concerning the teaching of diseases of the ear, nose, and throat, or what inducements are offered in that direction—e.g., whether a student may take those branches of study as a special subject for a medical or surgical degree. Let us look for a moment at the London medical schools, in which the large majority of students are being taught with a view to passing the Conjoint Board Examination of the Royal Colleges of Surgeons and Physicians.

At the present time in six of our teaching hospitals attendance is not *compulsory* for the conjoint student, although, as a rule, it is so for those who are preparing for a university degree. In others attendance in the ear and throat department is compulsory on all students, and in two of these hospitals they must, in addition, attend courses of lectures or demonstrations on the subject. In most of the universities of the United Kingdom outside London attendance in the ear and throat department is compulsory, and the student receives the encouragement that he may elect oto-rhino-laryngology as a special subject for his M.D. or M.Ch. degree.

And so it is with a sense of shame one has to confess that in this twentieth century the University of London stands almost alone amongst the universities of the United Kingdom in not requiring that its students shall possess some certifiable knowledge of diseases of the ear, throat, and nose. Neither does it offer any inducement in this direction by allowing candidates to elect these subjects for examination for its highest degrees in medicine and surgery.

IMPROVEMENT IN FUTURE PROSPECTS.

But I think no secret will be revealed if I tell you that this state of things will probably soon be remedied. During the past year Mr. Arthur Cheatle for otology and myself for laryngology and rhinology have brought the question before the Advanced Board of Medical Studies of the London University, and as a result of the sympathy and support of that Board I hope you will in the near future find that the Senate will permit these subjects to be taken as a part of the M.S. degree.

This should be a great help to us in securing the best type of specialists—i.e., men who have a thorough knowledge of general medicine and surgery, and minds capable of taking a wide view of the whole field of human suffering; we can expect little from those who, with a bare qualification to practise, at once commence to focus attention on some special department of the body. Such a course soon brings in its train a narrow and restricted outlook. Its exponents are of that type of specialist who treats a cough with some favourite cough mixture or local sedative without any search for a possible systemic cause of the symptom. With equal thoughtlessness he has no hesitation in applying the galvano-cautery to, or removing normal structures from, the nose of a young boy or girl who at ages from 14 to 16 may be suffering from a transient but nevertheless physiological congestion of nasal mucosa associated with other changes incidental to puberty. In fact, he endeavours to construct the pyramid of his knowledge with the small end for a foundation. If social or financial success is their goal such "specialists" may attain their reward, but they will not advance our knowledge in the subject. However, to those of us who are interested in otology its future should be full of good prospects, even though we feel at times as if we were struggling in a quagmire of administrative and lethargic incompetence.

In our favour is the outstanding fact that the ear and throat clinics of the United Kingdom are staffed by experts, while in nearly all our universities, if a student is attracted to the subject, he may elect to be examined in it for the highest degrees in medicine and surgery. Therefore it is up to the teachers to impress upon students the importance of a practical working knowledge of diseases of the ear, nose, and throat, and to urge on the medical committees of their hospitals that a minimum of three months be spent in the ear and throat department before an "attendance certificate" is granted allowing the student to enter for the final qualifying examination.

In the matter of post-graduate teaching the special hospitals as well as the medical schools can help. Let me express the hope that each member of this section will pull his weight in helping on any post-graduate scheme which may take shape in London. Many of our Overseas colleagues were much impressed by the efforts made on their behalf in 1918 and earlier in this year, and they look to us to establish a real, live post-graduate school or association in London, so that they are not driven, as heretofore, to Vienna, Berlin, Freiburg, or Paris.

Lastly, in connexion with the newly established Ministry of Health, I hope otologists will emphasise the importance of caring for the ears and throats of the nation's children—there should be scope here for the energies of many of our junior men. With hard work as our key we can unlock all the secrets of otology, and by its influence miracles may be wrought to-day as astounding as those of old; for its efficacy should be no less potent in our hands than it was in those of Harvey, Hunter, Virchow, Pasteur, or Lister.

To-day it is the fashion to decry work, to limit its exercise by arbitrary restrictions of time and output, and to bring to a dead level all human enterprise and initiative. May such legislation never thwart the workers in the realms of medicine and surgery, for "to travel hopefully is better than to arrive, and the true success is to labour."

REMARKS ON THE

TREATMENT OF MALARIA IN ENGLAND.[1]

BY S. P. JAMES, M.D. LOND., D.P.H.,

LIEUTENANT-COLONEL, I.M.S. (RET.).

THE treatment of malaria is a subject upon which it is not easy to break new ground without raising controversial issues. In this paper I propose to remark briefly on some of the problems which at the present time confront medical practitioners almost daily in this country.

In the first place, it is well known that from March 1st this year the statutory duty has been placed on medical practitioners of notifying all cases in which a patient upon whom they are in professional attendance is suffering from malaria. There has been some difference of opinion among medical practitioners as to the interpretation to be placed on the word "suffering" in the Regulations, but since the order came into force, nearly 14,000 patients have been so notified, and it will be seen from the figures given in the following table that as yet the weekly number of notifications shows no sign of diminution.

Notifications of Malaria in England and Wales. 1919.

	Official notifications.	Additional cases reported by Ministry of Pensions since Oct. 4th, 1919.
March	598	—
April	838	—
May	1528	—
June	1415	—
July	2381	—
August	2259	—
September	1366	—
October	1172	405
November (3 weeks only)	918	1247

Cases of malaria are now distributed almost everywhere in England and Wales. and a thorough knowledge of the diagnosis and treatment of the disease is thus not a matter which can be left in the hands of a few specially qualified officers, but must be communicated as widely as possible to medical practitioners throughout the country. Considering the notified cases from the point of view of treatment, by far the most important are certain cases in which the treatment of an acute relapse has not been successful in preventing a fatal issue. The number of deaths registered as due to malaria is usually in this country between 50 and 60 per annum, but in 1917 the number rose to 126, in 1918 to 197, and in the present year, if the rate of mortality now prevailing continues, the number will be 280. The following figures have been kindly supplied to me by Dr. Stevenson, Registrar-General:—

---

[1] Read at the opening of a discussion on the Treatment of Malaria at the Medical Society of London on Nov. 24th.

Deaths from Malaria by Years and Age-groups.

Year.	Death from malaria in England. (Males and Females.)			Age-groups of deaths from malaria during the first quarter of 1919.	
	M.	F.	Total.	Age-groups.	No. of deaths.
1910 ...	44	7	51	Up to 15	1
1911 ...	56	2	58	,, 20	17
1912 ...	49	9	58	,, 25	15
1913 ...	49	9	58	,, 30	9
1914 ...	56	4	60	,, 35	12
1915 ...	55	10	65	,, 40	7
1916 ...	59	3	62	,, 45	4
1917 ...	122	4	126	,, 50	—
1918 ...	188	9	197	,, 55	—
				,, 60	1
First 3 months of 1919..	70	0	—	Over 60	4
				—	70

It will be seen that a disquieting feature of the deaths in 1919 (and the same was true of the deaths in 1918) is that most of them were of young men. Another serious feature is that in at least some instances death might have been prevented if all medical practitioners in England had a sufficient knowledge of the diagnosis and treatment of the disease. I do not desire to labour this point, but I have been so impressed by the sad nature of some of the fatal cases that I take leave to record one of them as briefly as possible.

A soldier who had suffered from malaria in Egypt came home on leave to a populous district in England on July 22nd. On the 24th he had a slight febrile attack, but got up next morning. On the 29th he had to go to bed again with fever and great aching in the bones, but it was said that he had no definite rigor or sweating. A doctor who was called in diagnosed influenza and prescribed a mixture containing sodium salicylate. On August 2nd the temperature was still high and there was much vomiting. The salicylate mixture was repeated. On the 4th the eyes were jaundiced and the liver somewhat enlarged. Malaria was then suspected for the first time, and a mixture containing 2½ gr. of quinine to the dose was prescribed, to be taken every four hours, but on account of the continuous vomiting it was doubtful if much could be retained. On the 7th the patient seemed better, but next day he was sullen, drowsy, and delirious, and passed porter-coloured urine. On the 9th both parotid glands became enlarged; on the 10th there was no fever, but jaundice had increased and the patient was only partly conscious; on the 11th he had a profuse sweating attack and died a few hours later. An examination of a film of peripheral blood taken after death showed numerous crescents and ring forms of the malignant tertian parasite.

I believe everyone will agree that in England a death directly due to malaria should be an exceedingly rare event. In this connexion I may remark that in the hope of preventing some avoidable deaths the Ministry of Health issued a note, published in the leading medical journals[2] last August, and that with a view to early inquiry into the deaths which may occur, it has since been arranged that registrars throughout the country shall send immediately to the Ministry a certified copy of the registration of a death attributed to malaria.

Perhaps the next most important cases among the notifications are cases of malaria contracted in England. The total number of such cases which have been discovered or notified since September 1917 now amounts to 414. Among the cases which have occurred in the civil population it is very interesting that the great majority (75 per cent.) have been children under 15 years of age.

Inadequate Quinine Treatment.

The point which I desire to emphasise with regard to these indigenous cases is also brought out in the above fatal case of exotic malaria—namely, the quite inadequate quinine treatment which some of these patients received even after a definite diagnosis of malaria had been made. For example, a boy, aged 15, was admitted into a hospital in England on Oct. 12th and was found to be a case of malaria (with benign tertian parasites) on the 15th. He was severely anæmic and had a greatly enlarged spleen. At a visit to the hospital on the 21st it was found that the doses of quinine which were being given were quite inadequate for the cure of the patient. Fortunately in this case a suggestion that the doses should be increased was readily accepted with the result that the patient soon recovered. The temperature charts of two indigenous cases under treatment in another hospital in England were also instructive. The patients were children, aged 7 and 8 years respectively, and the insufficiency of the doses of quinine given was obvious from the slow recoveries and the early recurrence of fever.

An interesting comparison with the above cases is afforded by the chart of a chronic malaria patient from Salonika who was receiving (as anti-relapse treatment) 10 grains of quinine daily. In the former case we know that the daily fever was due to insufficient quinine. The chart of the latter patient was handed to me as an example of what is called secondary or "quinine fever," but on searching his peripheral blood thoroughly we were able to find malaria parasites; and when curative treatment was substituted for anti-relapse treatment the temperature fell quickly to normal and remained so. The fever, therefore, should have been described as "quinine-resisting fever" rather than as "quinine fever."

This subject of inadequate quinine treatment is also of importance in connexion with the serious cases of malaria which occurred during the war in great numbers on ships returning home from Dakar, Sierra Leone, and other West African ports. On this subject I have not time to say more than to express regret that the recipe of the "quinine mixture" given in the latest edition of the "Ship Captain's Medical Guide" still contains only two grains of quinine to the dose.

Suggestions for Improved Treatment.

I have unfortunately left myself very little time in which to refer to the more usual cases represented in the notifications, but I believe that the treatment of such cases will be fully dealt with by other speakers. I hope that they will keep in mind that we are desirous of receiving any suggestions which will simplify or improve the rules of treatment given on pages 15 and 16 of the official pamphlet, "Suggestions for the Care of Malaria Patients," which was issued to all medical practitioners early this year. Having in view that in present circumstances a practicable method of treatment must be a simple and inexpensive routine, I believe that no material change in those rules is necessary; but I am more than ever convinced that

---

THE LANCET, 1919, ii., 292.

the degree of success to be attained with any of the four methods of after-treatment mentioned in the pamphlet depends almost entirely on the administrative arrangements for ensuring that the routine is conscientiously followed. There are grave difficulties in connexion with that part of the problem, and until they are solved I doubt if we shall see a great diminution in the number of malarious patients in this country.

In the first place, although all demobilised soldiers suffering from malaria are entitled to receive treatment from an Insurance practitioner, it appears from recent inquiries that a great many men who still suffer from relapses have not applied to any medical practitioner for treatment since they were demobilised. The Ministry of Pensions have recently arranged to forward particulars of these cases (which presumably have not been notified) to the Ministry of Health, and the number of such reports which we receive each week now averages about 300.

Secondly, as regards the men who do place themselves under the care of a medical practitioner, there are great difficulties in exercising more than a small amount of supervision over their treatment, especially in country districts. Some of them are men who were gametocyte carriers when they were demobilised and still remain so. Some are men who think that they know much more than their physician about the best treatment for their particular case. Some are men whose illness is really a psychosis in which the patient continues to nurse a complaint the cure of which would deprive him of some benefits to which he is entitled while his disability lasts.

Malaria Contracted Locally.

As an unfortunate consequence of the neglect to continue systematic treatment after demobilisation some men have this year been the source from which members of their own family and visitors in their households have become infected with the disease. These occurrences show that arrangements for preventing the spread of malaria in this country are intimately connected with arrangements for ensuring the satisfactory treatment of demobilised soldiers. For this reason I welcome very heartily the recent institution by the Ministry of Pensions of a special malaria clinic through which, under the direction of Sir Ronald Ross, the systematic examination and treatment of pensioned soldiers in the London area is being undertaken. I suppose it is greatly to be regretted that it should be necessary to go to the expense of establishing such a clinic, but if it is the intention of the Ministry of Pensions to make similar arrangements in other parts of England, I would suggest that the next area selected should be one in which it would be possible to show that the establishment of the clinic had not only been the means of curing all the patients in the area, but had also, for that reason, been an effective means of preventing the occurrence of locally contracted cases.

DEATH OF MR. W. E. TAYLOR.—William Edmund Taylor, L.R.C.P., M.R.C.S., died suddenly at Hayle, Cornwall, on Nov. 11th, aged 30 years. The deceased was the son of Mr. E. J. Taylor, town clerk of Bristol. He received his medical education at Bristol, and after holding resident appointments at the Bristol General Hospital he received a temporary commission in the R.A.M.C. at the beginning of 1916. He was gassed and suffered from shell-shock whilst serving in France and was invalided out of the army in February, 1917. Later he joined Mr. A. D. Tenison, of Hayle, in partnership, and much sympathy is felt there for the widow and family.

THE PRESENT POSITION OF
X RAYS AND RADIUM IN GYNÆCOLOGY.[1]

BY DAWSON TURNER, M.D. EDIN., M.R.C.P. LOND., F.R.C.P. EDIN.,
IN CHARGE OF THE RADIUM TREATMENT AT THE ROYAL INFIRMARY, EDINBURGH.

THE employment of radiation treatment in gynæcology dates from this century, the X rays were not discovered by Röntgen until 1896, and radium was not extracted by the Curies until 1898. Thus the treatment of disease by these methods is still in its infancy.

Production of the Radiation.

If the X rays are to be employed powerful apparatus is required, into the details of which I have not time to enter, except as regards the X ray tube. This may be a Coolidge tube or a water-cooled Müller with a diameter not less than 16 cm., and the rays emitted should have a penetration of 7–9 Bauer. Dr. Robert Knox has fitted a Coolidge tube to a rotating stand, so that a centrally situated tumour can be radiated from all aspects of the body; this has the great advantage that a large dose can be administered to subcutaneous tissues without an overdose to the skin. The X ray is of the same nature as a light wave, but it has a very short wave length.

If radium or mesothorium is to be used for most cases a suitable amount would be 100 milligrammes of pure radium bromide. Less or more than this can be used, the more radium the shorter the exposure. Dr. Howard Kelly uses a gramme to radiate the uterus through the abdominal wall. The radium at one's disposal should not be collected in one tube, but should be divided up into smaller amounts so as to distribute the radiation. For treatment of a case of cervical cancer one or two tubes could be placed in the cervical canal and the others around the os in the fornices. Tubes are more suitable for gynæcology than capsules. The salt is enclosed in a hermetically sealed glass tube surrounded by an aluminium tube again surrounded by a silver or platinum tube. In my own tubes the thickness of the aluminium varies from half a millimetre to a millimetre, and the silver from one to one and a half millimetres. If the tube be of platinum its thickness might be half a millimetre. It is better to use the solid salt where possible rather than the constantly decaying emanation. The solid salt being quite constant in its radiation, the dose can be accurately measured and the tubes need not be disturbed from their position

Effects of the Radiations on Normal and Abnormal Tissues.

I shall not attempt to make any distinction here between the relative effects of X rays and of radium rays, but shall class them both together. A small dose produces stimulation, a larger one produces inflammation which may be followed where the dose has been stronger by degeneration, necrosis, and sloughing. The effect on the skin somewhat resembles that of a burn. There is infiltration of leucocytes with degeneration of the squamous cells leading to an atrophy, which includes the hair bulbs and sweat glands, but these changes do not begin, as in the case of a true burn, immediately upon the application of the irritant, but follow at some days interval. There is a latent period of from 5 to 10 days before any marked effect is observed. Muscle fibres undergo a form of hyaline degeneration and tend to be replaced by fibrous tissue. Blood-vessels become occluded by obliterative endarteritis. In nerve fibres neuritis or perineuritis may more rarely be set up. In the case of abnormal growths the basal action is to inhibit proliferation of the cancer cells[2] and to cause an overgrowth of fibrous tissue. The more rapidly growing, the more embryonic, the more malignant the cells the more susceptible they are to radiations. Sarcomata for this reason are more readily removed than carcinomata. But the lymphosarcoma is of all tumours, in the writer's experience, the most amenable to radium rays. The effect of radium rays upon a lymphosarcoma is almost magical and must be seen to be believed.

---

[1] The substance of a lecture for the Edinburgh Post-graduate Course in Medicine.

To the occlusion of the blood-vessels produced by radiation must be ascribed the checking of the hæmorrhage associated with uterine fibroids or other pelvic troubles. Hæmorrhage is an indication for radiation treatment. The writer has had to deal with growths which before radium treatment were as vascular as an aneurysm, but which after treatment were almost bloodless, the vascular having been replaced by fibrous tissue.

Fibroids and Cancer as Indications for Radiation Treatment.

1. *Uterine fibroids.*—These may be treated by X rays or by radium, or by the two combined.

Indications for X ray treatment: The patient's age should be between 40 and 55. The size of the fibroma should not be too great. The interstitial growth is more suitable than the pedunculated and the subperitoneal. Where hæmorrhage is a prominent symptom the best results are to be expected. Contra-indications: Fibroids setting up urgent pressure symptoms; complications such as lateral inflammations, pelvic peritonitis, ovarian cysts, calcification.

The technique for application of X rays varies in different places. The Freiburg technique will be found in Dr. Robert Knox's book on Radiation Therapeutics (p. 472). An interesting paper by Dr. Delpratt Harris[3] should also be consulted. Some improvement results from X ray treatment in the majority of cases, especially in those near the climacteric period. Some fibroids diminish steadily though slowly; others seem to be but little affected. Hæmorrhage is controlled.

The indications for radium treatment are much the same except that, according to Dr. Kelly, who has led the way in this method, there need be no such age-limit as 40 years as there is in the case of X ray treatment. Young women can be treated as effectually as old women. Dr. Kelly has treated 210, and explains his technique, which aims at the production of an amenorrhœa, which shall last until the fibroid is gone, in a paper which appeared in October, 1918.[4] Wickham, Degrais, and Cheron also report satisfactory results. Of 120 cases, Cheron states that the menopause was brought on in 117 and the size of the tumour markedly reduced in 108.

With regard to the relative merits of the X ray and of radium, it seems to the writer that the employment of radium internally is to be preferred, both because the method is less complicated, stronger doses can be given, and there is no risk of injuring the skin. Quigley[5] is of opinion that the wall of the uterus has four times the resisting power to radium that the surface skin has, and that it is, in fact, the most highly resistant of any organ.

2. *Cancer.*—Carcinoma of the vulva can be treated either by X rays or by radium. It is not very amenable to treatment, but the writer has seen temporary improvement by the employment of both methods. Dr. Arthur Burrows[6] reports that of 15 cases of carcinoma of the vulva and vagina 3 were well at the end of a year, 2 were improved, and 5 were not improved.

Carcinoma of the cervix: This from its position can only be satisfactorily treated by radium, and very good results are obtainable. All the authorities are agreed as to this. Thus Dr. Burrows[6] reports: "The bests results in malignant disease were obtained in cases of carcinoma of the cervix." The Freiburg school assert that operation is no longer necessary in cases of cervical cancer, and that the results of radium treatment often result in what amounts to a virtual resurrection. Ransohoff[7] refers to a patient suffering from inoperable cancer of the uterus, who died of intercurrent disease several years after undergoing the radium treatment, an autopsy showing complete anatomical cure. Cheron and Duval report a similar case. The patient died 15 months after the radium treatment had resulted in apparent cure, and histological examination did not reveal a single cancer cell in any part of the body.

In order that a malignant growth may be successfully treated by radium the growth must be localised and accessible; further, the whole of the growth must be given a sufficient dose—the periphery as well as the centre. Now, in the majority of cases recommended for radium treatment these conditions are impossible of attainment, because the growth is a recurrence and is widespread. Take the cases of cervical cancer, in which the broad ligaments are involved before the aid of radium is called in. The cervical part of the disease can be given a sufficient dose so as to cause its disappearance; but how can the outlying cancer cells be efficiently radiated? It is the writer's experience that cases of cervical cancer, if not too far advanced, are, when treated by a radium expert, temporarily cured, but that recurrence after a time is common. The reason for this is that the more distant cells escaped a lethal dose, and though at the moment of the exposure they were overwhelmed and prostrated, yet in course of time they recover sufficiently to recommence proliferating. A recurrence can again be subjected to radiation, but, as a rule, less successfully, and this for two reasons. The one because the developing cells are in a less accessible position, the other that after a course of raying only those cells survive which are more or less refractory to the rays, and a recurrence consisting of such cells or daughter cells is less susceptible to attack. There is a tendency by natural selection to breed cells which are immune.

Early cases would probably be completely cured by an efficient course of radium treatment. The writer has only had one such case, but it entirely answered his anticipations. Yet even in the advanced cases the patient may greatly benefit by the removal of pain, the cessation of discharges, and by a general gain in health and strength.

---

[2] Levin and Joseph: Annals of Surgery, vol. lxvii., p. 442.

[3] Brit. Med. Jour., Sept. 20th, 1919.

[4] Surgery, Gynæcology, and Obstetrics, October, 1918.

[5] Therapeutic Gazette, August 15th, 1919.

[6] Report of Manchester and District Radium Institute, 1918.

[7] Annals of Surgery, 1916, p. 298; Radium, February, 1916, p. 111.

Technique.

A preliminary curetting is often of service; this acts by removing part of the growth and by permitting the radium to be applied more effectively to the root of the disease. The radium can then be introduced while the patient is still under the anæsthetic. Place one or more tubes in the cervical canal and pack others round the cervix in the fornices. Each tube should be provided with an eyelet to which a piece of silkworm gut is attached. These threads should be led out between the labia and their ends attached by plaster to the abdomen. The writer prefers to use the solid salt rather than the emanation, because there is no dubiety as to the dose, and the tubes can be left in as long as may be necessary for a sufficient dose. The tubes should be kept in their position by gauze packing. The glass tube containing the radium is enclosed in an aluminium tube 1 mm. thick and this is put into a silver tube also 1 mm. thick, the whole is then protected by a rubber cot; thus the rays have to traverse the glass, the aluminium, and the silver, and the source is always at least 4 to 5 mm. away from the tissues. The amount of radium in each tube may vary from 10 to 100 mgs., but it is better to have several tubes containing small amounts rather than one or two containing a large amount.

It is important to give at the first a sufficiently large dose, and the writer is accustomed to administer from 5 to 10 and even to 15 thousand milligramme hours. He has never seen bad results follow such doses. Suppose that the total amount of radium employed in a particular case amounted to 100 mgs., then a dose of 10 thousand milligramme hours would be administered by keeping it in situ for 100 hours. The gynæcologist may suggest that it might be well to divide the exposure into two or more parts at intervals of a week or two, but this does not answer and the whole dose should if possible be given at once. The patient should be kept in bed for a short period after the exposure and should be douched. She may then return home, but should report herself in about three months if all be going well. By this time it is possible, and even probable, that all the local evidences of the disease will have disappeared. I will conclude by quoting two cases, one of epithelioma, the other of sarcoma.

Description of Two Cases.

(1) Rapidly growing fungating epithelioma. A patient, aged 63, was recommended on Oct. 16th, 1916, for radium treatment by Dr. John Orr and Dr. William Fordyce. She was suffering from a squamous epithelioma growing from the vaginal roof behind and to the left of the cervix. There was a soft fungating gangrenous mass in the above position. This was removed by operation in September, 1916, and the base of it scraped and pure carbolic acid applied. Pathological report: Squamous epithelium showing marked necrosis. Ten days later the mass had grown again to half its previous size, the discharge was very fœtid, and the same necrosis was present. The mass was again removed and tubes of radium were applied to the base and maintained there until a dose of 4900 milligramme hours had been given. This put a stop to the further development of the growth, for two years later, in November, 1918, Dr. Orr reported that the patient appeared to be quite well. She has not needed a doctor for the last 18 months; she is able to do all her work, and her only symptom is a slight discharge. As she considers she is quite well she refuses to come to the Royal Infirmary to see Dr. Fordyce.

The last report regarding this patient was received on Sept. 23rd, 1919, and this was to the effect that there has been no recurrence of the malignant growth.

(2) Sarcoma of cervix. A patient, aged 47, was recommended for radium treatment on July 20th, 1916, by Dr. A. H. F. Barbour. Duration of the disease one year. Complains of a bearing down pain and discharge. On June 26th, 1916, the cervix, found to be ulcerated by Dr. Fordyce, was curetted. Pathological report: Sarcoma. Dr. Barbour examined her on July 20th, 1916, and found hard nodules all round the cervix except posteriorly. The right broad ligament was thickened. Body of uterus unaffected. Hysterectomy unsuitable. A dose of 4300 milligramme hours of radium was administered. In two months' time the nodules had disappeared. In four months the parts seemed quite healthy; no discharge; patient much stronger. After a lapse of two years and four months—viz., in November, 1918—the patient was re-examined by Dr. Barbour, whose report is as follows: "The cervix is small, nearly flush with vaginal roof, firm, almost cartilaginous, but showing no evidence of return of sarcoma."

Owing to the length of time that this patient has been free from recurrence, Professor Lorrain Smith kindly re-examined the microscopical section.

DIATHERMY.

BY NORMAN PATTERSON, M.B., CH.B. EDIN., F.R.C.S. ENG.,
ASSISTANT THROAT, EAR, AND NOSE SURGEON, LONDON HOSPITAL
LATE SURGEON, THROAT HOSPITAL, GOLDEN-SQUARE.

SINCE the introduction of diathermy the treatment of epithelioma of the mouth and pharynx has been entirely revolutionised. Although this method of destroying malignant growths has been employed in this country since 1910, it is remarkable to find so little general recognition of its value. It is not uncommon to hear general practitioners, surgeons, and specialists referring to diathermy as if it were a method to be used in hopeless cases only; as a palliative and nothing more; or as an alternative to the cautery in the destruction of innocent tumours. During the last five years the author has had very considerable experience of diathermy, and, from the survey of a large number of cases, he has come to the conclusion that in cancer of the bucco-pharyngeal cavity it ought entirely to supersede cutting operations.

The unpopularity of diathermy is to some extent due to the fact that a costly and somewhat cumbersome apparatus is required to produce the special electric current necessary for its application, that the mechanism is complicated and apt to get out of order, and that the operation itself is liable to be tedious. Perhaps in the minds of some surgeons the method is lacking in precision, but this idea can only be the outcome of unfamiliarity or prejudice.

Apparatus and Technique.

A short description of the apparatus employed may not be out of place. Instruments are manufactured by Schall, Griffe, Siemens, and other firms. These instruments aim at the production of a high-frequency current; the current reverses its direction at the enormous rate of, perhaps, 1,000,000 times per second. One electrode is placed over the chest or abdomen; it is a large plate, and between it and the skin are interposed several layers of lint well saturated with normal saline. The electrode used for destruction of the tissues may take the form of a needle, narrow spatula, or button. The handle is insulated, and further insulation is obtained by the operator wearing rubber gloves. Owing to the resistance offered to the passage of the current, heat is produced and the albumin present in the tissues is coagulated. Coagulation passes for a considerable distance beyond the electrode. When using an ordinary cautery point destruction is limited to the immediate neighbourhood, and the all-important effect of penetration is lost. (Vide Fig. 1.) Different types of electrodes will be required according to the nature of the tumour, its site, and the method employed in its destruction. The electrode is applied before the current is turned on, and the current is switched off before its removal. If applied or removed when the current is flowing sparking will result. It is well to begin with a weak current, gradually increasing its strength till bleaching of the tissues in the vicinity of the electrode occurs; a few seconds later bubbles will appear, and then it is nearly time to transfer the electrode to a different spot. Once the correct current has been found for any particular electrode it need not be altered.

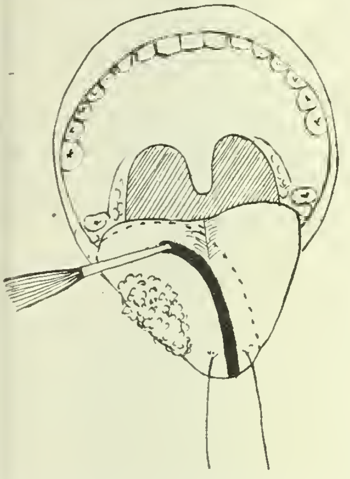


FIG. 1.—Diagrammatic representation of the method by which a portion of the tongue may be excised by diathermy. The dotted line represents the probable extent to which sloughing will take place.

In the region of the upper air and food passages the tumours which best lend themselves to treatment are those involving the buccal cavity and oro-pharynx. When dealing with malignant disease in this neighbourhood by ordinary surgical methods we find that the farther back the growth the more difficult as a rule its extirpation becomes, and when the tumour involves the base of the tongue and epiglottis eradication with the knife is a formidable and hazardous procedure. The above statement is true also of diathermy, but to a much more limited extent. Here the main difficulty is one of exposure; but once the growth has been brought thoroughly into view its destruction is accomplished with scarcely any more difficulty than is the case with tumours situated farther forward. By using the suspension method, which will shortly be described, the lingual tonsil and epiglottis can easily be brought within reach of the electrode. In cases of carcinoma of the floor of the mouth, or where the disease, starting in the tongue, has spread to this region, removal by ordinary surgical methods involves extensive dissections and frequently division of the jaw. When diathermy is employed for these cases the whole procedure can be carried out through the mouth. If the periosteum of the mandible or maxilla is involved, or even if the bone itself is invaded, that periosteum or bone can be completely destroyed. At a subsequent date a sequestrum will separate and may require to be removed with forceps. In some cases where the disease has deeply infiltrated the tissues, causing a swelling in the neck that appears to be continuous with that in the mouth, the needle can be plunged into the floor of the mouth in many places, and partial destruction of the tumour thus accomplished. At a subsequent operation the remainder of the mass can be removed by dissection carried out through the neck, the anterior triangle being cleared of glands at the same time. Such a case is now alive and well four years and a quarter after his first treatment. In a case of this sort considerable difficulty will be experienced in dissecting out the submaxillary space; adhesions following the diathermy are probably present, and anatomical landmarks may be sought for in vain. The dissection will be facilitated by first of all securing the arteries entering the mass from below and the veins running in from above.

The tumour may be so situated that, in order to expose it for the application of diathermy, a preliminary cutting operation is necessary. In one of my cases a large epithelioma grew from the base of the skull, occupying the whole naso-pharynx. The growth was thoroughly exposed by preliminary division of the soft palate, coupled with removal of the posterior portion of the hard palate and septum (in dividing the soft palate the incision should commence to one side of the base of the uvula, and should not cleave that structure).

In cases of epithelioma of the nasal vestibule, especially if the disease extends some distance backwards, the ala nasi may have to be turned to one side, or some other method of exposure involving a cutting operation carried out, in order to obtain a full view of the affected area. Again, where the growth lies underneath the skin, but well free of it, the superficial coverings can be reflected and, after diathermy is completed, replaced.

Advantages of Diathermy over Cutting Methods.

The main advantages which must be claimed for diathermy over cutting methods are the following:—

1. Bloodlessness. If the current is properly regulated and sharp-edged or sharp-pointed electrodes avoided, the operation can be conducted without any immediate hæmorrhage. Occasionally when using a fine-edged tool, especially if it is being "pressed through the tissues," free hæmorrhage will occur. It is well, therefore, to be careful when working in the neighbourhood of large vessels. If an artery is accidentally cut it can be clamped and diathermy applied upon the proximal side of the clamp, or a blunt-ended electrode may be placed over or around the bleeding point. Either of these methods is better than an attempt at ligature. Freedom from hæmorrhage at the time of operation does not mean that bleeding, even of an alarming nature, may not take place subsequently; it is specially liable to occur when the sloughs are beginning to separate. Further reference will be made to this complication.

2. Total destruction of the tissues in the neighbourhood of the terminal and the impossibility of cell implantation. If the diseased tissues are entered by the electrode, no harm can result from using the same instrument for the severance of healthy tissues in the neighbourhood of the growth; diseased and healthy cells are alike killed.

3. Sterilisation of the parts. Not only are the tissues which come in contact with the instrument killed, but any pathogenic organisms lying in the field of operation are destroyed. Therefore the patient, besides being rendered safe from the implantation of malignant cells, is less likely to suffer from bacterial infection.

4. Structures some distance from the electrode are destroyed. In any given case, provided the operation be planned so that the electrode is applied

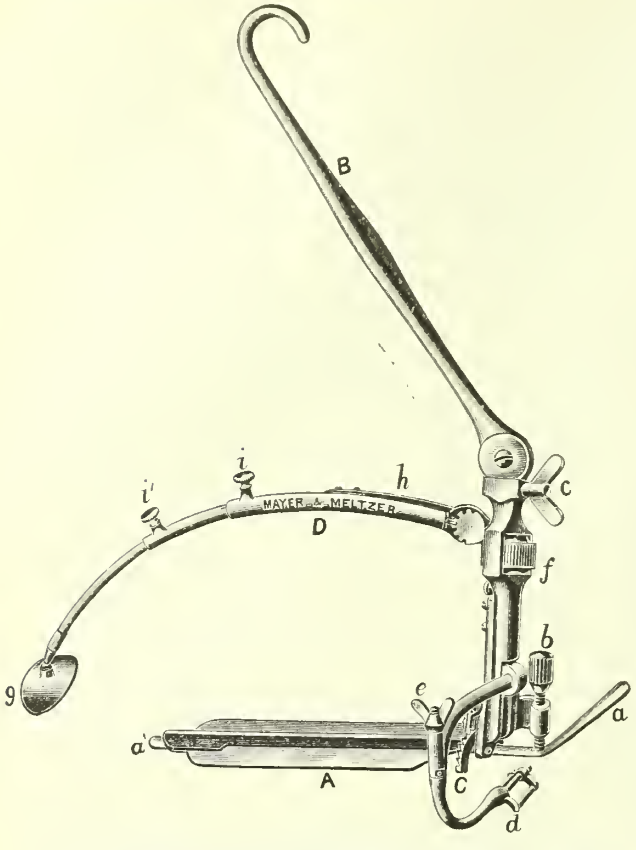


FIG. 2.—Illustrating suspension apparatus. A. Tongue spatula with movable flanges or wings to prevent the tongue bulging and overlapping. Pressure on the roughened knob, not seen in the illustration, releases the ratchet and enables the spatula to be closed. The narrow elevator *a a'* is for raising the epiglottis; it is fixed in position by means of screw *b*. B. Spatula hook. The inclination of spatula can be altered by means of screw pinion *c*. C. Gag. The bar *d* fitted with swivel plate, for upper teeth or edentulous jaw, swings horizontally, being fixed in position by screw *e*. It is opened and closed by milled screw *f*. D. Counterpressor with cricoid plate *g*. Pressure on the spring *h* releases the ratchet and enables the arm to be raised or lowered; the screws *i i'* fix the telescopic arms at the correct length.

three-quarters of an inch beyond the tumour margin the actual destruction will extend to a distance of an inch to an inch and a half from the edge of the growth, that distance depending on the form and size of the electrode, the strength of the current, and the character of the tissues. This is a very important point in contrasting the diathermy method with that of excision with the knife.

5. Vascular structures situated in the area of destruction are sealed up, so that absorption of bacteria and toxins is less likely to take place. This may explain the absence of marked inflammatory reaction and elevation of temperature which is noticed in so many cases.

6. Shock is generally much less than after a cutting operation. The explanation may lie, to some extent, in the fact that any nerve filaments encountered are thoroughly "cooked" in the process of diathermy.

7. The ease with which, if reappearance of the tumour takes place, diathermy can be applied again. I have had excellent results where two or three operations have been carried out as the disease manifested itself afresh.

8. The scar is probably denser and spreads further into the surrounding tissues than is the case after cutting operations. It is well known that scar tissue acts as a barrier to the spread of malignant disease.

9. Tumours so situated that their removal with the knife is only possible after an extensive neck dissection can be dealt with per vias naturales—e.g., epithelioma of the base of the tongue, epiglottis, aryteno-epiglottidean folds, floor of the mouth, &c.

10. The operation is conducted in a bloodless field, and the limits of the tumour can therefore be defined with greater accuracy.

11. Patients too old or too feeble to undergo a cutting operation may sometimes be subjected to diathermy, and the operation, if thought desirable, can be carried out at several sittings.

12. The growth is practically always approached from the mucous membrane surface, or surface of origin, a point of no small importance.

Method of Using the Instrument.

There are various ways of destroying a growth; the simplest of all is to go over the surface of the tumour, plunging the electrode through the diseased tissues in many places till the whole area is covered. This procedure, however, is somewhat haphazard, and it is better to adopt a more methodical plan. Having brought the surface of the growth fully into the field of operation, begin by drawing a line round it in the healthy tissues, three-quarters of an inch (if this is possible) from its margin. Everything within this line should now be destroyed. Some idea will probably have been obtained beforehand of the depth to which the disease penetrates the tissues, and the operator must try to get beyond the deepest part of the tumour by three-quarters of an inch. Some growths are flask-shape, and the extent of the superficial manifestation may be no index to the size of the tumour mass. For instance, a small ulcer may be present on the tongue, but when that organ is grasped between the finger and thumb it will be found to be extensively infiltrated; cases of this sort sometimes require removal of the greater portion of the tongue. The tumour mass, as it is coagulated, can be scraped away with a spoon, and deeper layers of tissue in succession subjected to diathermy. It is generally easy to ascertain whether the walls of the resulting cavity are formed of normal or of cancerous tissue.

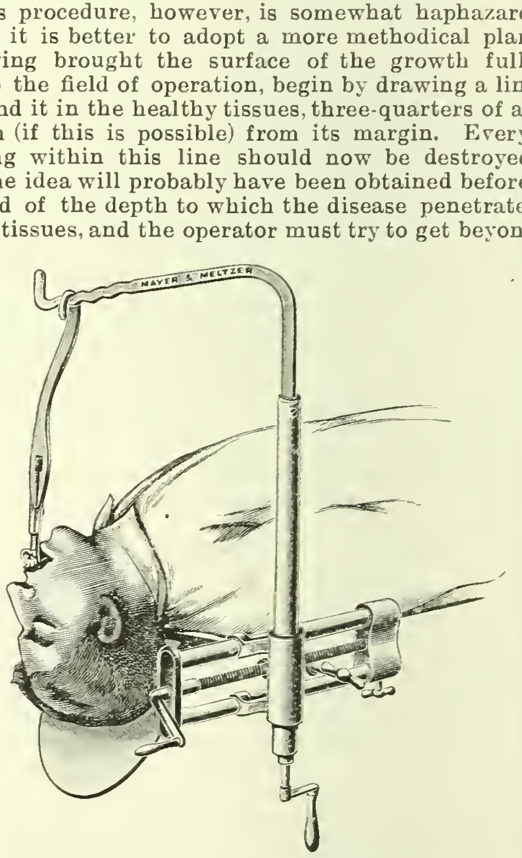


FIG. 3.—This diagram shows the suspension apparatus in position.

A third method—viz., complete excision of the growth, using the diathermy electrode instead of the knife—is, when possible, perhaps the best. The method is carried out as follows: a line is drawn round the epithelioma as before described; this line is deepened, care being taken to plunge the instrument into the tissues at right angles to the surface, or even to slant it outwards from the growth. (Vide Fig. 1.)

When dealing with tissues which contain no large vessels—e.g., dividing the centre of the tongue or palate—or when the main vessel of supply has been ligatured, I sometimes use an instrument with a comparatively sharp edge. Progress is much more rapid, but great care must be taken to avoid anything like a sharp instrument in tissues which are highly vascular. Sometimes scissors or an ordinary knife may be used in liberating the tumour from its surroundings; only coagulated tissues should be divided in this way, and there should be no bleeding. Rather than risk the occurrence of hæmorrhage, avoid cutting instruments altogether. When a trench has been dug to the required depth—that is, well below the deepest portion of the growth—the edge of the tissue to be removed should be grasped at one point with vulsellum forceps and the diathermy carried beneath the growth so as to separate it from underlying structures. In this way the tumour, together with a sufficient margin of healthy tissue, is removed. The process is a tedious one, but it often repays extra time and trouble. During separation of the mass it is easy to ascertain whether or not the removal has been carried out through the non-invaded tissues. When dragging forcibly with the vulsellum healthy structures stretch; thus, coagulated muscular fibres and fibrous tissue can be distinguished from the tumour itself, which breaks across and tears very readily.

After the tumour has been removed the whole cavity from which it was taken should be methodically and thoroughly subjected to diathermy. For this purpose a button-shaped terminal is used. Special attention must be paid if there was any doubt as to the section being well wide of the growth in any region.

When rapidity is all important I have adopted another method. After ligature of external carotid I rapidly dissect out the tumour with a knife or scissors and apply diathermy over the whole surface of the resulting cavity; this method will seldom be necessary. During the operation sparking may take place. It is liable to occur when the instrument becomes covered with dried tissues. When it does occur the electrode should be cleaned by scraping or wiping off the charred material. The electrode may then be moistened with saline and a little saline solution dripped into the wound. Ether should be avoided as an anæsthetic on account of the possibility of igniting the vapour.

Method of Exposure.

Growths in the anterior part of the mouth require no special method to bring them into view. In cases where the disease is situated at the base of the tongue, on the tonsil, faucial pillars, or posterior pharyngeal wall, or where it involves the epiglottis, aryepiglottic folds, or the larynx proper, the best means of obtaining a good view is by using the suspension apparatus. This is really a combination of a gag and tongue depressor. The pressure necessary for keeping the tongue down is obtained by utilising the weight of the patient's head, which is allowed to hang over the end of the table, the face looking obliquely upwards, and the neck being on the stretch. The tongue depressor and gag are in one piece and the two are hung from a horizontal bar (vide Figs. 2 and 3). There are various screws for adjusting the instrument. The tongue depressor has a slot along which an extension can be slid, and by this means the epiglottis can be depressed and a view of the larynx obtained. Without this instrument it is difficult to operate with precision on tumours of the oro-pharynx, and extremely difficult when the tumour is situated in the neighbourhood of the epiglottis or larynx proper. If the growth is in the centre of the lingual tonsil the tongue depressor will have to be adjusted to one or other side of the middle line or it may conceal the very region where the attack is to be made.

Before commencing any operation all septic teeth should be attended to, and this generally means extraction. Diathermy, however, may be undertaken when the mouth is in a septic condition without running anything like the same risk as when the tissues are laid bare with cutting instruments. This is no argument, however, against a thorough cleansing of the mouth prior to operation.

Positive and Negative Indications and Precautions.

In my experience diathermy is not often successful where the growth is situated in the larynx; here there is danger of swelling giving rise to obstruction to breathing, aspiration of sloughs, sloughing of the framework of the larynx, and possibly abscess in the neck. It is not to be used as an alternative to laryngo-fissure in the treatment of intrinsic cancer. When the epiglottis or aryepiglottic folds are involved the results may be good, and even growths occupying the pyriform fossa may be so treated, but diathermy in this region is liable to be followed by sloughing of the thyroid cartilage. When the neighbourhood of the aperture of the larynx is involved a preliminary laryngotomy or tracheotomy may be advisable, and some cases of carcinoma of the base of the tongue may demand it from the anæsthetic point of view.

In some cases, especially when the growth is planted deeply in the tissues, there is very considerable risk of secondary hæmorrhage; this is most liable to occur about the fifth to the seventh day, but I have seen it three weeks after the operation. It therefore becomes a question whether it is not advisable to ligature the main vessel of supply to the area. In the case of the tongue ligature of the lingual may suffice, although, as a matter of fact, there is not generally much trouble from hæmorrhage when the anterior part of the tongue has been dealt with. If the tumour involves the pillars of the fauces and base of the tongue, or if the palate and tonsil are extensively affected, it is sometimes advisable to carry out a preliminary ligature of the external carotid and ascending pharyngeal. This is the more necessary if the patient has degenerated arteries and a high blood pressure. Another advantage of cutting off the main blood-supply is that sloughing is more pronounced, and therefore the chances of complete eradication of the disease are increased. A disadvantage lies in the fact that subsequent removal of the cervical glands may be rendered more difficult. In some cases removal of the glands, ligature or excision of the carotid, and diathermy of the growth may be undertaken at the same sitting.

The question of the removal of glands is a most important one; it should be carried out in all cases. The usual time selected for the dissection will be from three to four weeks after the operation on the primary growth. The removal of the glands draining the affected area, together with the deep fascia, should be carried out whether any palpable enlargement exists or not. Extensive dissections reaching from the base of the skull to the clavicle may be necessary; the posterior as well as the anterior triangles will sometimes require to be cleared; and in some instances the sterno-mastoid must be cut across, turned aside temporarily, or partly removed. A portion of the jugular vein will be removed when necessary. When the primary growth approaches or crosses the middle line an operation should be carried out on both sides of the neck. Although the general rule, as far as the neck is concerned, is that the best results are got in those cases where glandular enlargement is slight or non-existent, I have met with some cases which have been free from recurrence years after the removal of large masses. Diathermy may, in a few cases, be carried out on the primary tumour when the glands are inoperable, simply to make the patient more comfortable. It has been suggested that the glands themselves might be treated by diathermy, but from the nature of their anatomical relationships it is not a method which commends itself to the surgeon. If the glands are movable and removable the knife should be employed; it is only by this means that the muscular and vascular structures of the neck can be entirely stripped of glands and fascia. There is one consideration to be borne in mind with regard to neck dissections in these cases: they may be difficult on account of inflammatory and fibrotic changes in the tissues as the result of the previous diathermy. Markedly will this be the case when clearing out the submaxillary region after deep diathermy in the floor of the mouth; here the structures may have "run together," making the dissection difficult indeed. I have carried out a large number of dissections in the neck following the application of diathermy in the neighbourhood of the tonsils, and have met with no particular difficulties. The consent of the patient for these neck operations should be obtained before commencing treatment on the primary growth.

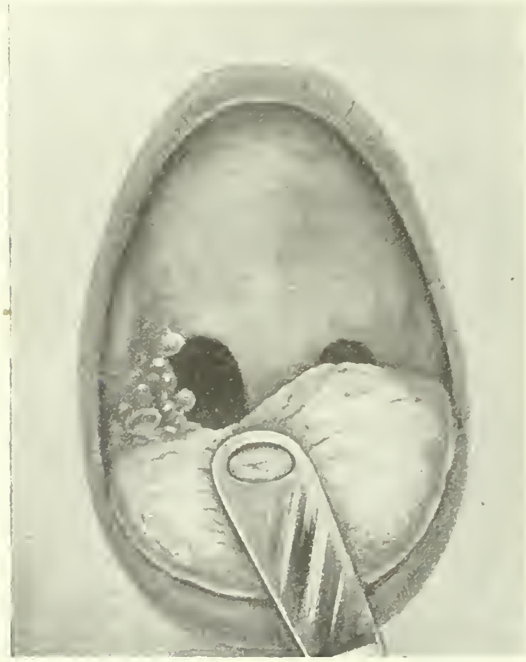


FIG. 4.—Epithelioma of the tonsil and tongue.

Some surgeons advise removal of the glands as a primary procedure. This does not seem logical. Fresh deposits in the neck and rapid developments of these may occur even before the primary tumour can be treated. It is only when it is thought that the patient will withhold his consent to an operation on the glands, once the primary and troublesome condition is removed, that the neck operation should be carried out first. Sometimes the glands and primary growth can be dealt with at the same sitting. (Figs. 4 and 5).

After-treatment and Complications.

The after-treatment of diathermy cases consists mainly in constant cleansing of the mouth and pharynx with a mild antiseptic mouth-wash or spray and in assisting the patient in his swallowing difficulties. A soft or fluid diet will be necessary at first. In some cases the patient may more easily feed himself by sucking up nourishment through a glass tube; in others, artificial feeding through a nasal tube or Hill's œsophageal tube may be necessary. After each feed the mouth should be thoroughly cleansed. When the neighbourhood of the larynx has been attacked inhalations of friar's balsam are comforting. The patient should sit up in bed or in a chair as soon as possible. When the sloughs are quite loose, but not until then, they may be removed. Hæmorrhage may be troublesome, and it must be dealt with on the same principles as those which apply after cutting operations. All stimulating treatment should be avoided —e.g., no saline infusions are to be given unless the patient is suffering from profound loss of

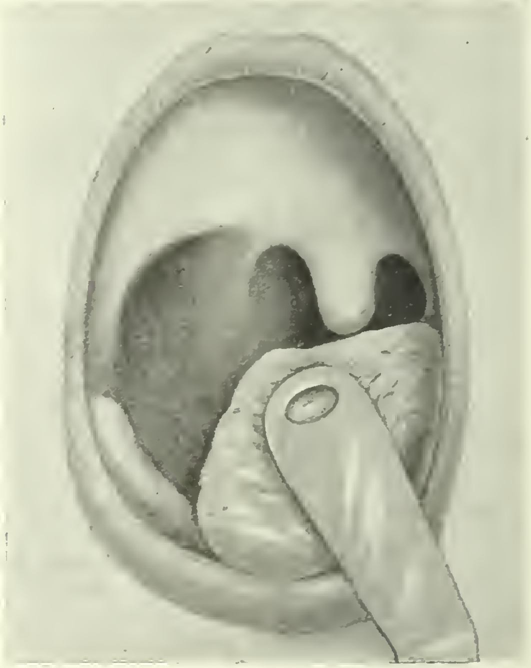


FIG 5.—Result of the operation about a month after diathermy.

blood, and only when the bleeding has been controlled. It is best to prop the patient up when he can stand this position and quiet him by the hypodermic administration of morphia. Local styptics, such as adrenalin, tannic and gallic acid in a thick paste may be tried, but pressure will probably best meet the emergency. If the hæmorrhage is sudden and severe the patient may be very much alarmed and his struggles and his congested state may put all temporising methods out of court. In a case of this sort it may be necessary to perform laryngotomy—a procedure which only takes a few seconds—and plug the pharynx tightly. The external carotid may sometimes require to be tied. Preliminary ligature of the carotid has been referred to, and it will commend itself especially in patients who have to be left in a nursing home where surgical aid may not be promptly forthcoming.

Pain is generally present, but it is not a marked feature during convalescence; it is treated on ordinary principles.

Some swelling of the cervical glands is common after the operation, but it soon subsides. As a rule the temperature does not rise considerably, but I once saw it reach 104° without any serious complications supervening. As in all extensive operations involving the upper air-passages, septic pneumonia may develop, but it is wonderfully rare; when the region of the larynx has been dealt with complications in the chest are, of course, more likely to supervene. Weeks after the operation bony sequestra may separate; their presence may give rise to granulations which are rather liable to be mistaken for new growth.

Troublesome superficial burns have occurred on the abdominal wall from insufficient protection of the large electrode, which is generally applied over this region. An ample thickness of lint, well moistened with saline, should be placed between the plate of the electrode and the abdominal wall.

Other complications, which have already been alluded to, are acute laryngeal obstruction, sloughing of the laryngeal framework, and abscess in the neck.

Results.

Treatment of malignant disease by diathermy is of such recent development that it is too early to speak with any certainty of the results. My early cases, owing to lack of boldness in the use of the instrument, often required repeated applications. They were not nearly so successful as more recent cases have been. On the other hand, encouraged by the good results in cases where the disease was limited, I have been induced to apply the method in advanced cases where nothing could really be expected from treatment of any kind. There are certainly a large number of patients coming up to hospital where the disease has spread too far to make any sort of operation worth carrying out. The results, in selected cases, are extraordinarily good. If patients could only be seen early enough a large number of cures would probably be effected. It has been too much the habit, and it is still too much the habit, of surgeons to regard this method as a palliative measure only, and as one to be reserved for "inoperable" cases. It is the best method to adopt in all cases, and not only in cases on the borderland of being inoperable by the knife. No excision of a carcinomatous growth in the tongue, mouth, or pharynx, however small that growth may be, should be carried out with the knife if diathermy is available.

The results will depend largely on early diagnosis, and expert advice should be called in whenever there is a suspicion that malignant disease may be present.

No time should be lost in Wassermann examinations—a microscopic examination of the suspected tissues will generally settle the diagnosis. Very serious consequences may follow on a positive Wassermann report in a case of epithelioma, and frequently the blood is positive; the patient may be dosed with anti-syphilitic remedies while the tumour grows apace.

OBSERVATIONS ON THE SPORULATION OF SYPHILIS ORGANISM AS SEEN ON THE DARK GROUND.

BY C. LUNDIE, M.D. GLASG.,
LATE CAPTAIN, R.A.M.C. (T.C.);
AND
F. H. GOSS, *M.C.*, M.B., CH.B. LEEDS,
CAPTAIN, R.A.M.C. (S.R.).

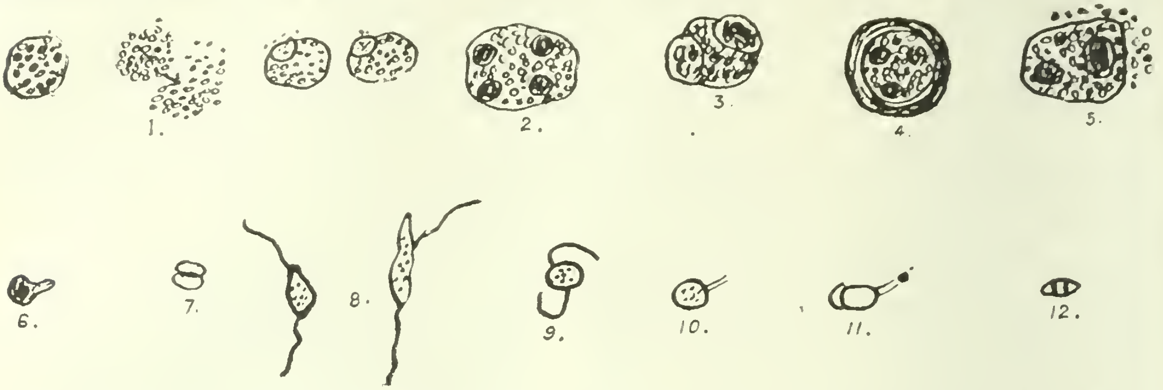
DURING many months of dark-ground examinations of scrapings from syphilitic sores the occurrence of highly refractile coccal bodies in large numbers, either singly or in pairs, could not fail to be noticed. So frequently were they seen that some sort of relationship to the disease was suspected, but prolonged examination of the slides was not possible, and the origin of these bodies was not observed. Even the *Spirochæta pallida*, when found, could not be watched long enough to note any interesting process in which it might play a part.

The greater leisure of post-armistice times has provided more opportunity for prolonged study. Twice within the first week of resuming dark-ground work what was taken to be phagocytosis of a spirochæte by a leucocyte was observed, and on the second occasion demonstrated to a colleague. Subsequent observations, coupled with statements made by McDonagh that phagocytosis never takes place with *Spirochæta pallida*, have suggested another interpretation of the phenomenon thus twice observed.

On June 30th last our attention was called to a "leucocyte" which had burst and was pouring forth hundreds of the small refractile bodies so often seen in previous smears (Fig. 1). The observation was confirmed and the appearance compared with Phase 36 of the life-cycle of the leucocytozoon syphilidis represented by McDonagh in Plate II. of his book "Biology and Treatment of Venereal Disease." On a following occasion sporulation was observed with the dehiscent opening in front view instead of in profile as on the former occasion. Drawings were made of the appearances seen on the occasion (Figs. 2 to 5). The lights and shades are made as seen in the dark ground, so that the dark spots in Figs. 2, 3, 4, and 5 are the points of dehiscence, as is confirmed by the fact that the flow of spores was always from these points. Fig. 6 was darker as seen in the dark ground than the brilliantly illuminated spores, but not so dark as the points of dehiscence. It seems to correspond to a developing free sporoblast (No. 38 in McDonagh's life-cycle).

In view of the obvious sporulation thus personally observed in the dark field, and McDonagh's description of a life-cycle accomplished inside a leucocyte or endothelial cell, the phenomenon

Showing Highly Refractile Bodies seen in Scrapings from Syphilitic Sores under Dark-ground Illumination.



observed by us and once seen and demonstrated by Levaditi (who described it as phagocytosis) may actually have been the act of impregnation by the male gamete (the *Spirochæta pallida*) of the female gamete inside the leucocyte.

One other phenomenon has been observed. Twice a flagellate and actively swimming organism (drawn by Captain Goss, Fig. 8) has been seen. On the second occasion Captain Goss fortunately watched it for some considerable time till movement ceased and it assumed the appearance seen in Figs. 9, 10, and 11, finally bursting and pouring out numerous diplococcal bodies (Fig. 7). A certain number of short, fine, few-spiralled spirochætes were also seen, but they were not observed to arise from any pre-existing body, as were the single and double coccal-formed bodies. They were like miniature *Spirochætæ balanitidis*, and might correspond to No. 25 in McDonagh's cycle.

Forms (Fig. 12) which seem identical with No. 25 in McDonagh's cycle have also frequently been observed, but their origin and evolution have never yet been seen.

All these phenomena were noted only in slides taken from sores that were clinically syphilitic, and from no others. It seems, therefore, that a number of phases of the life-cycle can be seen in the dark ground, but further observations with controls seem necessary. The close connexion between the lymphocytes and the syphilis organism indicated by McDonagh's work and the above observations suggested further study on the differential leucocyte count in syphilis. This work is now being done, and further observations on the subject may be published later.

This paper has been read and observations confirmed by Lieutenant-Colonel E. G. Ffrench, R.A.M.C., officer commanding No. 56 General Hospital, Etaples.

THE FREQUENCY OF
RIGHT INGUINAL HERNIA AFTER APPENDICECTOMY BY THE "GRIDIRON" INCISION.

BY G. H. C. ST. GEORGE GRIFFITHS, M.R.C.S., L.R.C.P. LOND.,
TEMPORARY SURGEON LIEUTENANT, R.N., ROYAL NAVAL HOSPITAL, HASLAR; LATE SENIOR HOUSE SURGEON AND RADIOGRAPHER TO THE TAUNTON AND SOMERSET HOSPITAL.

CAREFUL investigations into this extremely interesting complication or end-result have been made at the Royal Naval Hospital, Haslar, for a period of ten months. The cases described below are a few among the 100 odd cases of inguinal hernia that have passed through my hands, directly or indirectly, in the senior surgical section at Haslar. The condition first came to my notice last June, when two right inguinal herniæ were lying in the wards of the senior surgical section, both having been operated on previously for appendicitis by the "gridiron" or muscle-splitting method. Within three weeks yet another case made its appearance in the wards. My curiosity was then aroused to a possible new cause of hernial formation, and indirectly a complication or end-result to appendicectomy.

Another question requiring solution was whether these right inguinal herniæ only followed the gridiron incision, or whether Battle's method also shared in this unique mode of hernia formation. So far I have collected 11 cases of inguinal herniæ following appendicectomy. Of these, 10 were on the right side and the eleventh appeared as a left inguinal hernia. The date of appearance of these herniæ varied from a few months to three and a half years after appendectomy was performed. In one case the hernia followed 12 years after, but this case had also been complicated by an operation for ventral hernia in the old scar. This late occurrence may account for this end-result or complication having passed unnoticed so long. In 10 of the cases the gridiron incision was used, none of the incisions being near the outer border of the right rectus. In the eleventh case a Battle's scar was present, the hernia having appeared 18 months after operation. The length of the scars varied from 2½ inches to a maximum of six inches. The situation, too, differed somewhat in position, from immediately above Poupart's ligament and the right iliac crest to near the mid-point between the right anterior superior spine and the umbilicus.

As regards the size of the herniæ, they were mostly small, probably owing to the service routine of reporting early a condition such as a rupture. In only two cases did the sac come well down into the scrotum, one of these being the case mentioned above as following appendicectomy by Battle's method. In all cases operated on the sac was found to be of the oblique variety, varying in thickness, but mostly delicate and thin—this fact suggesting recent formation.

The greater majority of the original operations for appendicitis had not required draining for pus, and had been stitched up in the ordinary way.

Obviously some sort of explanation of the exciting cause of this unlooked for end-result is necessary. It will be noticed that 10 out of the 11 cases appeared on the right side.

No one can possibly state with accuracy whether there was a predisposition to a hernial formation in each of these recorded herniæ. Such a predisposition may account for the one appearing in the left inguinal canal, and also the hernia following Battle's method; this happened to possess a large sac and was of the infantile type. Anatomically there is no explanation for the formation of these two herniæ. This leaves nine right inguinal herniæ following appendicectomy by the gridiron incision to be accounted for.

Some authorities may regard the preponderance of 10 to 1 as not out of proportion to the usual preponderance of right inguinal herniæ to the left. In a series of 76 consecutive cases of inguinal herniæ, I found 37 on the right side, 31 on the left; 5 were double, and in 3 the side was not recorded. These figures do not support the theory that the 10 to 1 preponderance is explained merely by the predisposition of the right inguinal canal to hernial formation. The explanation must be sought for in some fault in the technique in making or closing the gridiron incision.

I suggest that this may occur in two ways, either by avulsion or division of the fine muscular nerve twigs to the lower portions of the internal oblique and transversalis muscles during the opening of the peritoneal cavity, and leading to a partial or complete atrophy of the muscle-fibres in the region of the internal abdominal ring; or, on the other hand, by compression of the same nerves by the encircling catgut sutures in sewing up the incisions in the transversalis and internal oblique muscles, in repairing the abdomen after appendicectomy. From the fact that 11 cases have appeared in a little over a hundred consecutive cases of inguinal hernia, a new plea for Battle's method arises, to avoid the possible occurrence of this annoying end-result to appendicectomy by the muscle-splitting incision.

A NOTE ON THE
ENVIRONMENTAL FACTOR IN THE CAUSATION OF BERI-BERI.

By K. SIMPSON, M.B., CH.B. EDIN., D.P.H. OXON.,
LATE MEDICAL OFFICER, COLONIAL SERVICE.

THE results of published experiments by E. C. Bulley[1] throw some valuable light on the causation of xerophthalmia and other eye lesions occurring during a diet deficient in the fat-soluble growth factor. While such lesions were prone to occur in rats, they could be prevented by careful attention to keeping the animals in a clean and healthy condition, and promptly treating any slight soreness of the eyes with boric lotion. While the prime cause of xerophthalmia was a deficient accessory food factor, the exciting cause was the development of the *B. xerosis* in tissues of lowered vitality and resistance. Such findings are in accordance with those of McCarrison,[2] who found that pigeons fed continuously on a diet of polished rice, in addition to the development of polyneuritis avium, became susceptible to various septicæmic and tuberculous infections, demonstrable on post-mortem examination. In conclusions drawn from his earlier observations, McCarrison points out that similarly in the causation of beri-beri various parasitic and infective processes may play an important rôle in the onset of the disease in those so predisposed through dietary defects. Such facts seem to throw additional light upon observations of the writer while in charge of a beri-beri hospital in Singapore, 1914–15. These may be here briefly mentioned, with, however, the preliminary observation that cases of polyneuritis in which definite infective processes were operative as the causative factor, such as malaria, dysentery, or syphilis, presented clinical differences from the polyneuritis of beri-beri, and, further, that when chronic the former showed little improvement in hospital from the exhibition of a diet of unpolished or parboiled rice, in strong contrast with those of true beri-beri.

Of different nationalities admitted to hospital, Chinese were in point of number six times that of all others—Japanese, Javanese, Malays, and Indians. While the disease in its true form was of common occurrence among recent immigrant Chinese, it was practically unknown among the Straits-born settlers in the colony. While rare in the Malay the disease was met with only in the case of one who had recently come to settle in Singapore from some distant part of the colony.

In its incidence among the sexes beri-beri occurred between five and seven times as frequently in the male as in the female.

The disease was most prevalent among the coolie class, those employed on rubber estates being especially prone to infection. Certain areas in Johore were constantly found to furnish the largest number of admissions to hospital. During the same period, of a considerable number of saw-mill coolies admitted from a wide area no less than three-quarters were found to have come from a certain saw-mill in Singapore. Of those employed at different trades tailors alone accounted for more than half.

Inquiries into the former dietaries of a considerable number of beri-beri patients, particularly as to the consumption of polished rice, led to no outstanding differences between them and that of Straits Chinese, who did not appear to suffer from the disease in its true form. Speaking generally, in a few instances only did polished rice serve as the exclusive article of diet. In the majority of cases, though supplemented by the addition of fresh vegetables, vegetable curries, &c., and a native preparation of germinating grain frequently partaken of, the dietary appeared to consist almost entirely of carbohydrate foodstuffs. A minimum amount of protein and fat appeared to be gained occasionally from salt fish or pork fat.

Conclusions.

Shortly, the balance of evidence seemed to indicate that certain endemic areas existed where, in those prone to beri-beri by reason of dietetic deficiencies, the disease was in the majority of cases probably precipitated, the exciting causes being presumably overcrowding and unhygienic surroundings. Such conditions at the time of writing were not absent from the coolie lines of certain estates that harboured the disease, where the coolies employed were to a great extent made up of imported Chinese, and to a lesser extent of Japanese, who also occasionally contracted the disease.

---

[1] Biochemical Journal, July, 1919.

[2] Brit. Med. Jour., February and July, 1919.

Recent facts in the ætiology of rickets, a "deficiency disease" akin to beri-beri, seem to support the view that similarly something more than a mere dietary absence of the accessory growth factor is necessary for its production, as evinced by its occasional occurrence on the one hand in breast-fed infants and, on the other, its absence, in countless instances, in infants reared exclusively on some of the preparations of dried milk prepared in such a way that the milk vitamines are presumably destroyed.

The recent experiments of Noël Paton[3] lend additional support to this view in that rachitic changes were produced in puppies reared under adverse sanitary conditions, though supplied with an abundance of fats and fresh butter, whilst similar puppies reared in the open but fed upon a more restricted diet remained free from signs of the disease.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

◆

A CASE OF CARCINOMA OF THE TRANSVERSE COLON AND INTUSSUSCEPTION.

By IVOR BACK, M.A., M.B. CANTAB., F.R.C.S. ENG.,
SURGEON TO ST. GEORGE'S HOSPITAL, SURGEON AND PROCTOLOGIST TO THE GROSVENOR HOSPITAL FOR WOMEN;
AND
A. TUDOR EDWARDS, M.C. CANTAB., F.R.C.S. ENG.,
RESIDENT ASSISTANT SURGEON, ST. GEORGE'S HOSPITAL.

THE following case appears to us to be worthy of record as presenting some unusual features:—

A. M., a man 45 years of age, was admitted to St. George's Hospital on March 27th, 1919, with the following history: Between November, 1918, and February, 1919, he had suffered from a series of attacks of abdominal pain accompanied by vomiting of a bilious type and diarrhœa. Each attack lasted about three days, and the motions consisted chiefly of mucus streaked with blood. These attacks passed off under medical treatment consisting of rest in bed and light diet. He had spent two and a half years in France and had suffered from several attacks of diarrhœa, but they were never severe enough for him to report sick. Otherwise there was nothing of importance in the previous history.

State on admission.—The patient was a fairly well-nourished man of slight build. He was collapsed; temperature 95·8° F., pulse 120. The tongue was furred and dry. The abdomen was distended, and there appeared to be a large mass occupying the left lumbar and iliac regions. Visible peristalsis was present in the upper abdomen. The mass was tender on palpation and dull on percussion. Rectal examination disclosed a mass in the lumen of the bowel.

Operation by MR. BACK.—The abdomen was opened by a vertical paramedian incision on the left side. A large typical sausage-shaped tumour was disclosed extending from the pelvis to the left subdiaphragmatic zone, dark red in colour, and with the outer peritoneal coat on the point of bursting. The cæcum on the proximal side was distended. Reduction was effected in the usual manner, but, in spite of careful handling, the peritoneal coat gave way at one or two points, requiring subsequent suture. No sign of a causative agent could be found and the abdomen was closed in layers. Apart from some incontinence of fæces on the following day recovery was uninterrupted.

Nothing further was heard from the patient until August, when he again presented himself with what he considered was a recurrence of the old trouble. He then gave this history:—

From the time he left hospital until the previous day he had felt quite well. He was then seized with acute abdominal pain and vomited. The pain came on in definite spasms with intervals. The bowels had acted several times, but the motions consisted chiefly of mucus and some blood.

State on second admission.—The patient appeared in fairly good condition; temperature 98° F., pulse 80. There was some tenderness in the epigastric region, accompanied by slight rigidity. No swelling could be seen or felt. There was some visible peristalsis in the right side of the abdomen. The remainder of the abdomen appeared normal. In view of the preceding history it was thought that the intussusception had recurred and exploration advised.

Operation by MR. EDWARDS (in the absence of Mr. Back).—Paramedian incision on the right side of the abdomen. There was distension of the cæcum and ascending colon accompanied by some hypertrophy of the musculature of the bowel wall. A mass was discovered in the middle of the transverse colon. This was found to be slightly movable in the lumen of the colon, but its base infiltrated the bowel wall, and there was enlargement of one of the paracolic glands in the transverse mesocolon. About five inches of the transverse colon, including the involved area in the transverse mesocolon, was resected and end-to-end anastomosis performed. There was no enlargement of the lymphatic glands of the intermediate or main group. The abdomen was sutured in layers without drainage. Post-operative recovery was uninterrupted, the patient leaving hospital on the twenty-first day. The pathological report showed the tumour to be a colloid carcinoma.

The patient was examined on Oct. 21st, when he declared himself in good health. He had regained his normal weight, and the bowels were acting regularly.

Comments.

Tumours of the intestine are known to be a cause of intussusception in adults, but they are usually of the innocent and pedunculated type. Weiss records 16 cases, in 2 of which the cause was a papilloma of the rectum, giving rise to intussusception of the colon. Wagner records a case in which the apex was formed by a pedunculated fibroma. Hochenegg has expressed the opinion that carcinoma will only cause invagination when it is polypoid or is situated at the ileocæcal valve. The interesting points about this case are (1) the absence of any sign of new growth at the time of the first operation, and (2) the favourable position of the growth for excision. Malignant disease occurring in the transverse colon is not common. The occurrence of the intussusception before any obvious projection of the growth into the lumen of the bowel supports the view, put forward by Treves, that intussusception is caused by the growth exciting violent peristalsis at its base, and that it is not due to the tumour preceding the intussuscipiens and drawing it along.

It is common knowledge that in intussception in children a definite provoking cause is rarely found at operation, and it is most likely that irregular peristalsis consequent on conditions such as diarrhœa starts the process. During the war, when routine examinations of the whole intestinal tract were carried out for abdominal wounds, a number of cases showed single or multiple small invaginations in the small intestine. These were unaccompanied by engorgement of the gut and were easily reduced, the probable cause again being irregular peristalsis set up at the time of the injury.

---

[3] Brit. Med. Jour., December, 1918.

In our case the growth was probably already present in the mucous membrane at the time of the first operation, but was obscured by the œdema and blood extravasation which had infiltrated the bowel wall.

AN UNUSUAL FORM OF VENTRAL HERNIA.

By FRANK L. APPERLY, M.A., M.B., B.CH. OXON., M.R.C.S.,

RESIDENT MEDICAL OFFICER, GREAT NORTHERN CENTRAL HOSPITAL.

THE following is a description of an unusual form of ventral hernia that came under my care some months ago:—

Mrs. E. B., aged 61, was admitted to the Great Northern Central Hospital on the night of April 12th, 1919, complaining of vomiting, pain, and the protrusion of a "piece of intestine" from the site of an artificial anus made four months previously at another hospital. This was at the umbilicus, and had worked well during that time. Examination showed a condition of acute obstruction, and what appeared to be a loop of bowel about 10 inches long protruding through an opening in the belly wall, just as if a loop had been forced through a stab wound. The constriction was so tight that its edges could not be defined, and I was at a loss to account for the condition, except on the hypothesis that the junction between bowel and belly wall had broken away in part, leaving a rent, through which a loop of intestine had been forced.

As the condition was obviously one for immediate operation, I opened the abdomen in the mid-line below the protruding bowel and extended the incision upwards to relieve the constriction and ascertain the exact condition. This condition was interesting. It showed that the previous operation was a colostomy, made about 6 inches above the cæcum. Part of the wall of the colon had been forced through the colostomy opening, and by stretching and turning inside out, formed the sac of a hernia, the content of which was a loop of gangrenous small intestine 10 inches long. What I had taken for the peritoneal coat of the "protruded loop" was really mucous membrane of colon, but so stretched and shining as to be indistinguishable from peritoneum. The gangrenous contents of the sac were readily removed when relieved from constriction and were resected. A lateral anastomosis was made, the colostomy returned to its normal position, and a tube placed in the pelvis.

The previous history of the patient was obtained later from the surgeon who had performed her former operation. He states:—

"She was seen by me on Nov. 25th, 1918, with symptoms of acute obstruction of three or four days' standing. Three years before she had had an operation for radical cure of an umbilical hernia. An umbilical hernia was present on this occasion, and I cut down upon it in the central line. A piece of distended bowel presented, but it was firmly adherent all round, and I could not demonstrate the peritoneal cavity at all. Her condition being bad, I tied in a Paul's tube, evidently into large intestine. Later, as her appearance was a bit suggestive of malignant disease, but she was otherwise doing very well, I determined to 'leave well alone.'"

The patient did very well for nine or ten days. Then her pulse began to get weaker and rapidly failed, and on the twelfth day she died.

Post-mortem examination showed a clean anastomosis and abdominal cavity. The large intestine was normal. There were three calcified fibroids in the uterus, one as large as a man's fist. The heart was flabby. Nothing else abnormal was found.

I think this case shows well the need for avoiding the mid-line for colostomy; for whereas in other situations abdominal muscular action tends to close such openings, in the mid-line the reverse must happen, and this appears to have been such a case.

A PSEUDO-PARATYPHOID CARRIER.

By R. C. WATTS, M.D., D.P.H., D.T.M.,

FORMERLY GARRETT FELLOW IN BACTERIOLOGY, UNIVERSITY OF LIVERPOOL.

PARATYPHOID infections came into great prominence during the war—especially the question of carriers, as it is a well-known fact that the organisms of this group, being more long-lived than typhoid, persist longer outside the body. From some cases organisms have been isolated resembling the members of the paratyphoid group in so far as the biochemical reactions are concerned, but altogether atypical in their specific serum reactions. The latter is a very important matter, as the ultimate diagnosis is based upon serological test, and the only chance of diagnosing rightly in such cases is by isolation of bacilli from excreta or blood (patients' serum giving no reaction with standard stock cultures of typhoid-paratyphoid A or B). Since some time back four cases of pseudo-paratyphoid were reported from Cairo district,[1] the following case of a carrier coming from the same area is interesting:—

The patient, an Indian, was admitted to hospital suffering from facial paralysis. He was well nourished and seemed all right, except for a tendency to obesity. Four months before admission he had pyrexia, which was diagnosed as (?) malaria. He had traces of albumin in his urine, which was sent to the laboratory for examination of casts. From the urine a motile Gram-negative bacillus was isolated, which gave the sugar reactions of paratyphoid group, but failed to be agglutinated by any of the stock sera; the patient's serum, however, showed a strong agglutination up to 1 in 400 dilution, and a weak one up to 1 in 900 dilution. The serum failed to agglutinate any of the stock cultures of paratyphoid A, B, or typhoid, even in dilution of 1 in 10.

My personal belief is that the pyrexia diagnosed as (?) malaria was an infection with pseudo-paratyphoid, and that since then the patient has become a chronic carrier. The patient's serum of the above did agglutinate the pseudo-paratyphoid from the carrier described by Captain Paton up to a dilution of 1 in 80, and gave similar sugar reactions.

Twice before I have come across similar organisms in urine; one of the cases was suffering from liver abscess, and the organism was obtained from the liver pus.[2] That such organisms are pathogenic can be easily understood from the cases noted by several French observers[3] and others in the late epidemic in Cairo Prisoners of War Hospital recorded by Captain Paton.

I am indebted to Colonel Jennings, O.C., No. 45 Indian General Hospital, for permission to publish the above case, and to Captain Paton for giving me a subculture of the organism isolated by him from a carrier at No. 2 Prisoners of War Hospital, Cairo.

Pathological Laboratory, No. 45 Indian General Hospital, E.E.F.

---

[1] THE LANCET, 1919, i., 1072.

[2] Brit. Med. Jour., March 29th, 1919, p. 378.

[3] Typhoid and Paratyphoid Fevers, by Vincent and Muratet, p. 117.

LITERARY INTELLIGENCE.—Messrs. J. and A. Churchill will shortly issue a new book by Dr. A. T. Schofield under the title of "Modern Spiritism: its Science and Religion." The publishers' profits will be given to the British and Foreign Bible Society.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF MEDICINE.

ARTHRITIS IN DYSENTERY.

A MEETING of this section of the Royal Society of Medicine was held on Nov. 25th, Dr. A. F. VOELCKER, the President, being in the chair.

Dr. GEORGE GRAHAM read a paper on Arthritis in Dysentery: Its Causation, Prognosis, and Treatment. After a reference to the previous records of the condition, he said that during the summer and autumn of 1916, when the dysentery cases which came from Salonika were almost entirely of the bacillary type, a number of cases of arthritis were seen in Malta. The paper was based on notes taken of 33 of these. With one exception all the patients contracted dysentery elsewhere, and the joints were usually already affected before the patients arrived in Malta. The early stages were in consequence not seen there, though the progress of the disease and its spread from joint to joint could be watched. The usual day of onset lay between the sixth and twenty-third after the first symptoms of dysentery. The first symptom was severe pain which preceded the swelling of the joint by some hours. The effusion into the joint took place very quickly, and was usually large. The severe pain went long before the joint swelling subsided. There was no reddening of the skin, and the joint was not hot even in the most acute cases. In some many joints were attacked on the same day, but in most the joints were attacked at intervals. The commonest joint to be affected was the knee, and the ankles and elbows came next in frequency. The small joints of the wrists and hands were occasionally affected. There was no relationship between the time of onset of the arthritis and the severity of the dysentery. In severe cases there was a considerable rise in temperature, which might oscillate for many weeks. In mild cases the temperature was little, if at all, raised. Seven patients were quite well within four weeks, 20 were ill for much longer periods. When the joints subsided quickly there was seldom any after-trouble, but when this process was a slow one with relapses there was often stiffness. Some of the patients developed eye symptoms, which were of two kinds: (1) Injection of the conjunctiva, without purulent discharge, but accompanied by pain and lacrymation; (2) cyclitis or irido-cyclitis. The latter occurred in 7 cases. The conjunctivitis always cleared up quickly with washes such as argyrol (2 per cent.). When the irido-cyclitis developed under observation it yielded readily to treatment by atropine, but in 3 cases in which it had become well developed recovery was very slow, and in 1 case iridectomy was subsequently needed for synechiæ. The arthritis was distinct from that produced by serum; the evidence suggested that early treatment of dysentery by serum prevented the occurrence of arthritis. The mode of onset resembled that of rheumatic fever, but the absence of flushing of the skin and of great heat in the joint was against this diagnosis; moreover, sodium salicylate gave no relief. Aspirin relieved the pain, but the joint swelling did not subside. The chronicity of the arthritis and the absence of endocarditis was also unlike rheumatic fever. The appearance resembled gonococcal arthritis, a resemblance enhanced by the eye changes, but fasciæ were not affected and there was no evidence of gonorrhœa. "Rheumatoid arthritis" was simulated closely by dysenteric arthritis in its later stages. Treatment was most unsatisfactory. Aspirin seemed to relieve the pain, and Scott's dressing was useful locally. Application of a splint was advisable if the pain was severe or if the limb tended to assume a bad position. Massage was of great use in later stages. The joints were not relieved by serum administered in two cases. His conclusions were: 1. An affection of one or more joints takes place as a rare complication of bacillary dysentery. 2. The joint affection is often accompanied by a severe constitutional disturbance. 3. Conjunctivitis and irido-cyclitis are secondary complications in about half the cases. 4. The disease runs a slow and chronic course, but apparently ends in complete recovery.

Discussion.

Dr. P. MANSON-BAHR said that arthritis occurred in some epidemics and not in others. In Fiji in one epidemic it occurred in 47 per cent., but again in 1910, of 350 cases of dysentery none developed arthritis. In 1916 he had seen cases from Gallipoli, and 9 out of 27 in one series had arthritis, whilst in another hospital of 150 cases none had arthritis. He had not seen arthritis develop after the serum of the Lister Institute had been used. The wasting of muscles was often marked and caused a resemblance to rheumatoid arthritis, the joint changes being also more periarticular than intra-articular. He had punctured the joints in three cases, but the fluid was always sterile. He had seen the conjunctivitis and the iritis in two cases. Parotitis was also seen at the time, but it was questionable if it was related. In the cases of arthritis Shiga's bacillus was the infecting agent in all. The arthritis came on sometimes with alarming rapidity and might affect almost any joint, including the hip and temporo-maxillary joints.

Dr. C. J. MARTIN said that he had not encountered arthritis at Lemnos in many hundreds of cases of dysentery, but afterwards met with it in Egypt and in France. This suggested that there was some local difference to account for the peculiarity, perhaps either in the serum or in the organism. The majority were in cases of Shiga infection, but in three the infection was by the Flexner group. The joints were sterile, but this was not unexpected, especially in view of the high content of antibodies in the joint fluids.

Sir ARCHIBALD GARROD emphasised the occurrence of the syndrome—arthritis and eye changes. The recognition of the irido-cyclitis was an acquisition from the war. The similarity to gonococcal arthritis was very close. Aspirin relieved the joint pain.

Dr. W. H. WILLCOX spoke of the occurrence of the arthritis in Mesopotamia. Though the infection in most cases was bacillary, especially by Shiga's bacillus, he had seen it in amœbic cases. In these it occurred late, and was possibly a secondary infection. He preferred to call the joint condition caused by serum synovitis rather than arthritis, but fluid actually occurred in the joint. Eye symptoms were met with associated with the arthritis. In some cases he had seen with the arthritis a fibrositis. He thought that serum was important in the prevention of arthritis. With great patience and rest improvement occurred in the joints, and they sometimes cleared up altogether. In Indians he had been surprised to find remarkably good results by the administration of salol.

Dr. PHILIP HAMILL had had successful results by treating the arthritis by serum after attempts by other methods had failed. More than one injection had been found necessary.

SECTION OF ANÆSTHETICS.

A MEETING of this section of the Royal Society of Medicine was held on Nov. 7th, Dr. LL. POWELL, the President, being in the chair.

Dr. F. E. SHIPWAY read a paper on

Intratracheal Insufflation of Ether in Operations which Involve Bleeding into the Air-passages.

After dealing briefly with the history of the method the author showed how cases due to war injury had greatly extended its use. His own experience depended on 930 cases, of which 407 were operations on face, mouth, and pharynx. These he arranged in three groups: (1) gunshot wounds of face, mouth, and pharynx (142 cases); (2) non-malignant disease of mouth and pharynx (89 cases); (3) malignant disease (176 cases).

In Group (1) there was uniformity of age and general physical condition. The average length of anæsthesia was greater than in the other groups. Many of the operations lasted over 1½ hours, 20 lasted 2 or more hours, the longest being 3 hours and 7 minutes. There were six patients under 12 years of age. One case was that of a fisherman weighing 18 st., subject to urgent dyspnœa through nasal obstruction from masses of polypi. The palate had to be held up by the surgeon's finger, and the tongue held out in order to secure an airway during induction of anæsthesia. Then the epiglottis was cocainised and the catheter passed.

Two patients in Group (3) were 80 years of age, the youngest was a girl under 12 who underwent removal of the upper jaw. In two of these cases tracheotomy was performed and the catheter placed in the tube. Dr. Shipway described the difficulties that may be met with in passing the catheter in patients of Group (1), difficulties due to scarring and deformities of mouth, jaws, and tongue, and showed how such difficulty can often be overcome by using the upright or semi-recumbent posture and by flexing the head. He approved of cocainisation of the pharynx and epiglottis for all administrators who have not yet obtained skill in passing the catheter. The advisability of giving preliminary narcotics was discussed. In the young Dr. Shipway disapproved of it. In adults generally he prefers morphine 1/6 gr. with atropine, but never scopolamine. The morphine reduces struggling and thus saves an expenditure of energy which might play a leading part in collapse or failure to recover. Moreover, with the use of morphine the anæsthetist can maintain by intratracheal insufflation an uniformly light degree of narcosis with perfect quiet on the patient's part. The anæsthetic can be blown out before the end of the operation and the patient returned to bed with full control of his reflexes. The danger of pushing infective material into the lungs or of implanting cancer cells low down in the air-passages by the passing of the catheter has not been illustrated in a single case of the series. The claim that intratracheal ether abolishes the risk of aspiration or septic pneumonia has been made good by these cases, for it occurred in none. Dr. Shipway alluded to the practice of interrupting the air stream at intervals, and stated that with a moderate pressure, such as exists when the safety-valve blows off at 20–25 mm. Hg, it is rarely necessary. Such interruptions, accompanied by compression of the chest, have, however, been found necessary when the apparatus was used for performance of artificial respiration. There were six cases of acute bronchitis, mostly among the emphysematous and chronic bronchitic. Shock is reduced to a minimum; by this method of anæsthetising all needs of respiration are met and intermittent asphyxia eliminated. Dr. Shipway compared the merits of insufflation with those of delivering an anæsthetic through a laryngotomy or tracheotomy opening, and showed how in many of the war injury cases the latter method was impossible or undesirable. He has abandoned insufflation for exophthalmic goitre, except in the presence of obstruction.

Discussion.

A discussion followed in which Mr. F. F. BURGHARD expressed his high opinion of the method, and the PRESIDENT, Dr. R. LOW, Mr. F. S. ROOD, Dr. C. H. MOTT, Dr. W. J. MCCARDIE, Mr. F. W. LONGHURST, and Mr. HUGH PHILLIPS took part. Afterwards Mr. GEOFFREY MARSHALL, Dr. MCCARDIE, and Dr. SHIPWAY showed nitrous-oxide-ether apparatus, which was commented on by the PRESIDENT, Dr. H. E. G. BOYLE, and Mr. PHILLIPS.

SECTION OF OTOLOGY.

A MEETING of this section of the Royal Society of Medicine was held on Nov. 21st, under the presidency of Mr. HERBERT TILLEY, who delivered an address entitled, "A Plea for the Better Education of the Medical Student in Oto-Rhino-Laryngology." The address appears in another column.

EXHIBITION OF CASES AND SPECIMENS.

Malformation of the Human Stapes.

Professor S. G. SHATTOCK, Mr. S. R. TATTERSALL, and Mr. A. H. CHEATLE contributed a note on a very remarkable Malformation of the Human Stapes. The child, a full-term, stillborn male, had a cleft palate and bilateral hare-lip, and Professor Shattock had never seen any record of a similar specimen.—Mr. ALBERT GRAY said it might be due to pre-natal injury. If it were a developmental error it was also difficult to explain, because so little was known about the evolution of the oval window and the stapes.—Mr. W. STUART-LOW regarded it as a case of reversion to animal type.

Prolonged Hysterical Deaf-mutism.

Dr. A. F. HURST and Mr. W. M. MOLLISON showed a youth aged 18, who, though he heard well when a baby, had been deaf since a few months old, probably ensuing upon a fall on the head at that age. He did not remember to have heard anything at all, except very rarely during the last few years, when perhaps he was conscious of the vibrations caused by loud noises. When seen by Dr. Hurst in May last he seemed deaf, but the vestibular reactions were normal. It was then explained to him, by means of lip-reading, that he could not hear because he had never tried to listen; and on this first occasion he was taught to listen sufficiently to hear his name pronounced—the first word he remembered to have ever heard. Each subsequent word had to be taught him separately; as he found it very difficult to listen for more than a few moments at a time his progress was slow. The conclusion arrived at was that the deafness must have been temporary, but as it came on at a period when the patient was just learning to listen, the development of the faculty was interrupted; hence he never again learned to listen. The deafness must therefore be regarded as hysterical, though of organic origin. No disease of either middle or internal ear could be detected, yet before treatment the deafness to both ear and bone conduction was absolutely complete, and the auditory motor reflex of the pupil was also absent. This reflex is now normal.

Dr. DAN MCKENZIE remarked that recently the test for functional deafness by faradism was criticised, justly he thought. There were cases of severe nerve deafness in which the results of caloric tests were normal and remained so for a considerable time, possibly always; yet there was no reason to suppose that the deafness was anything but organic. He had reported a case in which it was due to a poison—probably that of mumps—and the caloric test was positive. In this present case probably Dr. Hurst was encouraged to persevere because the caloric test was normal. He believed that even in organically deaf people there was a definite functional element due to the withdrawal of the sense of hearing, as a result of which the nerve centres concerned with hearing became inert, so that they ceased to listen.

The PRESIDENT, Dr. L. H. PEGLER, Mr. T. MARK HOVELL, Dr. J. DUNDAS GRANT, Dr. W. H. KELSON, and Mr. STUART-LOW discussed the case, and Dr. HURST replied at length.

Vertigo in Conjunction with a Radical Mastoid Operation.

Mr. MOLLISON showed a man, aged 36, who attended hospital last March because of attacks of severe vertigo which had existed for four months. Eight years ago a radical mastoid operation was performed on the left side, and there was still some discharge. He also still suffered from persistent frontal headache and some tinnitus. Examination revealed an old perforation on the right, and on the left there was otorrhœa from the radical cavity, while about the oval window was a granulation. He asked whether an operation on the left labyrinth would cure the attacks of vertigo.—Dr. DAN MCKENZIE said he had a similar case, and he was in a like quandary. He feared that if he opened the labyrinth he might infect it and cause labyrinthitis.

A number of other cases of interest were also shown.

THE Sheffield Medico-Chirurgical Society, under the presidency of Professor Arthur Connell (for the sixth year in succession), issues a full and attractive programme of meetings for the winter. Amongst those who have accepted invitations to give addresses to the society may be noted Dr. A. F. Hurst on Feb. 5th, on Neuroses in War and Peace; Mr. Raymond Johnson on Malignant Disease of the Testis on March 11th; and Professor H. R. Dean, of Manchester University.

SOCIETY OF TROPICAL MEDICINE AND HYGIENE.

ANTIMOSQUITO MEASURES IN PALESTINE IN 1917–18.

A MEETING of this society was held on Nov. 21st, Professor W. J. R. SIMPSON, C.M.G., the President, being in the chair.

Major E. E. AUSTEN, D.S.O., gave an account of Antimosquito Measures in Palestine during the Campaigns of 1917–18. The lecturer's remarks were prefaced by a brief description of the topographical features, physical conformation, and climatic conditions of Palestine, a country whose length and breadth are, roughly, but little more than 150 and 60 miles. The prevalence of malaria in all three forms, but particularly malignant tertian fever, among the inhabitants, was found to reach a degree of infection amounting to about 60 per cent. of the population, and therefore necessitated the most vigorous and thorough measures to check its spread among our invading forces. The difficulties attending this work were most formidable. Anything like systematic destruction of adult mosquitoes was a practical impossibility owing to the countless natural mosquito hiding-places in the shape of recesses in earth, cliffs, or among rocks, the enormous number of artificial haunts in the form of subterranean water-cisterns, rock tombs, and deep well shafts. Under existing war conditions it was not possible to deal with interiors of native dwellings. Efforts were therefore concentrated on larval destruction and the prevention of breeding undertaken on well-known lines, the simplest measures alone proving practicable, with the closest attention to detail. In Palestine the vital importance of water alike to man and beast much precluded the use of larvicides other than paraffin.

On entering Palestine in March, 1917, the Egyptian Expeditionary Force as a whole had had no experience of antimosquito work, with the exception of the 92nd Sanitary Section which, under Captain J. Inglis, O.B.E., R.A.M.C. (T.), had carried out valuable work in the autumn of 1916 at Kantara, on the Suez Canal, and remained there throughout the campaign. The Desert Column after moving across Northern Sinai reached the line of the Wadi Ghuzze to the south of Gaza in March, 1917, and it became apparent that a well-organised plan of antimosquito measures was called for on an extensive scale along many miles of front. From this point the lecturer divided his story into three periods, corresponding to the three defensive lines successively taken up by our troops—namely: (1) Wadi Ghuzze line, March 24th to Oct. 31st, 1917; (2) El Jelil-Wilhelma-Jerusalem line, Dec. 23rd, 1917, to Feb. 22nd, 1918; (3) Arsuf-El-Ghoraniye line, March 22nd to Sept. 19th, 1918.

1. *Wadi Ghuzze Line.*

From the end of March to the end of October, 1917, the Wadi Ghuzze formed part of the front line, and was the only source of water-supply for men and animals. For a length of some eight miles water was only present in the wadi or obtainable by digging in certain portions, and the original conditions in April consisted in a string of shallow pools of varying dimensions, isolated or stagnant or connected by shallow streams flowing through shingle or sand. Both pools and streams were choked with green alga (Spirogyra) and teeming with larvæ of *Anopheles turkhudi*. The weed was found to grow with astonishing rapidity, and its presence invariably connoted anopheles breeding. The eight miles stretch of the wadi was divided into four sections for purposes of administration and mosquito control. The work, carried out under the supervision of divisional sanitary sections, included such well-known measures as oiling at intervals of five to seven days with a mixture of two-thirds heavy oil and one-third paraffin, weeding, training of pools, canalising connecting streams, and the filling in of shallow extensions. The digging of small water-holes by troops or Egyptian camel drivers caused trouble from time to time, and notices were posted at conspicuous crossings of the wadi to impress upon the troops the danger of digging these holes, as they proved fertile sources of anopheles breeding. During the month of June a portion of the wadi at Shellal was converted into a large reservoir by building a dam across the wadi bed. This resulted in the submersion of many breeding-places, and places along the bank which still persisted as such were dealt with by filling in cavities and by repeated oiling. The rapid growth of algæ necessitated frequent removal of the weed. The reservoir was also made the subject of the experimental introduction of larva-destroying fish sent alive from Egypt. The fish multiplied abundantly, but it was impossible to ascertain whether they were in any way responsible for the disappearance of mosquito larvæ. The measures adopted were subjected to frequent and minute inspection, and on the whole improvement was steady and continuous. Towards October, as the result of constant and unremitting care and labour, it became increasingly difficult to discover any mosquito larvæ, but once this close watch was relaxed breeding recommenced in a short space of time.

2. *El Jelil-Wilhelma-Jerusalem Line.*

The occupation of this line coincided with the rainy season and the winter months (of 1917–18), a period not usually associated with malignant tertian fever. At the end of December, 1917, however, a sharp local outbreak of this disease in the 21st Corps near Jaffa called attention to the conditions existing in the orange-growing area near the town. Here the wells provided for irrigation purposes were in most cases roofed over with an arch of stone, or opened into the pumping-engine room, or a roofed shed, which afforded sufficient protection from cold and the torrential downpours of rain to allow of mosquitoes not only sheltering, but breeding there during the winter months. Careful inspection at this time revealed the presence of larvæ of all ages and adult mosquitoes in the wells and well-shafts supplying the orange groves, even at a depth of over 50 feet from the surface. To a less extent this was also the case in the open storage tanks connected with the wells. It was found that the species of anopheles encountered was always the same—viz., *A. bifurcatus*, which bred freely in subterranean cisterns in Judea and Galilee, and was very ready to attack even in brilliant sunshine in the hottest hours of the day. The breeding of anopheles in the wells having been definitely established, the whole area was divided into sections and charted; periodic oiling of the wells and tanks was carried out by the sanitary sections of the divisions concerned, and, so far as could be judged from subsequent examination, the treatment adopted was entirely successful.

3. *Arsuf-El-Ghoraniye Line.*

This line, which was held until the final general advance which closed the campaign, was by far the most important of all on account of its extent (some 60 miles from west to east from the sea to the bridge-heads beyond the Jordan), the large number of troops holding it, and the highly malarious country through which it ran. From the diversity of the physical conditions of the different sectors arose a variety of mosquito breeding-places far greater in extent and number than had been previously met with. Hence the enormously increased demand for effort and labour directed to the suppression of these breeding sites. On the west, the coastal plain—a region of extensive marshes; the second largest river in Palestine (River Auja), fed by a network of springs concealed among rank vegetation. Lastly, a number of narrow wadis extending for miles, all containing water and often so choked with jungle that the water was invisible. Then came the hills of limestone rock rising to a height of over 2000 feet, and intersected by a maze of narrow rocky valleys with boulder-strewn, weed-choked streams, the breeding-places of *Anopheles palestinensis*; while in the countless hill villages the subterranean rock cisterns were the haunt of *A. bifurcatus*. Still further east came the scorching Jordan Valley, 1200 feet below the level of the Mediterranean, eight miles or more in width, and enclosing, besides other breeding-places, a particularly dangerous wadi, El Kelt, and extensive marshes or pools in the jungle on both banks of the Jordan.

The Work Described in Detail.

The lecturer then described in detail the anti-mosquito work carried out in the 21st Corps area during the spring and early summer of 1918. In the Tel Abu Zeitun marsh near Mulebbis, on the south side of the River Auja—a water-logged tract of grass and reeds 1½ miles in length and 200–500 yards in width—20 acres of reeds were cut and the entire marsh drained into the river Auja. The main drain cut was 14,000 feet in length with branch drains 11,000 feet in aggregate length. Earth, much of it in the form of semi-liquid mud, amounting to 8500 cubic yards was excavated, and up to June, 1918, 50 million gallons of water had been drained away, and work equivalent to 15,354 Egyptian Labour Corps men-days had been done. This marsh was found to be the free habitat of *A. sinensis* and *algeriensis*, and later *A. palestinensis*, but by August anopheles breeding had been stamped out. Two other marshes, measuring 700 by 200 yards and 300 by 100 yards, at Burahleil near the sea to the north of the river Auja were dealt with by cutting the reeds and pumping the water into the sea through two pipes laid for this purpose, after drainage into a large dump which had been dug. The amount of water thus disposed of was estimated to amount to 6 million gallons. Yet another marsh at Baharet Katurieh, north of El Jelil, measuring 1500 yards by 500 yards of open water, was entirely drained into the sea through an ancient tunnel 150 yards long and by a specially dug channel about a mile in length. No anopheles could be found in the marsh at the end of April, but they became abundant later on when the water collected in pools, and the bivouacs of the Sikh pioneers were invaded by large numbers of *A. maculipennis*. By July 10th the marsh was dry, and a month later no anopheles could be found in the vicinity of the Indian camp. The river Auja, for the most part deep, clear, and rapidly flowing, was in places obstructed by patches of floating weeds or débris which gave sufficient shelter for mosquito breeding. These floating obstacles were removed from the surface by means of specially constructed scoops, and the thickly overgrown banks, which likewise gave facilities for anopheles development, were eventually cleared and trimmed for a distance of well over eight miles along the river's winding course.

On the right bank of the Auja there was much swampy ground beset with springs and infested with *A. palestinensis* and probably *A. sinensis*, which called for drainage operations and oiling. On the same bank were also several wadis near Ferrekiyeh, varying in length from 200 to 1000 yards, and choked with brambles, reeds, and other vegetation. This growth was entirely removed, the watercourses canalised and in places oiled. Other wadis of considerably greater length on the left bank of the Auja had also to be cleared of dense jungle, and several thousand yards of watercourse were filled in and channelled and the banks carefully trained. The growth of vegetation was so rapid during the summer months that a gang of some 300 of the Egyptian Labour Corps had to be employed to clear and weed afresh in the month of August. In the area occupied by the 21st Corps no fewer than seven species of anopheles were encountered, viz: *A. bifurcatus*, *A. algeriensis*, *A. maculipennis*, *A. sinensis*, *A. pharœnsis*, *A. mauritianus*, *and A. palestinesis.*

Problem of the Underground Water Cistern.

The 20th Corps was entirely in the hills, and therefore having no marshes and no large river basin to contend with the amount of anti-mosquito work required was considerably less than on either flank. There were, however, many small mountain streams and wadis to be dealt with by weeding and canalising in so far as the rocky beds would allow. In addition, the underground water cisterns in the numerous hill villages presented a special problem of peculiar difficulty. The majority of the hill villages in Judæa are dependent for their water-supply upon subterranean cisterns hewn in the rock and fed by rain from the roofs or by drainage from the land. In Jerusalem their number was stated to be at least 5000 to 6000, and proportionately in the hill villages. They were found to be the breeding place of *A. bifurcatus* in over 50 per cent., and consequently formed the real crux of the problem of mosquito suppression in Judæa. In Râm Allah, a large Christian village, nine miles north of Jerusalem, there were said to be more than 100 of these cisterns. This village was selected for the purpose of checking mosquito breeding by oiling the water in the cisterns. The inhabitants raised no opposition to the operations, and no serious complaint was forthcoming as to the water being rendered undrinkable. The results of the experiments made were reported to be satisfactory, and large numbers of larvæ were effectually disposed of. As similar success attended experimental oiling of the cisterns at the Arab village of Shâfat, also in the neighbourhood of Jerusalem, orders were issued throughout the 20th Corps area for the periodical oiling of all wells and cisterns in close proximity to the troops, and this was regularly carried out. Recognition of the value of these measures is contained in the following quotation made from the official "Report on Malaria in the Egyptian Expeditionary Force during 1918": "There can be no doubt that the careful and systematic oiling of the wells and cisterns in all native villages must have saved an enormous number of cases, as there was an abundant reservoir of the malaria parasite in the inhabitants." The antimosquito work carried out in the Desert Mounted Corps area of the Jordan Valley was attended by climatic conditions infinitely more trying than elsewhere, and was second only in extent to that performed by the 21st Corps.

Canalisation and Drainage under Shell Fire.

The *Wadi-el-Mellahah* followed a southerly course from a swamp near the Jordan two miles beyond our line, which it traversed to join the Wadi-el-Auja. It included a small swampy valley filled with reeds and oozing with stagnant brackish water and literally teemed with larvæ and eggs of *A. turkhudi*. To avoid a serious rate of invaliding from malaria demanded the adoption of prompt and thorough measures. An application for a working party of 1000 men was forwarded to general headquarters on May 27th. Three days later 1000 men were at work. The progress of canalisation and drainage, and of clearing the reeds by burning was so rapid, and the work so thoroughly done, that the small valley speedily dried up, and by June 4th, when the Commander-in-Chief paid a visit of inspection, no anopheles larvæ could be found. The task of canalisation for two miles through difficult country beyond our line was carried on until exposure to enemy shell fire compelled the withdrawal of the working party of Indian cavalry.

Of other wadis in the area of the Jordan Valley, the *Wadi-el-Kelt* (said to be the Brook Cherith of the Bible) was by far the worst and most exposed to danger alike from enemy shell fire and the swarming *Anopheles palestinensis*. Owing to the rocky nature of the bed of the Kelt in the deep gorge, through which its course lay, complete canalisation was impossible, though carried out wherever practicable, and pushed for a considerable distance into the hills. The operations in other wadis were both extensive and laborious, but less difficult than in the Kelt; they included filling in or obliterating shallow, semi-stagnant, weed-grown expansions of the more open streams, the chief breeding places, and the burning of high reed and bamboo jungle.

Ain Es Sultan was an area, several acres in extent, of banana plantations and other cultivated ground near Jericho and copiously irrigated by overflow from two reservoirs which, in addition to supplying the town, were freely drawn on by the troops. The spot, owing to its swampy character, network of irrigating channels, and small surface holes, afforded free breeding facilities for both *A. palestinensis* and *A. maculipennis*. These conditions were remedied by stopping the irrigation of the banana trees, repairing the broken banks of watercourses, and cutting shallow straight drains, work on which 1000 men of the Egyptian Labour Corps were employed for a fortnight and subsequently 600 for two months. On the east bank of the Jordan two large swamps, both very bad breeding-places, were drained very effectively, one close to El Ghoraniyeh bridge by diverting the Nimrin stream from its course, thus removing the cause of the swamp; the other at El Henn ford, six miles to the south, by digging deep ditches.

Antimosquito Work on the Lines of Communication.

Much antimosquito work was carried out during the summer of 1918 on the lines of communication, particularly at Latron, close to the Jaffa-Jerusalem road, where several miles of a small stream infested by *A. palestinensis* were cleared and canalised.

The lecturer eulogised the whole-hearted effort of all concerned, from the D.D.M.S. downwards, to cope with the problem of protecting the troops in Palestine from malaria by the suppression of mosquito breeding. He could not sufficiently praise the zeal and energy of the officers and other ranks actually engaged in the operations described. While hesitating to draw definite conclusions as to the results, he could state that for six months prior to October, 1918, the percentage incidence of malaria for the three corps composing the front line was just over five. In sharp contrast to this was the sudden rise in the malarial rate within three weeks after the date of the general advance.

Recommendations.

Major Austen concluded by making certain recommendations for the improvement and better organisation of antimosquito work based on his wide experience. 1. That the sanitary force should be independent of the R.A.M.C. and R.A.S.C. for supplies at short notice and be provided with its own separate store dump. 2. That the Sanitary Force should work in close coöperation with the Royal Engineers. 3. That the work should be under the supervision of a special antimalarial officer, who should remain unchanged, as far as possible, in sole charge irrespective of other changes in command. 4. That periodic inspection of the work should be made by an expert.

Discussion.

The **PRESIDENT**, speaking in terms of high praise of the value of Major Austen's work and what he had achieved, claimed that it played a large part in the success of the Palestine campaign. He drew comparison with similar work carried out in the Balkan area, and commented in particular on the promptness with which the request for 1000 men was met in three days, which showed what could be done in time of war.

Dr. **ANDREW BALFOUR** described a short visit of one week which he had paid to the Palestine front at the invitation of General Allenby to see what anti-mosquito work was being done between the Jordan Valley and the sea. In the former the conditions of heat and dust were indescribable. The difficulties encountered, especially in the Wadi-el-Kelt, were very great, as were also those attending the problem of suppressing breeding-places in the orange and banana groves, where the tiny rills and pocket pools easily escaped observation.

Surgeon Commander **LESLIE MORRIS**, R.N., spoke of antimalarial work which he had superintended in the islands of the Ægean and on the mainland of Thrace in connexion with the Naval Air Force camps and aerodromes. He laid particular emphasis on the importance of the antilarval campaign and the suppression of mosquito breeding, and on the value of thorough drainage of the subsoil water in securing removal of the surface pools; the operations included the extensive burning of reeds and superficial growth, and channelling and drainage of marshes. He approved of the prophylactic use of quinine bisulphate in solution, provided it was administered under supervision every five days, 30 gr. in amount, given in two doses, after breakfast and after tea.

Dr. P. H. **MANSON-BAHR** spoke from personal experience of the value of Major Austen's work in Palestine, and referred to the heavy toll taken by malignant tertian fever following on the general advance of the troops in the autumn of 1918.

Dr. **ALDO CASTELLANI** gave his opinion in favour of quinine prophylaxis combined with antimosquito measures in combating malaria, as the result of his experiences in the Balkans and in the Piave valley in Italy.

MEDICAL SOCIETY OF LONDON.

THE TREATMENT OF MALARIA.

AT a meeting of this society held on Nov. 24th, Mr. V. **WARREN LOW**, the President, being in the chair, a discussion on the Treatment of Malaria was opened by Lieutenant-Colonel S. P. **JAMES**, I.M.S., whose paper we print on another page of our present issue.

The Intravenous Injection of Quinine.

In the discussion which followed,

Dr. G. **NEWTON PITT** said that intravenous injection was a simple and valuable method of administering quinine which was seldom employed. Apparently a groundless fear of tetanus had prevented its more frequent use in India. It had also hitherto been disapproved of by the army authorities. The chief objection seemed to be associated with the idea that a large amount of fluid must be injected, and that the method must be reserved for only the most pernicious cases, but it was allowed that it was often most successful when all other methods had failed. Dr. J. D. Thomson and others had shown that 12 to 15 gr. of quinine in 5 to 15 c.cm. of fluid had been injected in some thousands of cases with practically no ill-results, but most observers had not used it. The amount absorbed was definite, the asexual parasites rapidly disappeared from the peripheral circulation, and cases which had previously been through intensive quinine courses and had relapsed obtained much benefit from it. Relapses could only be prevented by prolonged daily use of quinine, however administered, and hence the intravenous would not replace the oral method, but might be more generally used as an alternative in all resistant and severe cases. For the past four years at the 2nd London General Hospital relapsing cases had received an intravenous injection, followed by 10 gr. three times a day by the mouth, excepting once a week, when the injection was repeated. A stock solution of bihydrochloride of quinine, 4 gr. per c.cm., was kept and sterilised; 3 c.cm. of this, diluted up to 15 c.cm. with warm saline, was injected slowly with a small needle. The patient was kept quiet for an hour, or in bed if the temperature was not normal. There had been no ill-results, and little discomfort was experienced. Thrombosis was quite exceptional. The proceeding was painless and was much preferred by the patients to intramuscular injections. Cases of blackwater fever with abundant parasites in the blood, when the urine was not very scanty, had quickly cleared up with one or two injections. Dr. L. S. Dudgeon had shown that there was a tendency to produce necrosis when the injection was intramuscular; it was painful, the rate of absorption was uncertain, and the number of cases of resulting paralysis of nerves had been large. The rectal method was irritating, and examination of the urine has shown that often the quinine had not been absorbed. The subcutaneous method recommended in the "Military Medical Manual" was very painful and should never be adopted. The speaker claimed that the intravenous injection of quinine in 15 c.cm. of liquid might be much more generally adopted in all serious cases, especially in hospitals.

Quinine in Large Doses.

Dr. **ALDO CASTELLANI** said that the treatment of malaria could be summarised in one word—quinine. The dosage should be considerable; he used 30 gr. daily for adults, often 45 gr. and occasionally 60 gr. Possibly in temperate climates smaller doses might bring down the temperature. Children required more quinine than might be supposed. He usually advocated 8 to 10 gr. daily for a child of one year old. The drug should be given by the mouth in ordinary cases, intramuscularly in severe cases, and both intramuscularly and intravenously in pernicious cases. He preferred the bisulphate for oral administration. Intramuscular injections were extremely useful, but the following precautions were necessary. The skin should be disinfected thoroughly, the solution should be sterile and non-irritating, the injection should be deep, and an area already infiltrated should be avoided. The time for giving quinine in malaria in the tropics and malarial countries was "at once." The noxious effects had been too much emphasised. Idiosyncrasy to quinine was very rare. It might be asked whether quinine produced a cure. It produced a symptomatic cure, but, no doubt, the infection often only became dormant. No other drug had a specific action. Methylene blue was occasionally useful in cases where quinine could not be taken. Arsenic was useful in chronic cases, but salvarsan and neosalvarsan had no specific action. Tartar emetic was beneficial in certain cases by reinforcing the action of quinine; the same was true of phosphorus. He preferred to inject the phosphorus subcutaneously (phosphorated oil, ♏ i.–iv., in sterile olive oil).

Importance of Early Treatment.

Dr. ANDREW BALFOUR said that most people were in agreement about the treatment of malaria in the acute phase. It was important to treat malaria early before gametocytes were formed, and he advised that at the onset the patient should be kept in bed for from 10 to 14 days. The patient should be treated, not the disease. For ordinary cases oral administration sufficed; intramuscular injections were at times exceedingly useful, and succeeded when treatment orally failed. Intravenous injections were valuable, but he thought it was a method chiefly suitable for hospitals. The subcutaneous method, which had fallen into disuse, had recently been employed with some success in Dar-es-Salaam. As an explanation for relapses it might be that there were different strains of parasites, some not easily affected by quinine. Not the same difficulties had been encountered in this respect in Mesopotamia as in Macedonia. Sufficient emphasis had not been laid on tonic measures, and it was often forgotten how frequently the liver was affected. Injection of adrenalin as a means of treatment had nothing to recommend it, but it was possibly a useful diagnostic measure.

Lack of Authoritative Information as to the Nature of the Disease.

Dr. GORDON WARD said that the treatment of malaria depended considerably on the phase in which it was seen first, the duration of the infection, the particular associated symptoms, and the status and intelligence of the patient. It was, moreover, in part pseudo-specific, in part purely symptomatic. It might be prophylactic for the disease or prophylactic for relapses. It might be administered wholesale by the State or individually by the general practitioner. The practitioner felt at a loss both in the diagnosis and treatment of malaria because he could nowhere find authoritative information as to the nature of the disease or as to the part which was really played by quinine in its treatment. If quinine had never been discovered we should probably know a great deal more about malaria than we did to-day, and it was this essential ignorance of the nature of the disease and of what was to be expected in the course of it that so hampered the general practitioner. Much of the knowledge existed, but it was not widespread or easily available. He urged upon the society the desirability of supporting a committee charged with the duty of summarising our knowledge of the nature of malaria in a form suitable for the consumption of the general practitioner. It should read as a continuous story so that symptoms fell into their proper place and seemed to call naturally for the treatment which was appropriate. By time alone we should arrive at a more rational mode of treatment than we had at present. This treatment should give its proper place to quinine, but should not therefore deny the efficiency of auxiliary modes of treatment.

Ideas Concerning Modes of Treatment.

Dr. Ward then gave, as he said, a few examples of his ideas as to what he called the nature of the disease and their bearing on treatment, choosing examples which seemed to him to point to modes of treatment diametrically opposed to those officially advised. With regard to the acute relapse, the rigor, hot stage and stage of sweating, he conceived the sequence of events to be as follows. First there was sporulation of the parasite, conditioned by circumstances with which we were imperfectly acquainted. Sporulation was accompanied by liberation of toxins. The toxins affected many tissues, but chiefly the proteins of the circulating blood, especially those of the red cells. These were so altered as to become in effect "foreign" proteins, and this change was followed by the sequence of events which in other circumstances we called shock or anaphylactic shock. These events were a primary vaso-constriction leading to capillary stagnation, withdrawal of fluid from the vessels and consequent fall of blood pressure. With this there was some degree of exhaustion of the adrenal secretion. The primary vaso-constriction corresponded to the stage of rigor with pallor or cyanosis. The remaining stages were, he thought, associated with the return to normal, passing on the way through a stage of reactionary vaso-dilatation. The pyrexia was not an essential part of a rigor, for many observers had seen rigors in which it was absent. The fall of blood pressure and the adrenal exhaustion had been recorded by several observers.

Deductions from the Views Given.

Proceeding on the supposition that the above view was correct in general outline, he traced the actual symptoms of rigor to the changes in the blood proteins and not to the sporulation of parasites. It did not therefore seem essential to give quinine at once. He did not worry the patient while he was shivering as he was officially advised to do, nor did he introduce any drug into his stomach until the temperature began to fall. Experience told him that he would have plenty of parasites in the blood an hour or so later, and intravenous quinine could then be given with as much success as at any time, and with a great deal less discomfort to the patient. This was important, for the general practitioner was an exponent of the art of medicine first and of its science afterwards. Assuming that these views were correct in general outline, Dr. Ward deduced that the altered proteins would have to be excreted. Sometimes he found this happening in the form of albuminuria, rarely as hæmoglobinuria; not very frequently a tinge of jaundice told the same tale. He was therefore careful to assist elimination and recuperation as far as possible. The probability of a low blood pressure advised him to give plenty of fluid, as did the certainty that the kidneys were in some danger of being blocked with waste products. Should there be hæmoglobinuria this danger was very apparent, but if there was only albuminuria it was apt to be overlooked. The necessity for recuperation pointed to strict confinement to bed, attention to diet, &c. Opium was an antispasmodic and might therefore tend to mitigate the severity of rigors, consequently he always included a little liq. morph. hydrochlor. in a quinine prescription. Moreover, aspirin had the reputation of being a vaso-dilator, and he therefore gave it in the hope of hastening the sweating stage, and had very little doubt that it had this effect. If the acute relapse were essentially an auto-anaphylactic process it might be possible to treat the disease by anaphylactic injections. Widal, Abrami, and Brissaud had demonstrated that the paroxysmal hæmoglobinuria of syphilis, which closely resembled in all clinical particulars blackwater fever, was auto-anaphylactic in origin and nature. By measures devised from this point of view they had so far succeeded in curing patients of this disease that they no longer had attacks even when exposed to cold in a way which had hitherto always produced them. It was within the bounds of possibility that we had here the germs of a treatment of malaria which would enable us to deal with symptoms which seemed beyond the influence of quinine.

The Importance of Toxic Hæmolysis.

He supposed that the destruction of red cells by the lodgment of parasites was a negligible factor in the production of anæmia, and that a toxic hæmolysis was all-important. He presumed that this hæmolysis took place in the peripheral circulation in part, but chiefly in the portal. This he explained by supposing that red cells injured short of hæmolysis in the peripheral circulation were unable to resist the hæmolytic activity of the spleen in the portal circulation and so succumbed there.

If there was much peripheral destruction we might find hæmoglobinuria, but the kidney was able to deal with a certain amount of hæmoglobin and did not pass it on unless the amount was considerable. In either case some was retained in the kidney as an iron-containing pigment. That in the portal circulation was partly turned into bile and partly also stored. There were good grounds for supposing that the marrow also retained some iron. It therefore followed that in a severe anæmia after many relapses or even after a single severe relapse, such as in blackwater fever, the body had very large stores of iron. According to this view, administration of iron for the anæmia of malaria was not necessary, and he was convinced that it was often not well borne and so actually undesirable. He did not give iron, but insisted on plenty of light and fresh air, and found that the red cells augmented as quickly as had been recorded for any sort of anæmia. He therefore reached a point of view very opposite to that to which he was asked to subscribe not long ago—viz., the treatment of malaria in dark tents with iron tonics. In a great many other particulars he believed that there was reason to suppose that a more widespread understanding of the nature of the processes entailed in the course of malaria would rationalise treatment.

"Malaria" a Group of Three Fevers.

Major H. W. **Acton** said that it was often not realised that "malaria" constituted a group of three fevers, each with its own parasite. In order of frequency of relapses, quartan came first, benign tertian next, and malignant tertian last. Malignant tertian cases did not relapse after quinine treatment, but there seemed to be a chance-like character about the action of this drug in the benign tertian form. It was suggested that the malignant tertian parasite was attacked because the drug became fixed in the internal organs, whilst the parasites of quartan and benign tertian malaria, circulating in the peripheral blood, might escape for the same reason. Attempts were made to find another cinchona alkaloid which would have the action of quinine and yet remain unfixed. Cinchona febrifuge, which contains quinine, quinidine, cinchonine, and cinchonidine, was found to be more beneficial in benign tertian infection than quinine. By exclusion it was shown that the therapeutic result was attributable either to the quinidine or to quinidine and cinchonidine.

Individual Variation in the Reaction to the Disease.

Major J. **Pratt-Johnson** recounted his experiences of the treatment of malaria in South Africa in the troops returning from the East African campaign. He pointed out that malaria varied enormously in its effects in different individuals. The treatment of every case should be controlled by systematic blood examinations. The treatment he had advocated was 30 gr. of quinine daily for three weeks, followed by 20 gr. for a month, and then by 10 gr. for two months. No man was discharged until two consecutive examinations of his blood were negative for parasites and until he was clinically fit. Important to the success of treatment was the patient's own defensive mechanism; quinine did not exert a parasiticidal effect in debilitated persons. Salvarsan preparations were used considerably; benign tertian infections appeared to be cured by it, but in malignant tertian malaria it seemed to act rather as a tonic. Soamin exerted no definite parasiticidal effect, but was also apparently tonic in its action. If quinine were absorbed the route by which it was administered did not matter.

CARDIFF MEDICAL SOCIETY.

Exhibition of Cases and Specimens.

At the monthly meeting of this society, held on Nov. 11th, the following cases and specimens were shown or reported.

Mr. E. T. **Collins** showed: 1. Specimen of Large Egg-shaped Calculus, weighing 5¾ oz., removed by vaginal cystotomy. 2. Specimen of Carcinoma of Body of Uterus, for which he had performed subtotal hysterectomy. 3. Specimen of Cornual Ruptured Pregnancy involving the fundus. 4. Intraligamentous Fibromyoma, including body of uterus, removed by supravaginal hysterectomy.

Dr. Ewen **Maclean** showed: 1. Specimen of Tubal Gestation. He discussed the question of diagnosis, with special reference to the interstitial variety. 2. Specimen of Multilobular Soft Fibromyoma of Uterus weighing 6½ lb. Reference was made to differential diagnosis and to some difficulties in the operative removal of the mass when, as in this instance, the main development of the tumour was intraligamentous.

Dr. Herbert T. **Evans** showed: 1. Case of Chronic Progressive Paralysis of Cranial Nuclei for last nine months, beginning with ptosis of left eyelid and diplopia, followed by strabismus and subsequently by ophthalmoplegia externa of both eyes, and, finally, complete ophthalmoplegia of both eyes. During last three months the soft palate has become paralysed, and in addition to the nasal voice the articulation has become defective, while deafness has set in. So far the tongue shows no sign of wasting. No changes have been noted in the discs or elsewhere.

Dr. Leighton **Davies** showed: 1. Case of Double Microphthalmia in a boy of 6 years of age. Both eyes were undersized, the left being the smaller. In each eye there was an incomplete colotoma of the choroid, very extensive in the left eye, less so in the right. There was no colotoma of either lens. 2. Specimen of Bisected Buphthalmic Eye. The condition was shown to be entirely different in its pathogenesis from microphthalmos as buphthalmos was always due to definite pathological changes associated with permanent or transient rise of intraocular tension—i.e., glaucoma. Such eyes were always more or less blind, whereas microphthalmia might be associated with useful vision.

Multiple Fibromyomata of Uterus.

Mr. B. K. T. **Collins** read a note on a case of Multiple Fibromyomata of Uterus with double hæmatosalpinx and double cystic ovaries removed by supravaginal hysterectomy. Patient, aged 47, single, history of three years' heavy war work in France after frequent and severe hæmorrhages; very anæmic. Uterus was one mass of small fibromata like marbles, none larger than a walnut. Patient made an uninterrupted recovery.

Ruptured Aorta.

Dr. Ivor J. **Davies** read a preliminary note on a case of Ruptured Aorta, hæmopericardium, sudden death. Colliery repairer, aged 52, previously healthy, found dead beside truck of pit props (pinewood) which he was unloading alone, seen five minutes previously actively at work. One of these heavy props was lying across his chest. On examination there were severe contusions in the entire extent of soft parts over the ascending aorta, strictly limited to this situation. The pericardium was of normal capacity, was full of blood and clot. The aorta in intrapericardial portion and immediately above sigmoid area showed a transverse clean rent involving two-thirds circumference. Cut edges of intima were sharp and were retracted slightly over whole area of rupture. There was a linear vertical crack in intima extending upwards for 1½ in. from posterior extremity of complete rupture, and a smaller lesion was seen in endothelium of posterior sinus of Valsalva. Aorta in entire extent did not present any evidence of disease. Heart was somewhat fatty and flabby, but otherwise healthy. Kidneys showed granular changes, all other organs healthy. The opinion was expressed that the man received a heavy blow over the ascending aorta from one of the pit props slipping end-on-wise towards him.

University of London.—The Paul Philip Reitlinger prize, offered this year for the best essay on "English Poetry in the Twentieth Century," has been awarded to Benjamin Ifor Evans, of University College. The prize, of the value of £30, was founded with funds given to the University by Mr. Albert Reitlinger in memory of his son, a student of Middlesex Hospital Medical School, who died on Dec. 3rd, 1911. Next year the prize will be awarded for the best essay embodying the result of some research on a medical subject carried out by the candidate.

Reviews and Notices of Books.

A Physician in France. By Major-General Sir WILMOT HERRINGHAM, K.C.M.G., C.B., late Consulting Physician to the Forces Overseas. Illustrated. London: Edward Arnold. 1919. Pp. 293. 15*s.*

IN putting on record his war experiences Sir Wilmot Herringham has produced a very readable and interestbook which should appeal to a wide circle of readers, and serve the useful purpose of bringing home to the lay public the important part played by the physician in the medical service of an army at war. The dramatic rôle of the surgeon in the treatment of war injuries is, from the nature of things, apparent, but it is only in the last few years, and above all in the recent war, that the striking results of the application of medical measures, both preventive and curative, have been so apparent and so beneficent.

Sir Wilmot Herringham has had unusual opportunities of observing these matters, as is well known to all our readers. In the book before us he gives in popular language and in engrossing manner a careful account of the various aspects of a physician's work in the war area. But his book is more than a description of the purely medical service of an army; he gives humorous descriptions of incidents that have come under his own notice, he shows his great interest in nature in his descriptions of the places he has been in, and brings the war area vividly before his readers. He also comments on many questions—social, political, and economic—in a philosophical spirit, and when, as sometimes, his reflections are expressed in light vein, they serve none the less to emphasise the depth of his convictions and his abiding faith in the character and good sense of his countrymen in these troublous times of transition. Further, in his occasional excursions into political questions he shows himself eclectic and not partisan.

He gives an interesting description of the Royal Army Medical Corps and of its absorption for the war of the large numbers of civilian doctors who came voluntarily to its aid or were brought to it by special enrolment. In view of a report of a recent speech of his in our columns and of his letter in disclaimer in our issue of Nov. 15th, it is of interest to see what his views as recorded in this book may be. He shows a sympathetic apprceiation of the difficulties encountered by the corps, and defends it from most of the carping criticism which was put forward in some quarters during the war. At the same time he criticises some of its methods and points out some of its weaknesses, but always in a friendly spirit and with an entire freedom from personal or uncharitable bias. His descriptions of the work and organisation of the field ambulances, the clearing stations, and questions of transport, base hospitals, and nursing are clear, interesting, and contain much information that will be new to the civilian, painting a picture of fine organisation.

Special chapters are devoted to enteric fever, cerebrospinal fever, trench fever, and shell shock, in which the problems of pathology, diagnosis, and treatment are discussed in simple language and made intelligible, so that they should be of great interest to the public. In these chapters and in one which succeeds them, entitled "The Advance of Medicine During the War," the romance of scientific investigation is shown and the value of organised research to the health of the community, whether in peace or war, is clearly brought out, while the valuable work of the Medical Research Committee is warmly commended.

Sir Wilmot Herringham makes many references to those with whom he has worked. He describes with real feeling the practical help given by American medical officers, and speaks in the highest terms of their ability and enthusiasm. The organisation of the Red Cross and its administration comes in also for high praise. The descriptions of many incidents in connexion with daily life and relations with the French people display a sincere appreciation of the national qualities of our great ally.

We have read the book from cover to cover, and can say without hesitation that there is not a dull page in it—a phrase that is constantly employed but which here is meant.

Manual of Tropical Medicine. By A. CASTELLANI, M.D., and A. J. CHALMERS, M.D. Third edition. London: Baillière, Tindall and Cox. 1919. Pp. 2436. 45*s.*

BETWEEN the issue of the second and third editions of Castellani and Chalmers's well-known and deservedly popular "Manual of Tropical Medicine" much has happened in this special branch of science. The great war has brought many people into contact with such diseases for the first time, and, as the authors express it, "the massed formations of medical knowledge at work in the recent war at the study, treatment, and prevention of disease will produce results which would have been but slowly evolved in years of peace." It is true that much work has been accomplished, some of it, indeed, of a high order, but at the same time it must be remembered that much has been written by amateurs who have never had a thorough drilling in the literature of the subject, and who in consequence have made "important discoveries" which had been made in many instances before their birth. Yet, as Castellani has shown, the war has brought into prominent notice the fact that so-called tropical diseases exist in abundance in subtropical areas such as the Balkans, while the massive numbers of people infected with malaria and dysentery have furnished an abundance of clinical material which could never have been procured in times of peace. New diseases not specially tropical have appeared, such as trench fever and camp jaundice, and these have been incorporated in an added chapter entitled "War Zone Fevers," which deals also with spirochætal jaundice (Weil's disease). The discovery of spirochætes in this disease is new, and now we have in addition "rat-bite fever" and the seven-day fever of Japan, also proved to be due to similar parasites. Again, Noguchi has found what he terms a leptospira in yellow fever, a discovery which, if confirmed, will revolutionise our conceptions of the ætiology of this disease. Leiper's work on bilharziasis is also of the greatest importance, as the whole life-history of the parasites has now been satisfactorily worked out, and the differentiation of the two species *S. mansoni* and *S. hæmatobium* placed upon a permanent and sure foundation. Much work has also been carried out on bacillary dysentery, typhus, typhoid, and the paratyphoid groups. The louse is now known to act as the intermediate host of relapsing fever, typhus, and trench fever, and the work of Byam and his collaborators on the latter disease is fresh in the memory of all. As regards treatment of tropical diseases, the most important advance is undoubtedly the proved efficacy of intravenous injections of tartar emetic in stamping out bilharzial infections. The use of antimony in tropical diseases is by no means modern, but its application to new diseases is full of hope, especially after its success in bilharziasis. Another very important addition to treatment, that has occurred since the last edition of this book, is the administration of emetine by the mouth instead of hypodermically by the needle. The oral route has been conclusively proved to be far in advance of the subcutaneous method, and the percentage of real cures has risen in consequence.

Naturally the incorporation of all this new work has compelled the authors greatly to increase the size of their book. With the index its pages now number 2436. This makes the book a distinctly bulky and heavy tome either to carry about or to hold comfortably in study at home. In future editions the advisability of breaking up the work into separate volumes will have to be faced. It is needless to comment upon the vast amount of information contained within these pages, much emanating from the authors' own wide experiences in the tropics. As a book of reference it must prove invaluable to all workers in tropical medicine, and though perhaps a little too big for the junior student, it should be well within the compass of the senior one. As to its popularity, this is at once evidenced by the fact that the second edition went out of print some years ago, and it was only the war that prevented an earlier revision. Much of the present edition has been rewritten, and the number of illustrations has been greatly increased. Minor mistakes do, it is true, occur in places, but these can easily be eliminated in future editions, when the authors will have more time at their disposal to go carefully through the text. That they should have been able to produce a new edition of such magnitude so soon after the war is a great achievement.

Menders of the Maimed: The Anatomical and Physiological Principles Underlying the Treatment of Injuries to Muscles, Nerves, Bones, and Joints. By ARTHUR KEITH, F.R.S. With 23 figures, 16 of which are portraits. London: Henry Frowde and Hodder and Stoughton. 1919. Pp. 336. 16*s*.

It is not often that the reviewer's task is made so pleasant as has been the case with this last book of the conservator of John Hunter's Museum. Here is a book in which medical history has been used aright. Every page forms part of a pageant of knowledge, the whole being skilfully marshalled by Professor Keith, who plays the part of an engagingly intimate showman, pointing out to the reader (who has been taken into the author's special confidence) the characters of the actors, the manner of their lives, and the contributions that they made to medicine as illustrated in orthopædic history. There is a peculiar quality in this confidence which the showman shares with the spectators. At times he whispers to us behind his hand—at times we can almost imagine that he winked in the telling; but always he draws a clear cut picture and places it in its relative position in the show with such certainty that we look upon a procession of living and mostly engaging men. But soon we find that it is more than men that our guide is telling of. He is in reality showing us a procession of knowledge—a pageant of thought, and the characters are displayed for his well-fulfilled purpose of holding our attention throughout. Such is the impression of an extremely interesting book. The style of the portrait illustrations does not please, and one longs to see the book dressed in a garb more fitting to its character. The Menders of the Maimed, whose portraits are given, include John Hunter, John Hilton, Hugh Owen Thomas, William John Little, George Frederick Louis Stromeyer, Marshall Hall, G. B. A. Duchenne (of Boulogne), Sir W. A. Lane, Lewis A. Sayre, J. Lucas-Championnière, H. L. Duhamel de Monceau, John Goodsir, James Syme, L. X. E. L. Ollier, Julius Wolff, and Peter Redfern. The work of Adams, Macewen, and others is considered, although their portraits do not appear.

The Manchester Grammar School, 1515–1919: A Regional Study of the Advancement of Learning in Manchester since the Reformation. By ALFRED A. MUMFORD, M.D. London: Longmans, Green, and Co. 1919. Pp. 563. 21*s*.

Dr. Mumford has set out the idea of his work in the following words: "I have attempted to consider the way in which a collegiated body established in the time of the Plantagenets, a grammar school founded for 'godliness and true learning' in the time of the early Tudors, a town library established and well endowed during the Commonwealth, and a succession of Nonconformist academies ultimately giving place to a provincial university in the latter half of the nineteenth century have acted and reacted on each other ...." Dr. Mumford's attempt has been made with all earnestness, but the result is somewhat confusing, for he shifts from the consideration of one institution to another in a bewildering fashion. Moreover, he sometimes applies the title "College" to the collegiate church and sometimes to the grammar school. But he is so modest and so conscious of possible deficiencies that we must pardon those we find, even though they be mentioned.

Manchester Grammar School was founded by Hugh Oldham of Ancoats, who was educated under the auspices of Lady Margaret Beaufort, well known for her foundations both at Oxford and Cambridge. He rose to be Bishop of Exeter, and was probably intimately acquainted with Colet, Dean of St. Paul's. Dr. Mumford has made a slip when he says, p. 9, that Oldham acted as epistoller—i.e., subdeacon—when Colet preached his great sermon on ecclesiastical reforms before Convocation at St. Paul's. It was not upon this occasion, but on another—namely, when Colet preached during the Mass at Wolsey's installation as Cardinal in Westminster Abbey. Colet preached before Convocation in 1511, Wolsey's installation was in 1515. Oldham was probably led to found his grammar school in 1515 by the example of Colet's great foundation of St. Paul's School in 1509. It had some connexion with a pre-existing chantry school at the collegiate church, and was altogether under ecclesiastical management, but in 1524 new statutes were drawn up placing the school under lay management and ecclesiastical supervision. The high-master and usher were nominated by Corpus Christi College, Oxford, and the warden of the Manchester Collegiate Church was official visitor. The statutes of the school, drawn up in 1525, closely followed those of St. Paul's School. From the time of the Reformation until that of the Restoration Manchester School was mainly under Puritan influence; after the Restoration, the Church and Court party apparently gained the upper hand, though upon the rise of Whiggery this declined. Between 1720 and 1749 the school nearly collapsed, but eventually weathered the storm. The varying fortunes of the school during the hundred years 1749–1859 are fully and pleasantly set out, but at the latter date there came a man to the school who was destined to make it arise like the Phœnix. This man was F. W. Walker, who was head-master from 1859 to 1876, when he applied for and obtained the high-mastership of St. Paul's School. Walker's admirable work at Manchester will be found described with due appreciation in Dr. Mumford's thirteenth chapter. Ever since his coming the school has never looked back. During the Great War 3500 of her alumni served, of whom 1500 held a commission, and of these 480 gave their lives.

Although, as we have said above, the book is confused, yet it is a record well worth reading of the growth, the struggles, the falls, and the risings again of an institution which may well delight the heart of the founder as he regards its progress from "the other side." There are 21 appendices, giving amongst other information quotations from original documents, such as the statutes made on the foundation of the school and the further statutes drawn up in 1525. There is also, we are glad to see, a copious index.

JOURNALS.

Archives of Radiology and Electrotherapy (formerly *Archives of the Roentgen Ray*).—All through the war this journal has maintained a high standard of excellence notwithstanding the difficulties of the time. It is not too much to say that but for the able and devoted work of the late Dr. W. Deane Butcher in carrying on through a more than ordinarily critical period, and until the present editorial staff could be organised, this valuable journal might have disappeared. Though expensive to produce, its high standard has been maintained consistently, and it is doubtful if any similar paper can show a greater degree of technical skill in text and illustration.

In any of the late issues we find interesting and important papers by well-known writers that will repay perusal. The October number now before us contains one by Mr. W. Sampson Handley "On the Mode of Spread of Cancer in Relation to its Treatment by Radiation," a most valuable contribution to a difficult subject, and, with the numerous and excellent illustrations explaining the author's argument, is in itself worth the price of a year's subscription. Dr. Dawson Turner reports in detail a case of lympho-sarcoma treated by radium that is worthy of special attention, and Dr. Robert Knox concludes a series of papers on the examination of the liver, gall-bladder, and bile-ducts.

Not the least valuable feature of the journal is a very comprehensive series of notes and abstracts on radiology and kindred subjects from every part of the world.

THE LANCET.

LONDON: SATURDAY, DECEMBER 6, 1919.

The Basis of Contract Practice.

Two meetings held in London last week dealt with vital questions of contract practice under the National Insurance Acts. The annual conference of representatives of Local Medical and Panel Committees met in the Memorial Hall, Farringdon-street, on Nov. 27th and 28th, under the auspices of the British Medical Association and the chairmanship of Dr. H. G. DAIN, of Birmingham. A conference also met at the First Avenue Hotel on the preceding day, summoned by the Medico-Political Union, under the chairmanship of Mr. W. F. H. COKE, of Ashford. Both meetings had before them the size of the capitation fee for which insurance practitioners are prepared to render willing and efficient service, and secondly the effect on the goodwill of an insurance practice of a new clause, entitled "Change of Practitioner," in the draft of the Medical Benefit Regulations for 1920. Firm and united action on these two principles was resolved upon at both deliberations, the only difference of outcome being the method by which it is desirable to bring pressure to bear upon the Minister of Health, should he not find himself prepared to accept what the medical profession as a whole considers to be a fair and reasonable demand for its services under the Insurance Acts. The recognised practice of the Insurance Acts Committee, instructed by the Local Medical and Panel Committees up and down the country, whether officially connected with the British Medical Association or not, has been that of collective bargaining, keeping in the background as an ultima ratio the refusal of service if no bargain acceptable to its members should be struck. The Medico-Political Union prefers to state its terms precisely to the Minister of Health in his capacity of employer of medical labour, and to accompany the statement with an intimation that service will not be rendered on any other terms.

The Conference of Representatives passed unanimously a resolution maintaining the opinion that 13*s*. 6*d*. is the lowest fee which can properly be accepted by the panel practitioner for an effective service. On behalf of the Insurance Acts Committee, its chairman, Dr. H. B. BRACKENBURY, stated that this capitation fee had been worked out on a scientific and moderate basis, and that, in support of it, he and his colleagues were prepared to face bravely a body of experienced civil servants. Opposition will have to be met. The tone of the leading article in last week's *National Insurance Gazette* makes that abundantly clear, and in a letter addressed by Dr. ADDISON to the chairman of the Insurance Acts Committee, which was read at the opening of the conference, the Minister of Health expressed the doubt in his own mind as to whether he could justify at the present moment so large an expenditure of public money as a capitation basis of 13*s*. 6*d*. would represent. A deputation from the Insurance Acts Committee, strengthened by three nominees of the conference, will meet the Minister this week, hoping to convince him both of the strength and reason of the panel practitioner's demand. The deputation has the conviction that if submitted to arbitration its demand would be found by an impartial tribunal to be justified to the sixpence. Rural practitioners, whose out-of-pocket expenses per visit are necessarily greater than in urban areas, are to have the position equalised to some extent by a much increased mileage grant which is to amount to £300,000 for the year 1920, as compared with the £80,000 allotted to the purpose in the current year. This equalisation of the variant factor in insurance practice makes it possible, as never before, for the whole body of panel practitioners to unite in a common demand based upon the recognised value of their time and skill.

Equal unanimity marked the resolution of the Conference of Representatives regarding the clause in the draft Regulations referring to the removal of the insured person's name from the list of a practitioner in case of death or withdrawal from the medical list. As things are at present, 97½ per cent. of the goodwill of a panel practice is regarded as transferable on death or removal, and since with the panel goes a variable amount of associated private practice, any substantial alteration of the Regulations in this respect may be equivalent to a diminution in the capital value of the practice. It is well known that no such depreciation was contemplated by Mr. LLOYD GEORGE when framing the first National Insurance Act, and in 1911 a statement was made by him to this effect, when speaking to the Representative Meeting of the British Medical Association. With this in mind the conference protested against the introduction of any regulations in regard to the transfer of practices which might, in effect, rob insurance practitioners of the capital value of their practices after 1922, the date mentioned in the draft. Apparently in a few cases there has been speculation of an undesirable character by third parties in the transfer of a practice from one genuine practitioner to another, and the new regulations are designed to remedy this admitted but minor evil. The conference felt strongly that in so doing a greater evil was being introduced. It may well be that in the natural order of things, as preventive medicine grows and curative medicine takes a second place—a goal towards which medicine is steadily advancing—the medical practice as a capital asset will gradually drop in value. Against this depreciation the panel practitioner might be insured by some such scheme of mutual insurance as was outlined by the London Panel Committee for the consideration of the conference. It will not appeal to the sense of fairness of the medical profession as a whole that the livelihood of a section should be reduced by the administrative action of the Ministry of Health without the offer of compensation in some form or other. On both the matters at issue questions of principle are at stake.

◆

The Mental Deficiency Act: A Valuable Conference.

UNDER the auspices of the Central Association for the Care of the Mentally Defective there was held on Nov. 28th a conference on the administration of the Mental Deficiency Act, 1913, so largely attended that its venue had to be changed from the Guildhall to Church House, Westminster. At the morning session, presided over by Mr. LESLIE SCOTT, K.C., M.P., an address was given by Dr. ADDISON, Minister of Health, while Dr. MEREDITH YOUNG and Dr. G. A. AUDEN read papers. Dr. ADDISON'S remarks dealt chiefly with the treatment of mental defect as a branch of preventive medicine, and his testimony to the value of scientific research was regarded as indicating a prospect of improved financial conditions for the carrying on of work of this kind in connexion with mental disorder. To the majority of those present a statement by Sir WILLIAM BYRNE, chairman of the Board of Control, on the desirability of joint action by local authorities for the provision of institutions appeared the most important feature of the proceedings, and in the discussion which followed Sir WILLIAM BYRNE had to listen to some pointed, if good-natured, criticism from representatives of local authorities.

The shortcomings of the Mental Deficiency Act, a fertile theme, were by no means exhausted at the conference. Dr. MEREDITH YOUNG and other speakers touched on the difficulties of administration which attend the attempt to get mentally defective persons under control. Stress was laid especially on the need for bringing within the scope of the Act defectives suffering from venereal disease. Nothing, however, was said of the problems which arise after control is obtained. One of the chief arguments for joint action advanced by Sir WILLIAM BYRNE was that "for efficient and economical working, institutions must be of a certain minimum size," and it may be presumed that he had in mind such institutions as are provided by county authorities for the insane. Modern institutions of this class accommodate some 2000 patients. If a place of this kind was provided under the Mental Deficiency Act and filled, say, in the course of a year, all the patients, if newly certified, would require continuation orders at the end of 12 months. To obviate the difficulty of keeping the visiting justices in permanent session it would probably be arranged for the detention orders to remain effective until the end of the quarter, when 500 or so would require to be dealt with at a time. If the visiting justices undertook to work through 50 cases a day—and the value of examinations made at that speed can be judged by anyone for himself—each batch would take 10 days, so that in all 40 days would be spent in this particular wilderness during the year. This is no fanciful picture. For example, in his report for the year 1916, the medical superintendent of the Royal Earlswood Institution noted that "our county magistrates spent six whole days of five working hours to perform the first annual re-certification." At the conference Miss DENDY, one of the Commissioners of the Board of Control, insisted that of cases falling within the purview of the Act it might truly be said "once defective always defective." Anyone who has practical knowledge of the subject will, no doubt, agree with her, though he may well be prompted to ask, Why then is re-certification necessary? Even when the period covered by an order becomes extended to five years re-certification is a work of supererogation, while the requirement that, although seen by the justices a few weeks before, a patient must be brought up again at the age of 21 seems based on the tradition that the human organisation changes at every seventh year. On the whole it is not surprising if those who have to administer the Mental Deficiency Act find their task a wearisome and exasperating business and feel that, instead of being tinkered at, the Act should be "amended" with a hatchet wielded by someone with a spice of imagination.

As it is, the intricacies of the Act render it essential for its administration that a friendly voluntary organisation, with a skilled staff of workers, should be available to assist parents and the public to obtain the designed benefits. The matter is of pressing national importance, for the necessity of caring for the mentally defective has never been more apparent than under the complicated social conditions of the present time, when it is almost inevitable that the weakest must go to the wall. The moral aspect of the question especially needs careful investigation, and increased opportunities of scientific research. Happily the Government departments seem to be awaking to a sense of responsibility in this matter, and the medico-legal aspects of the problems of the connexion of crime with mental defect are beginning to be recognised by some of our more progressive juristical authorities. The field of work is extending in every direction, and the Central Association for the Care of the Mentally Defective is well equipped for coördinating the efforts, many of which, if they are to prove effective, must be directed by the medical profession.

◆

The Teaching of Medical Ethics.

THE session of the General Medical Council which closed last week was a brief one, but, none the less, opportunity was found for several valuable discussions, arising either on direct motions by members or upon reports of the various committees. One such motion, which met with success after some debate, was that of Dr. J. C. MCVAIL, who proposed that further inquiry should be made by the Education Committee of the Council as to the instruction which is now being given to medical students upon the duties of medical practitioners in reference to the State, and upon the generally recognised rules of medical ethics. More than three years ago the Council formally resolved that this question should be remitted to the Education Committee, and it is easy to see that the circumstances calling for full appreciation on the part of medical men of their relations with the State have since that time become more urgent. Under the Ministry of Health the contact between the profession of medicine and the community to which it ministers is certain to become much more close. and in a thousand and one directions where the public health is concerned mutual understanding will be required, so that on the one hand the public may get competent service, and on the other hand the medical profession may obtain equitable treatment. It is reasonable that the student should receive during pupilage information upon the working of the Medical Acts and upon all rules and regulations which will form the conditions of any State service he may undertake later. Government forms are too often neither simple to understand nor easy to execute, and there is obvious room here for valuable tuition.

But while there is no doubt of the advantage which would accrue to the student, and eventually to his patients, from his instruction on the duties which will devolve upon him in reference to the State, we do not feel at all certain that the second part of the resolution, which recommends that the student should be instructed on "the generally recognised rules of medical ethics," is either a necessary or a wise suggestion. We agree here with Sir GILBERT BARLING, who in the course of the debate said that ethics could not be taught, for their influence was acquired by a process of absorption. Surely this is the truth which has prompted the foundation of all our universities and has inspired the working of all our schools; good communications produce good manners, but communications are conditions of environment and cannot be created by any schedule of rules. Further, and as Sir NORMAN MOORE suggested, there are no ethics in the conduct of medical affairs which are not applicable to all human affairs. Religious tuition apart, the student learns in school and university, in work and recreation, the standards that will gain him acceptance with his fellows as one who is willing to play an honourable part in the conduct of life; and just as there are no different rules in the game of life for the medical student, the theological student, or the legal student, so in the future careers there are no separate and distinct ways of displaying regard for ethics. It is unfortunate that the public should be obstinate to believe that medical men are guided in their behaviour by a set of rules designed to maintain medical interests at the expense of the layman's purse, which rules they term medical ethics, or, worse still, medical etiquette. This belief, which is the origin of considerable mischief in society, has been promoted by a misunderstanding of the reasons why certain procedures in medical practice are looked at askance by practitioners, and why others may be made the subject of penal procedure before the General Medical Council. Medical men are expected to comply with a scheme of behaviour marking the difference between a learned profession and a commercial trade. In a commercial trade rival traders compete for public favour by advertisement, and to do so is perfectly correct, for the public can judge the truth of the promises held out. In the case of a learned profession the public cannot be in such a position of intelligence, and therefore the members of these professions do not as a class make public appeal for favour. Medical men need not regulate their conduct towards each other and towards the public by a code designed to meet special cases, for obedience to the dictates of medical ethics implies application to the ordinary chances of professional life of the rule that a man should do as he would be done by. Particular interpretations of this rule cannot be learned by rote.

Room may well be found for instruction in the responsibilities of the medical man towards the State, but with difficulty can we imagine any purpose being served by addressing medical students upon how to behave with honesty, generosity, and courtesy towards their professional brethren of the future; we fear that lectures delivered with this object might often become discourses of the Chadband type. Therefore we hope that the General Medical Council, when the Education Committee reports on the whole matter to the next meeting, will take the view that set instruction upon medical ethics, as constituting some morality special to the medical profession, will not be given. At the present moment the curriculum is overloaded, and most of the educational authorities in the profession are straining to find a way to broaden and simplify it. In these circumstances every hour added to the time compulsorily taken up by addresses is taken from the scanty time required to master the working essentials of a difficult calling. But one thing seems certain, and that is, that the acceptance of Dr. MCVAIL'S motion by the Council, whether wholly or only in part, brings the day nearer when a general practitioner, chosen for his experience and fitness to fill the post, will take his place on the educational staff of hospitals to which medical schools are attached. It is the general practitioner whose experiences will enable him to teach a class what are the things which should be realised in our relations with the State.

ROYAL INSTITUTION.—The lecture arrangements at the Royal Institution include three lectures on "The Evolution of Man and the Early History of Civilisation," by Professor G. Elliot Smith; two lectures on "Magnetic Susceptibility," by Professor Ernest Wilson; and four lectures on "British Ethnology," by Professor Arthur Keith.

Annotations.

"Ne quid nimis."

THE MEDICAL SCHOOL OF STRASBOURG.

The recent inauguration of the Université de Strasbourg by the President of the French Republic, on the anniversary of the entrance of French troops into the town, is of more than domestic interest. The University dates from the sixteenth century, and was divided into four faculties—one of them being a faculty of medicine—in the year 1621. In the eighteenth century the fame of its teaching was widespread, and attracted students from the whole of Europe. More recently names such as Pasteur, Sébillot. Schutzenberger, and Emil Kuss added a new lustre to the University life. In 1871, when Alsace was taken by the Germans, they set about founding buildings worthy of a great tradition, and at a cost of over two millions sterling lecture theatres and laboratories were erected on a generous scale, as well as a fine library, which now contains over a million volumes. The French Government is now planning to take full advantage of the new buildings, and Parliament is being asked to vote large sums of money for their further equipment and upkeep. Efforts are being made to attract to Strasbourg British students who formerly would have studied in Bonn, Heidelberg, or Göttingen. The German student hostels are to be converted into clubs for British and American students, and next summer a special school will be opened for teaching French to uni-lingual visitors. No aspect of university life is being neglected, and an athletic stadium is contemplated. The prospectus for 1919–20 gives information of the conditions for admittance to the University, particulars of the faculties, and the names of the professorial staff. A Faculté de Théologie Catholique will work side by side with a Faculté de Théologie Protestante, in the same way as at the town of Näfels in the Swiss canton of Glarus both confessions have, since the Reformation, worshipped in the same building. In the syllabus of the Faculty of Medicine a proper place is given to practical work, and facilities are offered for research under distinguished supervision. We believe that the claims of Strasbourg may well appeal to some of those who are at present attending our own overcrowded university courses or impatiently awaiting their turn to enter.

SYPHILIS OF THE EPIDIDYMIS.

Dr. H. E. Michelson,[1] lecturer in dermatology at the University of Minnesota Medical School, points out that Benjamin Bell, of Edinburgh, in 1793 was the first to draw attention to syphilitic diseases of the testes. It is interesting to note that so great an authority as Ricord denied the existence of syphilitic epididymitis, which has since been described by Nélaton, Fournier, and others. Three forms have been recognised: (1) acute diffuse interstitial; (2) chronic diffuse interstitial; and (3) gummatous. Very few cases of the first type occur before the third year, and the majority are found after the fifth year. In the early stage there is a partial or total swelling of the entire epididymis. The enlargement is rather acute, somewhat painful, and accompanied by some degree of hydrocele. The acute symptoms subside in a few days, leaving a painless, irregular thickening of the entire organ. In a few months the induration may become absorbed and the epididymis returns to its normal size, but more often it remains solid and somewhat sensitive. In some cases it may become atrophic. Bilateral involvement is unusual. The chronic diffuse interstitial type which is more common may follow the acute variety or come on independently of the acute attack. The entire epididymis forms a firm, solid, uneven, independent tumour in apposition to the testis. The vas deferens is rarely involved. Fluid which is usually present at some stage may be caused by thickening of the tunica vaginalis and subsequent disturbance of circulation, or may be due to a chronic passive congestion with resulting transudate. The Wassermann reaction in the fluid is negative. The gummatous type appears at a late stage of the disease, but earlier than testicular gummata. Several small nodules from the size of a pea to that of a hazel-nut develop independently of each other in the body or head of the epididymis. The process is chronic and develops insidiously, but may be preceded by a history of injury. The masses are smooth, hard, and quite painless, and only exceptionally break down and rupture externally. Michelson reports seven illustrative cases in patients aged from 2 to 45 years.

HYDATID OBSTRUCTION OF THE BILE-DUCT SIMULATING GALL-STONES.

At a meeting of the Académie de Médecine of Paris on Nov. 11th Dr. F. Dévé reported a case of biliary colic and jaundice due to an unusual cause —obstruction of the bile-duct by hydatids.

A woman, aged 28 years, was admitted to the Hôtel-Dieu, Rouen, on Jan. 21st, 1911. Jaundice appeared in February, 1910, while she was in good health, and was not accompanied by pain. Since that time it had persisted, but varied in intensity. She soon began to suffer from "pains in the stomach," which were often followed by vomiting, but there was neither fever nor rigors. At the beginning of November a typical attack of hepatic colic occurred. In the following weeks seven similar attacks followed, of which three were so severe as to require injection of morphine. On the day after the last attack she noticed in the stool a sort of "bag," resembling a pigeon's gizzard. Her medical attendant, to whom she showed it, thought it was only alimentary débris and searched for calculi. Under the diagnosis of stone in the bile-duct laparotomy was performed on Jan. 23rd, 1911, by an incision through the right rectus. The gall-bladder was opened and found to be distended with sero-purulent, slightly biliary fluid. The bile-duct was also distended and was opened and explored, but no calculus could be found. On the day after the operation an abundant discharge of bile through the drainage-tube began. On the seventh day a hydatid vesicle of the size of a pigeon's egg was discovered on dressing the wound. On three subsequent dressings hydatids were found. The biliary fistula closed in five weeks. On Feb. 21st the patient was discharged from hospital, having gained 3 lb. in weight and the jaundice having disappeared. She was last seen in June, 1919. There had been no recurrence of pain or jaundice, so she could be considered permanently cured.

Among 176 cases of hydatid cysts evacuated by the biliary passages which Dr. Dévé could find recorded there were 54 of prolonged obstruction of the bile-duct. The duration of the obstruction was three weeks to a month in 22 cases, one to two months in 18, two to six months in 9, and six months to a year in 5. Such cases simulate gall-stones, even in the prolonged evolution interrupted by remissions, fluctuations in the intensity of the jaundice, and attacks of colic. Dr. Dévé attributes the colic to passage through the bile-duct of débris of the vesicles, which are discharged unnoticed in the stools. Sooner or later the obstruction of the bile-duct leads to grave complications—suppurative angiocholitis and cholecystitis, suppuration (often putrid and gaseous) of the original cyst, peritonitis, and empyema. Hence the importance of early operation. To avoid certain errors committed by operators obsessed with the idea of cholelithiasis it is an advantage to make the proper diagnosis before the operation. Analysis of the pain, the character of the jaundice, the evolution of the disease, the age or the sex do not furnish differential elements of any value. The diagnosis can be based only on the following signs —eventual appearance of urticaria after an attack of colic, circumscribed hepatic tumour perceptible by palpation or radioscopy, enlargement of the gall-bladder (present in two-thirds of the cases), eosinophilia and deviation of the complement. A means of diagnosis more important than all is sifting of the stools, which often reveals hydatid fragments. Drainage of the bile-duct has sometimes sufficed for discharge of the cyst, but the surgeon should not trust to this. He should open and drain the original cyst.

---

[1] Journal of the American Medical Association, 1919, lxxiii., 1431-3.

THE LAVAL UNIVERSITY OF MONTREAL.

THE destruction by fire on Nov. 24th of the medical department of the Laval University at Montreal has called public attention to the abundant provision for medical study provided in French-speaking Canada. About the middle of last century it was thought timely by the Roman Catholic authorities in the province of Quebec—a province which, as regards its inhabitants, is overwhelmingly French—to establish a university under the direction and control of the Church, much along the lines of the Catholic University of Louvain in Belgium, there being no higher education of university standard for French-speaking students in North America. The difficulty of determining whether the site of this university should be in the old capital of the province, Quebec, or in the larger city of Montreal, was solved by having a single university with faculties in both cities. Last year authority was received from Rome to elevate these two branches into separate universities, and what was until then Laval University, Montreal, became "L'Université de Montreal." The university has its home in a large well-built, seminary-like block of buildings in the French quarter of the city; and it is this building, especially the medical section, that has now been seriously damaged by fire. History repeats itself, for it was in the year 1906 that the medical and engineering buildings of McGill, the larger university at Montreal, were completely destroyed by fire. We may hope that in this case also good will come out of evil, and that out of the ashes of the destroyed medical buildings there will arise an institution designed on more modern lines and better equipped for laboratory work than was the earlier building.

ACUTE STAPHYLOCOCCAL OSTEOMYELITIS TREATED WITH VACCINES.

IN the *Paris Médical* of Oct. 11th Professor Raymond Grégoire gives details of 8 cases of acute staphylococcal osteomyelitis, 6 of which he successfully cured with vaccines unaccompanied by any grossly disfiguring surgical procedure. The remaining 2 cases were, unfortunately, septicæmic and fatal. Professor Grégoire has gained his experience from the vaccine therapy of war wounds, as exemplified by Mocquot, Moulonguet, and Levaditi in France (and, we might add, by Goadby and Shera in this country), and also from the work of Sabouraud and Noiré upon staphylococcal skin infections. On the strength of results furnished by these authorities, Professor Grégoire, when confronted by a typical case of osteomyelitis of the right leg, tried giving 200 million of a stock staphylococcus vaccine.

The swelling involved the instep and extended as far as the middle third of the leg, with a temperature of 102·2° F. and pulse 110, and the patient was a child of 4 months whose condition was not too good. The patient had been ill for six days before the injection. The injection was followed neither by albuminuria nor by pyrexia or appreciable general reaction. Three days later the swelling was much more localised. A collection of pus was aspirated through a needle. Next day a further 200 million staphylococci were injected. Thirteen days after admission the patient was discharged, cured to all intents and purposes. A certain amount of residual thickening was noted at the lower end of the tibia, which remained for some three months. The task of surgical interference was reduced to merely aspirating a little pus. A polyvalent vaccine was used.

The second case was a much more serious one. The whole of the left leg was swollen, especially the lower third. The temperature was 101·3° and the pulse 118. There was a trace of albumin in the urine. This case received 200 million of a stock staphylococcal vaccine, followed in five days by an autogenous dose of 400 million, repeated six days later. Then at two 5-day and one 7-day intervals three doses of 800 million were given. The result was just as good as in the first case.

The other four successful cases were similar. The vaccines were prepared at the Pasteur Institute. Professor Grégoire emphasises the necessity of using stock vaccines made from local strains, which should be available for immediate use. The reactions were best shown by the pulse-rate, even where there was no pyrexia or malaise. The patients ranged from 4 months to 12 years, and the pulse-rate rose by 4 to 40 per minute. The first signs of improvement were shown in the appetite, the facies, the sleep, and the lessened pain. The temperature fell from the second to the sixth day. The local improvement is slowest. On cutting down on an indolent residual mass in one case no pus could be found, but the tissue was soft and resembled actinomycotic tissue. In this modified form of osteomyelitis the absence of sequestra and the presence of residual hyperostosis were constant features. Professor Grégoire rightly remarks that the picture is so different in these cases that they seem to present quite peculiar features, so peculiar and so mild as to make us doubt as to whether we are not dealing with a new disease. To anyone who can safely promise the abolition of those mutilating operations which characterise the modern treatment of osteomyelitis of this kind boundless credit is due. We trust Professor Grégoire's work may be confirmed. It promises well.

THE GROWING-UP OF OTO-RHINO-LARYNGOLOGY.

THE claim of the "special" branches to a place in the medical curriculum has followed much the same course as the relation of the self-governing colonies to the mother country. Growing up almost imperceptibly and long unconscious of their great strength, laryngology and all the other "ologies" now are finding themselves in a position to impose conditions on their parents, general medicine and surgery, whom they have largely outgrown, and we are in the same need of finding a word to replace "specialism" as we were formerly in regard to the word "colony" when that term became inappropriate to express the autonomous dominions. In our present issue Mr. Herbert Tilley, as president of the Section of Otology of the Royal Society of Medicine, makes a strong plea for the better teaching of oto-rhino-laryngology, urging teachers to impress upon medical students a practical working knowledge of diseases of the ear, throat, and nose, and medical committees of hospitals to make an attendance of three months in the ear and throat department a condition of granting an attendance certificate. Mr. Tilley hopes to see London as a post-graduate centre replacing Vienna, Freiburg, or Paris. Paris has the same aspiration, and a clinique oto-rhino-laryngologique was, in fact, opened this term on an equality with the other medical faculties. Professor Pierre Sebileau, who is in charge of the clinique, made its inauguration the opportunity for an eloquent review of the position of his specialism in France, which appears at length in the current issue of the *Paris Médical*. He records how A. Gouguenheim, returning from Vienna in 1887, started the first oto-rhino-laryngological service, "tolerated but not licensed," in a "narrow dark apartment of miserable aspect" in an annex of the Lariboisière, where Isambert had held the first consultation in 1874. Before his death in 1901 Gouguenheim had obtained two special wards of ten beds each and an assistant, although the practice of the specialty in Paris generally could still be described thus in the amusing words of Lermoyez :—

> "Les auristes sondaient, soufflaient avec une patience admirable. Les otites aiguës se traitaient par les injections émollientes, les sangsues et les vésicatoires, et les otites chroniques par l'huile de foie de morue à l'intérieur. La paracentèse du tympan était une hardiesse que quelques thèses s'efforçaient de justifier, j'allais dire d'excuser. Les laryngologistes badigeonnaient, et enlever les polypes du larynx était le grand air de bravoure des ténors de la laryngologie. Le pharynx, terrain banal, appartenait à tout le monde, sauf aux spécialistes, et l'isthme du gosier était comme le rendez-vous de toutes les diathèses. On pataugeait dans le nez ; les médecins lui tendaient le siphon de Weber, instrument qui devrait avoir sa statue si la reconnaissance existait chez tous les auristes qui lui doivent une honnête aisance ; les chirurgiens le mettaient à sac, effondrant les cloisons et violant les cornets. Heureux les nez qui ne vivaient pas en ce temps-là !"

Professor Sebileau goes on to show how the work of M. J. Moure, of Bordeaux, Castex, Luc, and Calmettes all following in the footsteps of the great Viennese masters, Politzer and Urbantschitsch, and of Zaufal in Prag, raised oto-rhino-laryngology to the position which it holds in Paris to-day.

THE following appointments have been made by the Governor-General of members of the new Council of Public Health for the Union of South Africa: Dr. Charles Porter, Dr. Servaas Meyer de Kock, O.B.E., D.S.O., Dr. Ernest Hill, Dr. David Pieter Marais, Mr. Paul D. Cluver, O B.E., J.P., Mr. Joseph Henry Nicholson, O.B.E., J.P., and Mrs. Annie Botha. They have been appointed for a period of three years as from July 1st, 1919. The Council of Public Health is established under Section 4 of the Public Health Act, No. 36, 1919, passed in the last general session of the Union Parliament.

THE GENERAL COUNCIL OF MEDICAL EDUCATION AND REGISTRATION.

TUESDAY, NOV. 25TH.

THE address delivered by the PRESIDENT was reported in last week's issue of THE LANCET. At its conclusion Sir Donald MacAlister stated that the inquiries to be held this session into charges made against medical practitioners would be few, as for various reasons the cases were not ready for presentation. Two cases only were heard, and the result in each was the retention of the practitioner's name on the official rolls.

WEDNESDAY, NOV. 26TH.

The Council considered in camera the report of the Finance Committee.

Sir George Newman was appointed a member of the Public Health Committee and an additional member of the Education Committee, and Dr. Macdonald a member of the Examination Committee. Sir Donald MacAlister was appointed to the Examination Committee, and Dr. Matthew Hay takes the President's place on the Public Health Committee.

Relationship of Practitioners to the State.

Dr. J. C. MCVAIL proposed:

That with reference to the resolution adopted by the Council on May 27th, 1916, it be remitted to the Education Committee to make further inquiry as to the instruction which is now being given to medical students on the duties which devolve upon practitioners in their relationship to the State, and on the generally recognised rules of medical ethics, and to report to the next meeting of the Council.

He reminded his hearers that the Council accepted the remission of this subject to the Education Committee in 1906, resulting in the passing of the resolution six months later. He thought the time had now come to learn what the medical schools were doing in the matter. In the four intervening years the relationship of the profession to the State had become increasingly close. An instance was seen in the work of the Pensions Ministry, and it was now laid upon the medical profession to perform the very difficult task of assessing the percentage capacity of claimants. Also the profession had been brought into relationship with the State in respect to the treatment of venereal disease, besides in the work connected with maternity and child welfare. In regard to ethics, the present small penal list was an evidence that the subject was not neglected, but if a revision of the medical curriculum should be arranged, ethics, he thought, should be given a definite place.

Sir T. JENNER VERRALL seconded. It was desirable that people concerned should be reminded of how highly the Council regarded the teaching of ethics in the profession.

Dr. J. V. MACKAY thought the medical schools had been overworked during the war, and his hope had been that this matter might have been left for a year or two longer, to enable the schools to put their house in order after all the disorganisation caused by the war. There were now many new students joining, and there were not teachers sufficient to deal adequately with them.

Mr. THOMSON said that giving effect to the resolution would mean considerable financial expenditure, which some of the schools were not able to bear. He asked whether the help of the State could not be sought to enable the needed instruction to be given.

Dr. MACDONALD thought Mr. Thomson's suggestion would meet with very little support from the profession at large. Answering Dr. Mackay, he considered that the influx of new students constituted a good reason for reminding the schools of the importance of the subjects named in the resolution.

Sir JOHN MOORE said the Council ascertained in 1915 that in most cases ethics and State medicine were dealt with as part of the subjects of forensic medicine and public health. But in a number of instances no regular instruction had hitherto been given. He thought the present need would be met by the Council communicating again with these latter bodies and receiving a report from them as to their work in the interval.

Dr. LITTLEJOHN pointed out the means by which the necessary knowledge could be imparted, and spoke of the value of the personal character and example of the teacher.

Sir GILBERT BARLING said that at present the authorities at the medical schools were overburdened, and there should be reluctance in adding to their burdens. Every time a request was made for something more to be taught, it meant crowding into five years more than could be properly got in. Ethics, like true education, was rather something which was absorbed rather than taught; its influence, once acquired, remained throughout life.

Dr. ROY DEAN did not believe any two lecturers could include all the subjects now under discussion, and there was a danger in dislocating subjects from their normal environment.

Sir NORMAN MOORE strongly supported the attitude taken up by Sir Gilbert Barling. There were no ethics in the medical profession which were not of universal applicability to the whole human race; and he thought harm would be done to medical education if a special course of medical ethics were insisted upon in the curriculum. There must always be gaps in medical education, however carefully a revised scheme were planned; knowledge was now so vast.

Dr. MATTHEW HAY thought the time had come when there should be separate courses in these two subjects. Medical ethics should, he thought, be taught by somebody actually in practice.

Dr. MCVAIL, in reply, reminded members that his resolution only required that the Council should make itself aware of what was being done during the three and a half years concerned. By inserting the word "further" before "inquiry," he was prepared to make it a continued inquiry, not a fresh one, and in this form it was carried by 16 to 11. Sir George Newman and Dr. McVail were co-opted on to the Education Committee for the purpose of this inquiry.

The Teaching of the Preventive Aspects of Medicine.

Dr. MACKAY presented the report of the Education Committee on the result of its inquiry among teaching bodies as to the organisation of effective teaching in preventive medicine. The number of replies received, 12 out of 41 requests, was disappointing, but he suggested that another notice should be sent defining what was meant by the term "Preventive Medicine," and also enclosing such replies from the teaching schools as had been already received in the hope that this would elicit further replies. The committee therefore could only issue an interim report at the moment, but it was hoped that a complete report might be available next session.

Dr. F. G. HOPKINS said that the reason why no reply was forthcoming from the University of Cambridge was because the University had not entirely understood the questionnaire. The course suggested now would, he believed, result in many more replies being received. It was agreed to circulate the report among the teaching bodies.

Report of the Examination Committee.

Dr. NORMAN WALKER presented the report of the Examination Committee, which recommended (1) that while the Apothecaries' Hall of Ireland should be requested to continue to furnish tables of exemptions from and results of examinations as heretofore; (2) the appointment of a deputy to attend the examinations at the Hall on behalf of the Council should be postponed. He explained that this latter course was recommended in view of the early resumption of visitation and inspection at all Final Examinations. The recommendations were agreed to, and Dr. MAGENNIS, on behalf of the Apothecaries' Hall, expressed his acknowledgments. A third recommendation of the committee was agreed to—viz., that the Council would welcome further communications from the licensing bodies showing how far their regulations accord with the expressed views of the Council upon the teaching of ophthalmology.

The Inspection and Visitation of Qualifying Examinations.

The PRESIDENT presented a report from the Education and Examination Committees conjointly on the inspection and visitation of qualifying examinations. The Joint Committee invited the Council to resume these early in 1920, and to remit to the Executive Committee the making of the necessary arrangements and the appointment—after receiving suggestions of suitable names from members of the Joint Committee—of three inspectors in medicine, surgery, and midwifery respectively for a period of two years in the first instance. The President added that it was necessary that some discretion should be given to the Executive Committee in this matter, as if the subject were allowed to wait until next session it would be too late to begin visitation and inspection until another academic year. The members of the Council would in due course be invited to act as visitors.

The report was adopted.

Report of the Public Health Committee.

Sir JOHN MOORE submitted a report on various matters submitted to it.

A letter replying to the Admiralty Medical Department had been drafted, declining to shorten the period specified in Rule 1 of the Rules and Regulations of the General Medical Council, but suggesting that the Department should draw up a syllabus of the laboratory instruction proposed to be given at the Royal Naval College, Greenwich, and submit this to the licensing bodies granting a Diploma in Public Health; also recommending the Admiralty to grant nine months' study-leave to those who desired to become possessed of this diploma.

The report and proposed letter were agreed to.

The Teaching of Midwifery.

Dr. MACKAY presented a report by the Education Committee having special reference to the teaching of midwifery, particularly in London. He alluded to the receipt of a document reviewing the whole subject from the Obstetrical Committee of the Royal Society of Medicine, which would require very careful consideration. But first he thought it should be ascertained how far the schools had been able to carry out the recommendations of the Council of 1906. He proposed the reception and adoption of the report.

Sir FRANCIS CHAMPNEYS seconded. He said he was asked by the Royal Society of Medicine to bring this subject before the Council. It was a matter of extreme importance. Up to the present time midwifery had been rather a Cinderella in medical education, but it had recently come into greater prominence on account of the increased interest in public health questions. But while medicine and surgery dealt with abnormalities, midwifery was concerned with the ordinary entry into the world, and grouped round itself antenatal care, post-natal care in regard to both mother and child, and hence was at the foundation of the health of womanhood itself. He did not think a satisfactory solution of the difficulty of teaching midwifery to medical students would be found short of introducing them to the subject in wards of a thoroughly equipped lying-in hospital. There were not at present enough such hospitals available, and the building and equipping of additional ones would mean enormous expense. Moreover, the present diminished birth-rate meant a scarcity of teaching material, a difficulty which must be faced. The whole medical curriculum would have to be reconsidered, and it was possible that each medical school would have to be remodelled. Such subjects as lunacy and fevers could not be taught in the medical school, and it seemed that there would have to be some central building around which all the professional teaching could be coördinated. The lying-in hospital for teaching purposes must be of a certain size, otherwise there could not be a proper rota and succession of cases; and for each medical school in London to have its own lying-in hospital would be a wasteful arrangement. And such hospitals should be placed not so that they would be convenient for practitioners to attend, but where they would best serve the needs of the general population. Nowadays midwifery did not attract the attention it deserved; operative gynæcology and abdominal section had rather cast midwifery into the shade. If Britain was to hold her own in midwifery she must have professorships of midwifery, which would attract men of high eminence in this branch. The document which the proposer had referred to was a carefully thought-out one, and though it related specifically to London, its application was very wide. He concluded by remarking that the medical curriculum could not be indefinitely prolonged without making it very unattractive; and unless the emoluments of the doctor were improved, people choosing a life's profession would go to other fields.

The motion was agreed to.

Sir NORMAN MOORE presented the report of the Pharmacopœia Committee. It was seconded by Sir JOHN MOORE, and agreed to.

Students' Registration Committee.

This was presented by Sir NORMAN MOORE, and agreed to.

Dental Education and Examination Committee.

Sir CHARLES TOMES, in submitting this report, reviewed the conditions obtaining in regard to dentists practising in the colonies and foreign countries.

Sir JOHN MOORE seconded the proposal for its adoption, and it was carried.

The proceedings terminated with the usual motions concerning the dealing with urgent business in the interval until the next session, and a cordial vote of thanks to Sir Donald MacAlister for presiding.

HIGHER QUALIFICATION IN OPHTHALMOLOGY.

IN the early part of this year the Council of British Ophthalmologists issued a report, which appeared in THE LANCET of April 5th, on the teaching and examination of medical students in ophthalmology. A further report has now been prepared on the desirability of a special qualification in ophthalmology.

Existing Conditions concerning Examinations in Special Subjects.

At present there are, the report states, in the United Kingdom special examinations in Dental Surgery, Public Health, Tropical Medicine and Ophthalmology. These examinations may be classified in two groups:

(*a*) Those in which the special subjects form part of a higher examination in medicine or surgery—e.g., Tropical Medicine; State Medicine; Ophthalmic Surgery; Aural, Nasal, and Laryngeal Surgery; and Dental Surgery for the M.D. or M.S. of the University of London: Ophthalmology; Aural, Nasal, and Laryngeal Surgery; Advanced Midwifery with Obstetric Surgery and Gynæcology; Advanced Anatomy; and Dental Surgery for the Fellowship of the Royal College of Surgeons, Edinburgh.

(*b*) Those in which qualified medical men are examined in a special subject, independently of any examination in general medicine or surgery—e.g., for the Diploma in Public Health, University of Cambridge; the Licence in Dental Surgery, Royal College of Surgeons, England; and the Diploma in Ophthalmology, University of Oxford.

Examinations in Ophthalmology in the United Kingdom and in America.

The first examination in ophthalmology as a special subject was established by the Royal College of Surgeons of Edinburgh in 1883. In the examination for the Fellowship ophthalmology is included in the list of special subjects, of which one must be taken. The diploma granted bears no indication of the special subject in which the candidate was examined.

At the *University of London* ophthalmology has recently been recognised as a special branch of the M.S. degree under the following conditions, the candidate having to submit evidence of having spent at least two years in the study and practice of ophthalmology at a teaching school or schools approved by the University one year at least subsequent to obtaining the M.B., B.S., and of having held during this time for at least six months an appointment in the ophthalmic department of a recognised general hospital or ophthalmic hospital. The examination includes two papers in ophthalmology, one in the principles of surgery, a clinical examination, one paper in the anatomy and physiology of the eye, one paper in the pathology of the eye, and an oral examination.

At the *University of Oxford* a diploma in ophthalmology (D.O. Oxon) was instituted in 1910. Candidates must have their names on the Medical Register, or being foreign graduates have obtained special permission from the Board of the Faculty of Medicine. Candidates are required to certify a year's attendance at a course of clinical ophthalmology for 12 calendar months in connexion with hospitals or institutions recognised for the purpose by the Board of the Faculty of Medicine as well as a practical study of the anatomy of the eye, and of physiological optics in the University of Oxford. The subjects of the examination are dioptics, diseases of the eye, ophthalmology in general medicine, clinical cases, and ophthalmic surgery.

In the *University of Liverpool* a diploma of ophthalmology was instituted, but is not now granted.

At the *University of Colorado* a degree of Doctor of Ophthalmology was inaugurated in 1913. Evidence is required of graduation at a standard medical school, and of a preliminary education covering high school algebra, geometry, plane trigonometry, and elementary optics. Secondly, of one year of clinical work in ophthalmology of 300 days at two hours per day; as interne, clinical assistant, post-graduate student, assistant in private practice, singly or in combination, plus one or more summer courses in ophthalmology at the University. The candidate must pass an examination, written, oral, microscopical, and clinical; and submit an original thesis, with an examination thereon. The course is planned to fill the time of two scholastic years, and consists of optics, histology, pathology, ophthalmology, and operative surgery.

At the *University of Minnesota* the degree of Doctor of Ophthalmology has been instituted on similar lines, but all the work is expected to be done in the University.

Qualifications Required by Hospitals for the Post of Ophthalmic Surgeon.

A circular letter was sent to all the principal hospitals in the United Kingdom asking what professional qualifications were required of candidates for the post of ophthalmic surgeon. Replies were obtained showing that 17 required the Fellowship of the Royal College of Surgeons, England; 5 the Fellowship of the Royal College of Surgeons, Edinburgh; 4 the Fellowship of the Royal College of Surgeons, Ireland; 2 the degree of Master of Surgery of a University or the Fellowship of the Royal College of Surgeons, England; 8 a medical degree of a University or the Fellowship of one of the Royal Colleges of Surgeons of the United Kingdom. (Three of the last group will accept the Membership of the Royal College of Surgeons of England.) Eighteen do not require any special qualification.

The following five hospitals require evidence of special training in ophthalmology: Belfast Ophthalmic Hospital, two years; Central London Ophthalmic Hospital, two years; Royal Westminster Ophthalmic Hospital, two years; Western Ophthalmic Hospital, two years; Liverpool Eye and Ear Hospital, six months. Under present conditions the degrees or diplomas which candidates for the post of ophthalmic surgeon to the principal hospitals in the United Kingdom must hold, while they testify to proficiency in general medicine and surgery, furnish no evidence of special knowledge of ophthalmology.

Desirability of a Special Examination in Ophthalmology.

In the higher surgical examinations as at present conducted there is seldom any adequate test of a candidate's knowledge of ophthalmology. The examiners are general surgeons who are not thoroughly conversant with the subject, and there is, therefore, a natural tendency on the part of the student to devote insufficient attention to this branch of surgery. Formerly the examining boards included a proportion of surgeons who practised as ophthalmologists, and in consequence the subject was more frequently and adequately dealt with.

The importance of ophthalmic knowledge and experience in relation to the welfare of the population is now widely recognised. The large and increasing number of appointments for which such knowledge and experience are required renders it essential that candidates for these posts should be able to show, not only that they have gone through a satisfactory course of training in ophthalmology, but that they have attained a certain standard of proficiency, as tested by examination. The practice of ophthalmology must be based upon an accurate knowledge of the anatomy and physiology of the visual organs, optics, and the pathology of the eye. The establishment of a special examination in ophthalmology would ensure that candidates have been adequately trained in and possess a sufficient knowledge of these subjects. It would at the same time be an incentive to the special hospitals to provide increased facilities for instruction. The close relationship of ophthalmic to general surgery renders it imperative that those who propose to practise as ophthalmic surgeons should possess a sound knowledge of the general principles of surgery, pathology, bacteriology, &c., and of their application to the surgery of the eye, orbit, and surrounding structures. The Council therefore hold that an examination in ophthalmology should form part of the examination for a higher degree or diploma in surgery, as is now the case at the University of London and the Royal College of Surgeons, Edinburgh, rather than that there should be a special examination in ophthalmology alone.

If such an examination is adopted it is desirable that it should be definitely stated that the degree or diploma is granted in ophthalmology. The Council are of opinion that every candidate before presenting himself for examination should be required to produce evidence that he has studied ophthalmology during a period of two years, of which one has been spent in holding recognised ophthalmic appointments.

Conclusions and Recommendations.

The report concludes with the following recommendations:—

1. It is desirable that the Universities and Colleges in the United Kingdom should make provision for a special examination in ophthalmology for those who propose to devote themselves to this branch of medicine.
2. It is desirable that ophthalmology should be one of the optional subjects in which a candidate can elect to be examined for the degree of Master of Surgery of a University, or for the diploma of Fellow of a Royal College of Surgeons, as is at present the case at the University of London and the Royal College of Surgeons, Edinburgh.
3. Before presenting himself for such an examination the candidate should furnish evidence of at least two years' study of ophthalmology, one of which has been spent in holding recognised ophthalmic appointments.
4. The special examination in ophthalmology should be written, oral, and practical, and should comprise the following subjects: anatomy, pathology, optics, systematic and clinical ophthalmology, and operative surgery.

ROYAL COLLEGE OF SURGEONS OF ENGLAND:

ANNUAL MEETING OF FELLOWS AND MEMBERS.

THE thirty-second annual meeting of the Fellows and Members was held at the College on Nov. 27th, SIR GEORGE MAKINS, the President, being in the chair.

Annual Report.

The PRESIDENT presented the annual report of the Council, and referred to several of the items. He mentioned that the Committee of Reference, which had been appointed to assist the Minister of National Service, had held 114 meetings, and though the duties of the committee had now terminated so far as mobilisation and demobilisation were concerned, their functions as a tribunal of appeal continue in force until the repeal of the Military Service Acts. Next he described the work of the Ministry of Health Committee and the formation of Consultative Councils in connexion with the Ministry of Health; and he mentioned the part the Council of the College had taken in suggesting persons for the Consultative Council on Medical and Allied Services. References were also made to the scarcity of subjects for instruction in anatomy and for examinations, to the Special Military Surgical Hospitals, and to the Special Primary Fellowship Examinations, instituted for those whose studies have been interrupted by the war.

Various questions were then asked by Members on the matters mentioned in the report.

Dr. SIDNEY LAWRENCE wished to know how many of the names on the list of those recommended by the Council for the Consultative Council on Medical and Allied Services had been selected by the Minister of Health. The President said that only the name of Mr. Victor Bonney had been selected by the Minister. Dr. Lawrence also inquired if any of the alien Honorary Fellows had been removed from the roll of Honorary Fellows. He was told that no names had been removed.

Mr. DENNIS VINRACE inquired why only the names of those Fellows and Members of the College who had died in connexion with the war had been printed in the report, and not the names of all Fellows and Members deceased during the war.—The PRESIDENT replied that he thought it was a pity that these names had been omitted, but it had been found necessary to keep the report as short as possible.

Resolution in Support of Direct Representation.

Dr. BRINDLEY JAMES then brought forward the first resolution:—

> "That this thirty-second annual meeting of Fellows and Members again affirms the desirability of admitting Members to direct representation on the Council of the College, which as now constituted only represents those Members who also hold the Fellowship; and that it does so in order that the constitution of the Council of the Royal College of Surgeons of England shall be in keeping with modern ideas of true representation."

He pointed out that this resolution had been passed year after year for more than 30 years, and yet nothing had been done. During the war many members had held responsible positions as surgeons in the army and had done a large number of major operations; they had also proved themselves excellent in diagnosis; many of them had rendered most distinguished service, and it was clear that they had shown themselves to be fully competent to take their part in the government of the College. It must be remembered that the Members existed before the Fellows, and then all hospital posts were held by Members. The Members claimed a share in the business work of the College. The relation of the profession with the lay public was surely as much a matter for the Members as for the Fellows.

Mr. J. W. COLLINGWOOD seconded the motion. He said that at the present time there had been much talk of memorials to celebrate the peace, but he thought that there could hardly be a better memorial so far as the College was concerned than to inaugurate a new era by the giving to the Members of the College some share in the government. He asked it also on the ground of natural right; at one time the Members were the College, and they should never have been deprived of the rights they then enjoyed. The presence of a few Members on the Council would infuse into it an appreciation of its relation to practical questions. He asked the Council to take the matter into its serious consideration.

Mr. VINRACE supported the motion. The present tendency to democratic representation should be shown in the constitution of the Council. He urged that the request of the Members was very moderate, and he hoped that the Council would not always be indifferent to the claims of the Members.

The motion was also supported by Colonel J. G. **Fitzgerald**, who maintained that the College must be brought into unison with other public bodies.

When the motion was put to the meeting 27 voted in favour of it and none against, so that it was carried *nem. con.*

A Second Resolution.

Dr. M. I. **Finucane** proposed the second resolution:—

> "That as the College of Surgeons of England is composed of about 17,000 to 18,000 persons, of whom the great majority are engaged in general practice, the annual meeting requests the President and Council to nominate at least two Members in general practice to represent the interests of general practitioners in the management of College affairs."

He thought that the proposed change might need a new charter, though it might be possible for the Council to coöpt some Members into the Council, but whatever was needed should be done, for at present the government of the College was either a despotism or a bureaucracy, and whichever it was it must come to an end. These methods of government survived only in a few misguided bodies. The report itself showed that the Council was not doing much work that needed to be done; even the Fellows, though they had the franchise, did not take the trouble to vote, for the report showed that only 673 Fellows voted at the election of Members of Council. He claimed that the College needed the support of the Members, and that at present this could not be given while the Members were ignored. He closed with a personal appeal to the President to assist in the carrying out of this much needed reform.

Mr. R. **Dunstan** seconded the motion, and pointed out that this was meant to be a practical method of carrying out the first resolution. The greater the approach to the methods of trade-unionism the better, for the democratic spirit of the age must be recognised. If the Council did not reform itself the time was not far distant when it would be compelled by Parliament to change the constitution of the College.

Dr. R. R. **Roach** complained of the silence of the Council in face of the repeated carrying of this resolution at every annual meeting. A few years ago the then President stated that there were three functions of the College—the care of the Museum, the care of the Library, and the conducting of examinations. The Members take a broader and a nobler view of the functions of the College. The Council should state the reasons why they had failed to support the just rights of the Members. The lapse of time since the removal of the Members' rights did not do away with those rights; an injustice was not removed by the mere lapse of time.

When the resolution was put to the meeting it was carried *nem. con.*

Dr. A. **Keppel Barrett** then brought forward the third resolution:—

> "That the President is hereby invited to make a statement to this meeting as to the views of his Council on the subject of the second resolution."

He remarked that there was no need for a speech, as all the meeting wanted was a clear answer on the subject of the second resolution.—Dr. **Lawrence** seconded.

The President's Reply.

The **President** said, in reply, that it was utterly impossible for him to forecast what the Council might say at their next meeting, when the resolutions carried would be discussed. The main function of the College was, as the charter expressed it, the promotion of surgery. Although the College was originally founded as a City Company, like all the City Companies it had nothing to do at the present time with the advancement of the material benefits of those connected with the occupation denoted by the title. He would lay the resolutions before the Council and they would consider the matter carefully.

A vote of thanks to the President for presiding terminated the proceedings. There were present 14 Fellows, including 8 members of the Council, and 30 Members.

Correspondence.

"Audi alteram partem."

THE PREVENTION OF VENEREAL DISEASE.

To the Editor of The Lancet.

Sir,—As one of a group of four who first projected the foundation of the National Council for Combating Venereal Diseases, may I be allowed a word on this controversy, which I look upon as most unnecessary and unfortunate. When we drew up the regulations of the society care was taken to avoid suggesting that means should be adopted to prevent infection. For this reason the term "prevention," first employed, was changed to "combating." In lecturing to the troops in 1914 I with others wished to circulate printed instructions, and even to advise the use of preventives, as already recommended by the Navy. This was considered unwise by the Director-General.

The Teaching of the National Council.

The National Council has continued its policy, and no one will deny the great work that it has accomplished in educating the people as to the diseases, and in promoting the establishment of treatment centres. The whole burden of the teaching has been, while pointing out the dangers, to insist upon treatment at the earliest possible moment. This moment is obviously immediately after the act provided the means can be obtained. The National Council recommends the use of soap and water as soon as possible—i.e., presumably before the man has dressed. Could this be carried out universally, especially with soft-soap, everyone will agree that we will have advanced a long way on the road to prevention. In the room of a private house, or in a well-equipped brothel—which no one wants to encourage—such cleansing is possible, and is, no doubt, frequently carried out. But looking to the circumstances under which sexual indulgence takes place for the most part, is even the use of soap and water possible—are the materials available? To be efficient all such applications, whether soap and water—the best of disinfectants if fully used—or some medicinal substance, should be employed before the clothing is replaced, otherwise the liability to secondary infection not only of the individual, but of others who may handle the linen becomes possible. I have seen a laundress so infected.

False Security.

It has been abundantly established that infection is spread, so far as women are concerned, chiefly by the clandestine, and these often posing as semi-virtuous give a false security to the man. A man once told me that infection was impossible because of the lady. Such simple belief in women has led to much trouble, especially among the Dominion troops, far removed from female society of the good sort. Observations recently published showed that while some 300 odd paid for the disease, nearly twice that number obtained it as a free gift. That is the point—for such cohabitation must take place in all sorts of out-of-the-way corners where even soap and water are not available.

A Logical Step.

Is it not a logical step from soap and water in a brothel or a private room, either that of the woman or the man, to the carrying of the means, so that immediate cleansing to some degree can be applied? I am afraid the National Council has pointed a way which any reflecting person will pursue and naturally take means to apply the remedy—for remedy soap and water becomes, whatever may be said—as soon as possible. Why, therefore, shrink from the very natural consequences of the spread of knowledge? The new society for "prevention" advocates immediate personal disinfection, and for this purpose, where means are not available, the man should carry sufficient soap and water or solution with him. The objection is obvious from the moral side, for such advice tends to organise vice. The man sallies forth for a purpose: his day has come round. This view is not lost sight of by the promoters of the Society for Prevention equally with those of the National Council. There is no difference in the moral outlook at all, and it is wrong to charge those who advocate the logical outcome of our teaching with moral obliquity.

Difficulties of Medical Inspection.

Consider the present opportunities for medical treatment. The infection occurs between 9 P.M. and midnight. medical advice is not available before 9.30 A.M., and cannot then be sought because one has to be in an office at 9 o'clock and another at his work by 7 o'clock. Advocates of the "prevention," as far as I gather, urge early medical inspection just as strongly as the National Council, the chief point being to examine for any abrasion. Theoretically everyone should be inspected after exposure, and this state of perfection may come, though at the present stage all must see the difficulties and the unavoidable delays with regard both to private practice and the public service. Meantime disease is rampant, and any means that will check its spread is surely justified.

Conclusion.

In conclusion, let the National Council pursue its advocacy of education and early treatment, without opposing the campaign of others who are out to attack disease and disease alone. If the National Council cannot bless why should it curse? It was a fundamental principle in founding the National Council that the great objects were to spread a knowledge of these diseases and to advocate early voluntary treatment. The purely moral side was not to be made a conspicuous plank in the programme. The sense of security following a medical inspection must be surely greater than that after the personal use of simple measures. The best course, it seems to me, is for the National Council to carry on its own work in its own way, if it cannot adopt what after all is, as I have said, the logical outcome of its own teaching. That carrying with him the means of self-disinfection encourages indulgence is a question for debate. I imagine a large number are surprised into the act, and tempted by the false security of the clandestine.

I am, Sir, yours faithfully,
CHARTERS J. SYMONDS.
Portland-place, W., Nov. 26th, 1919.

To the Editor of THE LANCET.

SIR,—We hoped that our letter to the *Times* of Oct. 13th had made it quite clear that we advocated *immediate* self-disinfection with disinfectants carried on the person (in outfits, parcels, packages, bottles, packets, or whatever word may be used), but that we did not suggest a free issue of such outfits of disinfectants by the Government or local authorities, but considered that such disinfectants should be purchasable by the individual at the local chemist. In the press generally we have insisted that time is the vital factor, and that self-disinfection should therefore be carried out *immediately*, and that this can only be done if the individual provides himself with, and carries with him, the necessary disinfectants. Apart from letters published in the press, official communications have passed between the President of the National Council for Combating Venereal Disease and the President of the Society for the Prevention of Venereal Disease, in which we made it abundantly clear that we consider it essential that these disinfectants should be carried on the person.

The National Council for Combating Venereal Disease, whilst acknowledging the great importance of disinfection within an hour of exposure to risk, yet illogically are opposed to the only method by which disinfection in the majority of cases can be carried out within the hour after exposure. Dr. Douglas White, in his letter appearing in your issue of Nov. 22nd, publishes a memorandum issued by the National Council for Combating Venereal Disease, stating their policy in regard to the prevention of venereal disease. Clause 8 of the memorandum states "No one should be urged to arm himself in advance with a prophylactic packet." Mr. E. B. Turner's statement that "Colonel L. W. Harrison is quite able to explain his change of opinion and defend his statements" is only an expression of his own views, and does not advance the controversy. What appears desirable is that Colonel Harrison also should state his exact position in regard to immediate self-disinfection. In a lecture delivered at the Royal Institute of Public Health, published in this year's January number of the *Journal of State Medicine*, Colonel Harrison says: "I am sure that our greatest hope of exterminating venereal disease lies in the breaking of the chain of infection at the male end, where the handicap is distinctly in our favour"; and he quotes statistics issued by the Naval Station, Norfolk, Virginia, showing that of 1180 persons disinfected within one hour of exposure to infection there was no case of venereal disease; whereas, in 1172 similar cases disinfected between one and two hours after exposure 0·59 per cent. of cases of infection occurred; while after an interval of between four and five hours, the numbers rose suddenly to 1·57 per cent. Colonel Harrison also quotes from a report of Major Falconer Brown, N.Z.M.C., showing how in one troopship where the men undertook early disinfection, there was not a single case of venereal disease, although the average in such troopships was 15 cases per voyage. Colonel Harrison concludes by saying: "The ideal method is undoubtedly that in which the man submits himself to treatment by a skilled attendant within an hour of exposure, but promptitude is vitally necessary to success, and if the man is situated where he cannot obtain skilled assistance, *he should have the means of self-disinfection with him* (my italics). I hope that before that army is demobilised we shall have taught it by successful early treatment how to protect itself against venereal disease." No member of the Society for the Prevention of Venereal Disease could express a more definite opinion in favour of immediate self-disinfection than as recorded above in Colonel Harrison's words.—I am, Sir, yours faithfully,

H. WANSEY BAYLY,
Hon. Sec., Society for the Prevention of Venereal Disease.
143, Harley-street, W., Nov. 22nd, 1919.

To the Editor of THE LANCET.

SIR,—Sir Bryan Donkin has dignified my article in THE LANCET of Nov. 8th with a criticism in your issue of Nov. 22nd. I do not intend to complain of the various brickbats which he throws at me, some of which, at least, are undeserved. But on one point I feel that a reply is necessary. Sir Bryan Donkin says that my argument is "directed all along ...... to showing that the advocates of prompt personal disinfection deny that there is any immorality attaching to sexual promiscuity." I beg to state that I never attempted to show any such thing, nor do I make any such charge against the advocates of personal disinfection. Among the members of the Society for the Prevention of Venereal Disease there are some whom I have long respected as my teachers, and whom I reckon in some degree as my friends; others also whose names I hold in too high esteem to befoul with silly and groundless aspersions. I do indeed believe (rightly or wrongly) that a campaign solely or mainly directed towards instruction in prophylaxis would tend to increase exposure, and probably to increase instead of diminishing disease. With this belief the advocates of such a campaign do not agree. It is not a question of their morality or mine; it is simply a question which of us is right. Such a clash of opinion is not new. Among the supporters of the C.D. Acts were numbered men of the highest character. In spite of the very grave social questions involved, they were persuaded that the C.D. Acts would result in a very great reduction of venereal disease in the services. The results did not justify this hope; but their characters were not to be called in question on account of their belief. Much less is there any reason why the moral sense of believers in prophylaxis should be called in question on account of their views.

I hope, Sir, that you may find room for this disclaimer, as I should feel very sorry if any members of the Society for the Prevention of Venereal Disease or others should be led by Sir Bryan Donkin's letter to believe that I had made the aspersion on their moral outlook that he alleges.

I am, Sir, yours faithfully,

Harrow, Dec. 1st, 1919. DOUGLAS WHITE.

KINEPLASTIC AMPUTATIONS.

To the Editor of THE LANCET.

SIR,—My attention has been called to a sentence in the report, in THE LANCET of Nov. 22nd, of the annual meeting of the British Orthopaedic Association, which exactly reverses the meaning of what I said, and I ask a few lines of space to correct it. The report has it that "orthopaedic surgeons must solve the surgical problem and leave the mechanical problems to the engineers." What I did in fact say was that, while the solution of the surgical problem must come first, to afford material for the mechanician to work on, it was essential, in my opinion, that the application of the forces produced should be carried out with the close coöperation of the surgeon who brought them into being, and that this was an essential condition of success.

May I add one word more concerning the annotation in THE LANCET of Nov. 29th, giving Professor Pelligrini's tunnel technique? The methods are not new: I saw them, with the same illustrations, in the *Archives Médicales Belges* of June, 1918, and I do not think they were new then. They are easy—fatally easy—to carry out, but in the opinion of most of those who are working at the subject in England should only be used in those rare cases (if at all) where other methods are not applicable, and I think it would be wrong to let them be published in so widely read a journal as yours without a word of caution.

I am, Sir, yours faithfully,

M. FITZMAURICE-KELLY,
Major, R.A.M.C.

Pavilion General Hospital, Brighton, Nov. 29th, 1919.

EXTENSION OF PART II. OF THE MEDICAL ACT TO ALBERTA.

To the Editor of THE LANCET.

SIR,—I have to inform you that Part II. of the Medical Act, 1886, has been extended to the Province of Alberta, and that I have been directed as follows:

(*a*) "That any person who holds the Licence (or Membership) of the College of Physicians and Surgeons of Alberta, granted after examination in Medicine, Surgery, and Midwifery by the University of Alberta, together with the Licence to practise in the Province, shall be entitled to be registered in the Colonial List of the Medical Register, provided he satisfies the Registrar of the General Medical Council regarding the other particulars set forth in Part II. of the Medical Act, 1886";

"and (*b*) to direct the Registrar to register in the Colonial List of the Medical Register any person who holds the Licence (or Membership) of the College of Physicians and Surgeons of the North-West Territories, obtained after examination in Medicine, Surgery, and Midwifery, together with the Licence of the College of Physicians and Surgeons of the Province of Alberta (both facts to be certified by the Registrar of the College of Physicians and Surgeons of Alberta), provided he satisfies the Registrar of the General Medical Council regarding the other particulars set forth in Part II. of the Medical Act, 1886."

I am, Sir, yours faithfully,

NORMAN C. KING.
Registrar.

General Council of Medical Education and Registration of the United Kingdom, 44, Hallam-street, Portland-place, London, W. 1, Nov. 28th, 1919.

Corrigendum.—In the letter of "Irish Practitioner" in THE LANCET of last week, "Sept. 21st" (13 lines from the end), should read *Nov. 21st*.

THE Harben lectures of the Royal Institute of Public Health for 1920 will be delivered in June by Professor Maurice Nicolle, M.D., of the Pasteur Institute, Paris.

Medical News.

DR. ADDISON AT MANCHESTER.—The University of Manchester some time ago arranged a short course of public lectures for this term on some results of experience gained in various fields during the war. The lectures are delivered in the new arts building in Lime Grove, and the entrance fee is nominal. Dr. Addison, the Minister of Health, visited Manchester on Monday evening, Nov. 24th, and lectured on Some Results of Experience gained in the Field of Medicine during the War. The first Labour Lord Mayor of Manchester, Alderman Tom Fox, occupied the chair. Dr. Addison showed how much more the people of this country valued research work than they did in pre-war times, and considered that this change of attitude would completely alter the nation's methods, thought, and action in the years to come. Dealing with the difficulty in showing that expenditure on preventive work had been justified, he instanced the case of T.N.T. poisoning, in which research work had cost £2000 to £3000. When he was at the Ministry of Munitions many thousand pounds a week were being paid in compensation to sufferers from this disease, but in 18 months it had disappeared from the factories, and the total cost of the research was saved every week for 100 weeks. The speaker next referred to the prevention of disease among the armies in the field, dealing first with the treatment of shock, and then with the practical elimination of cerebro-spinal fever. The same team of workers was now working at pneumonia. A sum of a million spent in research on influenza and pneumonia would be as nothing compared with the loss to the country from these diseases during the last 12 months. A comparison of the typhoid casualties in the South African War and the European War followed. To a medical audience these figures are by this time familiar enough, but to a lay audience they are more impressive than any other example could be, and show the rise and improvement of preventive inoculation in the intervening period as no other statistics will. If the incidence of typhoid in this war had been the same as in the South African we should now have in the country 350,000 men who had had typhoid whilst serving, whilst in point of fact we had only 7000. The war brought home to us the vast numbers of the mentally afflicted who were curable if treated early enough, without any question of certification. The prevention of diseases of the period of development, such as rickets, were next mentioned, the Minister of Health saying that these wanted much further study, while industrial methods must be inquired into from the health standpoint. The number of hours to be worked profitably by workers at different occupations was a purely scientific proposition which had to be worked out. But if the right sort of worker was to be secured, and the best work was to be done, the scientific worker must be paid properly; and they were not losing sight of that at the Ministry of Health.

UNIVERSITY OF LIVERPOOL.—At the meeting of the University Court held on Nov. 28th Dr. J. G. Adami, the new Vice-Chancellor, delivered a most interesting address. He pointed out that in 1913-14 the University had the largest entry of full-time students—in all 1178—that it had ever known. That record had been far surpassed by the number of entries this session, which already amounted to 2470, and many more had had to be turned down for lack of room. The Vice-Chancellor said he did not regard this increase as a merely accidental outcome of the war. He considered it as a proof that we are at the beginning of a new era, when the value of a university education will be assessed at its proper worth in every walk of life. He prophesied that if the University adequately discharges its duty, in a score of years the 2470 students will have become 5000. This sudden expansion in the number of entrants has thrown a tremendous strain not only upon the professors, but upon the available accommodation, for the buildings and plant of the University are not half large enough to meet the present needs. As a consequence classes had to be duplicated and even triplicated, and in the class of physics each practical course of two hours for the first-year men had to be repeated 11 times. In the chemistry department the overcrowding was equally serious. The first-year practical class-room, built in 1880, has accommodation for 50 students. There were 300 first-year students studying chemistry, and in addition 350 students of engineering who also required training in practical chemistry. Increased laboratory space was therefore needed in subjects of such direct practical and industrial importance as physics, chemistry, and electrical engineering, as well as for their schools of commerce, architecture, and social science. As a temporary expedient they had filled the quadrangle with army huts and were roofing over courts here and there to supply laboratories and drawing halls; besides making use of ordinary terrace houses adjacent to the University. More professorships were required, and new endowments were needed for their chairs. Bucolic Ontario, with a population of 3,000,000, boasted more universities than industrial Lancashire with its teeming cities. Within the next few years the University of Liverpool would require £1,000,000 if it were to be in a position satisfactorily to grapple with the new conditions. Early in 1920 he intended to make a public appeal for £500,000. The figure might appal his audience, but he had no hesitation in asking for that large sum, which he regarded as absolutely necessary, and he was confident that he would not appeal in vain to a city whose inhabitants had heretofore given, with notable generosity, a hearty and discriminating support to works for the public good.

PARASITOLOGICAL RESEARCH AT CAMBRIDGE.—At the request of Lady Strathcona the representatives of the late Lord Strathcona have sent £1000 to Professor Nuttall for the Institute of Parasitological Research at Cambridge. The money was promised by the late Lord Strathcona if and when a fund for a field laboratory on the outskirts of Cambridge should reach £6000.

THE WELSH NATIONAL MEDICAL SCHOOL, CARDIFF.—The first part of the new buildings in Newport-road—the physiological block—has been completed and brought into use this term. It provides what are probably the finest physiological laboratories in the kingdom; and its opening has done something to relieve the congestion of the classrooms. Other portions of the new medical school are under construction, and the accommodation will be urgently needed when the full curriculum of teaching, including clinical work, is undertaken in the near future. Already the new block, originally criticised as being unnecessarily large, is overcrowded and classes have to be duplicated. There were nearly 100 new students joining this term. The new professor of preventive medicine, Dr. E. L. Collis, is announced to deliver his inaugural lecture on Dec. 10th.

At the annual meeting the announcement that H.R.H. the Prince of Wales had accepted the office of patron of the Medical Students' Club and a metacarpal bone (the badge of the club) in gold, was received with acclamation. A christening bowl was handed to Lady Thomas, the wife of Sir W. J. Thomas, president of the club, on behalf of her son, born during her husband's term of office; and a silver bowl was presented to Professor Haycraft on the occasion of his marriage.

UNIVERSITY OF SHEFFIELD.—The Faculty of Medicine, like other faculties in the University, has to record a large increase in the number of its entries this autumn, and the question of their accommodation is occupying the careful consideration of the University authorities.—Mr. Arthur Connell, F.R.C.S. Edin., senior surgeon to the Royal Infirmary, has been appointed professor of surgery, in succession to Dr. Sinclair White, who resigned the post earlier in the year.—Two lecturers in Medicine, Dr. A. E. Barnes and Dr. A. E. Naish, and two lecturers in Surgery, Mr. A. W. Cuff and Mr. Graham Simpson, have also been appointed to assist the respective professors.—The dental department in connexion with the faculty, after being temporarily in abeyance owing to its hospital premises being taken over by the War Office for military dental work, has again resumed its full war activities. Mr. Percy Stokes, L.D.S., has been appointed honorary secretary of the dental staff.

VOLUNTARY HOSPITALS IN SHEFFIELD.—A movement has recently been set on foot to bring the four voluntary Sheffield hospitals into closer union. With this object a Joint Advisory and Consultative Hospitals Committee has been formed, with the Lord Mayor of Sheffield as its President, the Vice-Chancellor of the University (Sir Henry Hadow) as chairman, and the county court judge (his honour Judge Adshead Elliott, K.C.) as vice-chairman. The committee has medical and civilian representatives from the Royal Infirmary, the Royal Hospital, the Jessop Hospital for Women, the Hospital for Sick Children, and the Edgar Allen Institute for Medico-Mechanical treatment, together with representatives of the University, and a certain number of coöpted members, including representatives of labour. This committee has already got to work, and three subcommittees are engaged in drawing up reports upon the subjects of nursing, increased in-patient accommodation, and finance respectively. That these hitherto separate institutions should have agreed to discuss their future policy on these urgent subjects is a hopeful sign, and promises results of the utmost value for future hospital development in the city. There is no doubt that the movement originated in the close daily coöperation brought about by war conditions amongst the members of the various honorary staffs, and the consequent breaking down of barriers.

THE Chelsea Hospital for Women has received a bequest of £900 from the late Mr. A. H. Lloyd and £100 from the Alexandra Day Fund.

FOR the first time in its career the Lord Mayor's Hospital Sunday Fund for Bristol has exceeded £5000—a sum representing perhaps 5 per cent. of the total expenditure which it goes to meet.

TRAINING OF MIDWIVES.—The Board of Education has notified that the draft, dated Sept. 19th, of the regulations for the training of midwives has been confirmed without amendment, and thus becomes "The Board of Education (Midwives' Training) Regulations, 1919." Copies can be purchased through any bookseller (price 1*d*.).

RAISING OF MEDICAL FEES.—At a meeting of the members of the Ulster Medical Society and of the Ulster Branch of the British Medical Association held in the Medical Institute, Belfast, on Nov. 27th, Colonel A. Fullerton (President of the Ulster Medical Society) in the chair, the following resolution—on the motion of Dr. R. Leathem, seconded by Lieutenant-Colonel A. B. Mitchell—was passed unanimously:—

> "That this meeting of the medical men of Belfast and surrounding districts resolve that a general increase of at least 50 per cent. shall be made in all medical fees, and that due notice of this shall be published in the daily papers."

AT a general meeting of the medical profession in Hampstead, summoned by the Hampstead Medical Society on Nov. 27th, it was decided to elect a committee, to be called the Hampstead Medical Committee, to watch over the interests of the profession in the borough, and to act as arbiter in disputes when desired by both parties. It was further decided to make an increase of at least 50 per cent. to pre-war medical fees on all medical accounts, which would be rendered quarterly instead of half-yearly as hitherto. The meeting elected a committee of nine members representative of all branches of the profession in the borough. At the first meeting of the committee Dr. F. E. Scrase, the medical officer of health for Hampstead, was elected chairman, and Dr. H. P. Crampton, 7, Frognal, Finchley-road, N.W., is acting as honorary secretary.

BRISTOL Medical Committee, representing all branches of the medical profession, has had under consideration the question of raising fees for medical service. With the approval of the various groups of practitioners through the city, the committee has decided to approve the raising of fees approximately to the extent of 50 per cent. as compared with pre-war rates. It will be readily understood that, in any case where the rigid application of this action on the part of the profession would inflict hardship, the practitioner has the same right of exercising his private judgment as he has always had. The Bristol Medical Committee was formed some months ago by general consent of the practitioners of Bristol. It gives proportional representation to each section of the profession, general practitioners, consultants, administrative officers, and so on. While it is politically independent it is not in conflict with any of the larger organisations. Its purpose is constructive; for example, it has begun useful work in coöperation with the Bristol War Pensions Committee on behalf of the discharged men of Bristol.

WOODEN HOUSES IN NORWICH.—To Norwich belongs the distinction of turning out the first standard permanent wooden house conforming to the requirements of the Ministry of Health and officially approved. This model house was built by the firm of Boulton and Paul at their local works, and erected in less than a month at Great Plumstead, near Norwich. It is built on the bungalow plan and is 45 ft. 7½ in. long by 19 ft. wide, and 8 ft. high from floor to ceiling. The main room is a kitchen and living room combined, measuring 18 ft. 4 in. by 10½ ft., with windows at both ends and an open kitchen range. It is shut off from the "scullery" part of the house, which contains an independent range and boiler, linen cupboard, sink, coal-cellar, and larder, and may serve as a kitchen during the summer. There is no parlour, but there are three bedrooms, ranging in size from 14 ft. 3 in. by 11 ft. 3 in. to 10 ft. 9 in. by 6 ft. 9 in. Two of the bedrooms are provided with open fireplaces, and all have good casement windows. The coming generation has not been overlooked, as the house contains provision for the accommodation of a perambulator. The sections of which the house is built can be easily bolted together, and they are lined on the inside with fibrous plaster slabs over half an inch thick, or asbestos can be used to make them fireproof. Judged by the illustrations, beauty has been sacrificed to utility in the design, as the exterior appearance of the model house is very plain. The design has been standardised, and the aim of the firm is by "mass production" to turn out 5000 wooden houses yearly. The price is fixed at present at £673, so that however good the house may be it certainly cannot be called cheap.

A CONFERENCE convened by the British Federation of Medical and Allied Societies will be held at Steinway Hall, 15, Lower Seymour-street, London, W. 1, on Friday next, Dec. 12th, at 3 P.M.

Dr. Harry Campbell will deliver the first Savill memorial lecture on "The Integration and Disintegration of the Mental Personality" on Wednesday, Dec. 10th, at 5 P.M., at the West End Hospital for Diseases of the Nervous System, 73, Welbeck-street, W.

THE LATE DR. BUNTINE, M.L.A.—A Memorial Fund is being generously supported at Pietermaritzburg, Natal, in memory of the late Dr. R. A. Buntine, M.L.A., who was one of the victims of the torpedoed *Galway Castle* 15 months ago. The memorial is to take the form of a children's ward in Grey's Hospital, Pietermaritzburg. Dr. Buntine represented Maritzburg South in the Union Parliament, and was a native of Melbourne.

THE PREVENTION OF VENEREAL DISEASES.—Under the auspices of the Faculty of Insurance a meeting will be held at the Central Hall, Westminster, on Tuesday, Dec. 16th, at 7 P.M., in support of the prevention of venereal disease by the immediate self-disinfection of men. Stress will be laid upon its necessity, simplicity, practicability, and efficacy. Lord Willoughby de Broke, President of the Society for the Prevention of Venereal Diseases, will be in the chair, and an interesting list of probable speakers is announced. Applications for tickets should be addressed to either the Faculty of Insurance, Sicilian Avenue, Southampton Row, W.C. 1, or to Dr. Wansey Bayly, 143, Harley-street, W. 1.

GREAT NORTHERN CENTRAL HOSPITAL.—The Prince of Wales, the President of this charity, will preside at a dinner at the Connaught Rooms on Dec. 12th at 7 P.M., and a special effort is being made to collect a large sum to hand to His Royal Highness on this occasion. The hospital serves a very large area in the North of London, and is so short of accommodation that it is compelled to ask for a sum of £200,000 for extension and maintenance. The Marquis of Northampton, 10, Berkeley-street, London, W., the chairman of the hospital, will be glad to receive donations.

CROYDON GENERAL HOSPITAL.—The fifty-second annual report of this institution dealing with the year ending June, 1919, states that although the 50 beds appropriated by the naval, military, and air authorities during the war were surrendered by them at the end of 1918, discharged disabled men continue to receive treatment in the wards. The vacated beds have been quickly filled by an ever-increasing influx of civilian cases, with the result that the total number of in-patients for the year is 1384 as compared with 1278 in the previous year. The patients in the out-patient departments, both medical and surgical, show a falling-off in numbers. In the X ray department the work increased, the number of hospital patients rising from 1105 to 1164. The cost of maintenance for the year was £9865, exclusive of £407 expended on building. The income was £18,748.

ST. GEORGE'S HOSPITAL MEDICAL SCHOOL (THE UNIVERSITY OF LONDON).—The annual dinner was held on Wednesday, Nov. 26th, in the Prince's Restaurant, under the chairmanship of Dr. J. H. P. Fraser, D.S.O., M.C., when there was a large attendance on the resumption, after a six years' gap, of this yearly function. The toast of the "Past and Present Students" was proposed by Dr. S. Russell Wells, who reminded his audience that although the medical school of St. George's Hospital had always been a favourite institution with Oxford and Cambridge, all the students must be alumni of the University of London, of which the school was a constituent body. He alluded to the habit of the mediæval student of wandering from university to university as having much to commend it, and he urged upon the students of St. George's to remember the claims upon them of the largest University in the empire. The toast was responded to in an interesting and humorous manner by Sir George Turner, the late senior surgeon, Mr. A. W. Uloth, responding for the younger generation. Mr. R. R. James, the acting dean of the school, described the strenuous nature of the work and the zeal of organisation that had been engendered in running the hospital during the war, when nearly all the honorary staff and quite all the junior staff had departed on military or naval work. He acknowledged the able and devoted assistance received in the difficult situation from the women students, though he announced the probable alteration of the conditions in respect to their future admission. The "Health of the Chairman" was proposed by Lieutenant-Colonel W. F. Tyndale, C.M.G., D.S.O., who told in a matter-of-fact manner the story of a gallant deed for which Colonel Fraser obtained one of his decorations. The function was in every way a successful one.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Nurses' Registration (No. 2) Bill.

THE Nurses' Registration (No. 2) Bill was considered by Standing Committee B of the House of Commons on Tuesday, Dec. 2nd. Mr. T. P. O'CONNOR was in the chair.

There were a large number of amendments on the paper, mostly of an unimportant and drafting character. Sir WATSON CHEYNE had a series of amendments down, the object of which was to provide that the nurses' register to be set up by the General Nursing Council should be confined to "fully trained male and female nurses."

Sir WATSON CHEYNE urged that there were a variety of nurses, including "wet" nurses and children's nurses. The duty of the latter was merely to push a perambulator. In his opinion it was only fair that those who were trained nurses should be so described, and that the others should be registered in a supplementary register.

Dr. ADDISON (Minister of Health) resisted the amendments, which, he said, struck at the root of the Bill and nullified one of its principal objects. If Sir WATSON CHEYNE'S proposal were agreed to it would make the first register consist of higher-class nurses, and the result of that would be that those who were relegated to the supplementary register would be branded as an inferior class with inferior training. He objected to that. The time would come when all those who applied for registration would require to be of a higher standard of training, but at the outset it would be most unfair to set up a distinction such as was proposed. It was a Parliamentary principle that existing interests must be protected and that was done in the Bill.

After some discussion, in which the sense of the Committee was shown to be against the amendments, Sir WATSON CHEYNE withdrew his proposal.

Captain ELLIOTT moved an amendment to Clause 6 to the effect that with a view to securing a uniform standard of qualification in all parts of the United Kingdom the Council should consult with the councils set up for Scotland and Ireland in respect to applications for admission to the register.

Dr. ADDISON expressed his willingness to accept the amendment, which was agreed to, and promised that he would make provision that two persons should be placed on the Council who had experience of children's nursing.

The Committee stage was completed and the Bill was ordered to be reported with amendment to the House.

HOUSE OF COMMONS.

WEDNESDAY, NOV. 26TH.

Retention of Medical Officers in the Army.

Lord HENRY CAVENDISH-BENTINCK asked the Secretary for War whether he was aware that numbers of medical officers who joined the army voluntarily in 1914 or before the passing of the Military Service Acts had persistently applied for demobilisation and that their applications had been refused; whether some of these medical officers were receiving £60 a year less than others who voluntarily enlisted for a further six months, though there was no certainty that these volunteers would not be demobilised on or before the same date as the others; whether large numbers of younger medical officers had been demobilised after short periods of service; whether, if so, there was any justification for this different treatment; and whether he could make any promise with regard to the early demobilisation of the medical officers referred to, or, alternatively, could undertake that their rate of payment during service should be not less than that of the medical officers who consented, often for personal reasons, to stay in the army.—Mr. CHURCHILL replied: I am aware that many medical officers who joined the army voluntarily before the passing of the Military Service Acts and who afterwards came under the provisions of those Acts are still of necessity retained on military service, and that some of these officers are receiving less than those who have undertaken to serve for a further period of six months. A considerable number of medical officers with comparatively short service have from time to time been demobilised for special reasons, more particularly to meet the urgent needs of the civil population, and in accordance with the demand of the Ministry of National Service. Medical officers are now being demobilised in order of priority, having regard to length of service, age, &c., immediately they can be spared. I regret it is not possible to extend the terms given to officers who bind themselves for a definite period to those who will not undertake this obligation.

Treatment of Tuberculous Service Men.

Sir MONTAGUE BARLOW asked the Minister of Health whether he had considered the recommendations of the

Inter-departmental Committee on Tuberculous Soldiers and Sailors; and how soon he proposed to give effect to their recommendations.—Dr. ADDISON replied: Yes, Sir; and each of the principal recommendations are already being carried out, or steps taken towards this with all possible expedition.

Nurses Registration (Ireland) Bill.

Mr. MACPHEPSON (Chief Secretary for Ireland) presented a Bill to provide for the registration of nurses in Ireland. The measure was read a first time.

THURSDAY, NOV. 27TH.

R.A.M.C. Officers and Permanent Government Appointments.

Mr. GRATTAN DOYLE asked the Pensions Minister if he would state the number of medical men permanently employed in his department who had not served in His Majesty's Forces overseas during the war, the number so employed who had served overseas, how many who had not served overseas now hold high administrative rank, including deputy commissioners of medical services and assessors, the number of medical men who had applied for permanent appointments, and how many had been granted; if he was aware that many, if not most, of the well-paid posts had never been advertised in the medical or other press; if he could give any information as to how these posts were filled; if the official in charge of the Appointments Department of the Ministry of Pensions (Director-General's Department, 14, Great Smith-street, S.W.), Dr. R. M'Queen, had served overseas in His Majesty's Forces; and if he would take steps to see that ex-Royal Army Medical Corps and naval medical officers got preference for all appointments before the appointments were made permanent.—Sir L. WORTHINGTON-EVANS: In reply to that part of the question which relates to Dr. M'Queen, I may inform my honourable friend that this officer was mobilised on the first day of the war and served continuously until four months after the signing of the armistice, when he was invalided with a 30 per cent. disability resulting from service in France, Belgium, and Macedonia. In appointments to the medical services division of the Ministry it is the invariable practice to give preference to men who have seen war service overseas. The medical officers of the Ministry are, almost without exception, serving on temporary engagements terminable at a month's notice. There are only three permanent officials, of whom one has served overseas. There are 59 temporary officers who have not served overseas, of whom 48 have served at home, and others with the British Red Cross or similar units. Since April 1st between 1600 and 1700 applicants have been interviewed. The present number of salaried appointments is 244. As will be seen from these figures the material for selection for the few posts available has been so great that advertisement has been unnecessary. Each applicant is personally interviewed and his suitability is carefully considered in the light of his former service and general qualification and experience, special attention being given to his experience of the kind of work at which it is proposed to employ him. Since April 1st no applicant has been favourably considered unless he has had war service in the Navy, Army, or Air Force.

Ministry of Pensions Staff.

Mr. ROSE asked the Minister of Pensions if he would state the grades and average salaries of the 283 officials removed from his department during the month of September; and how many, if any, of them were transferred to other Government departments.—Sir L. WORTHINGTON-EVANS replied: The net reduction in staff at Headquarters in September was 497. Against this the staff in the Regions and in medical institutions showed a net increase of 214, giving a net reduction for the whole Ministry of 283. The reduction was practically entirely in the clerical grades with wages averaging about 46*s.* a week. No transfers were made to other Government departments.

Hospital Treatment of Disabled Men.

Mr. MOSLEY asked the Prime Minister whether approximately 400 disabled men were still awaiting hospital treatment as bed cases in the London district.—Sir L. WORTHINGTON-EVANS replied: There are at present about 130 discharged disabled men awaiting hospital treatment as bed cases in the London area. The surgical cases will be admitted forthwith, and other cases with as little delay as possible.

The Irish Health Council.

Major O'NEILL asked the Chief Secretary to the Lord Lieutenant of Ireland whether he could make any statement as to the progress of the work of the Irish Health Council set up under the Ministry of Health Act.—Mr. MACPHERSON replied: The Council have already held several meetings since their constitution in September. Their deliberations are directed towards the formulation of a comprehensive health measure for Ireland which involves a minute and detailed examination of the existing machinery for health administration. Substantial progress has been made by the Council in this work. The Council has been engaged on the preparation of Regulations under the Public Health (Medical Treatment of Children) (Ireland) Act, 1919, and have also, after conference with the various nursing associations, submitted a Bill providing for the registration of nurses in Ireland.

Medical Research Committee.

Mr. ROBERT YOUNG asked the Minister of Health whether the Medical Research Committee was to work under the control of the Privy Council after June next; and whether in that case the funds available for the committee's work were still to be derived from moneys provided by Parliament under the National Health Insurance Act, or whether a separate vote would be made of this money.—Sir L. WORTHINGTON-EVANS replied: Yes, Sir; and a separate vote will be taken after the transference.

Outdoor Employment for Tuberculous Officers.

Mr. WADDINGTON asked the Minister of Health if he was aware of the difficulty now experienced by young men of good education who developed tuberculosis as a consequence of war service and were now advised not to follow a teaching career in the schools, and the only recommendation made to them was to take up poultry farming or horticulture; and whether, in view of the great sacrifices made by many of the parents to educate these young men, he would consider a scheme to train under his department a proportion of these cases for survey work or other similar duties which would give a maximum of outdoor employment.—Sir L. WORTHINGTON-EVANS replied: A scheme of the kind referred to suitable for tuberculous ex-officers requiring outdoor employment is now under consideration.

Mental Deficiency and Lunacy (Amendment) Bill.

Major BAIRD (Under Secretary for the Home Department), in moving the second reading of the Mental Deficiency and Lunacy (Amendment) Bill, explained that although it was merely a financial measure the effects of the Bill were more far-reaching than merely financial. The object of the Bill was to make it possible to carry out the recommendations of the Royal Commission appointed in 1904 to report on the question of the feeble-minded. The increased cost of everything had made it quite impossible for local authorities to carry out their functions under the Lunacy Act of 1913 unless they received a larger sum from the State. Moreover, as a result of the war, feeble-minded persons were the first to lose their employment, and it was advisable in the interests of these unfortunate people, as well as those of the community, that no steps should be spared to deal with the matter in a humane and efficient manner. Besides affording the local authorities financial support, it was necessary to stimulate the activity of some of the local authorities who had not seen their way to throw as much energy into this branch of their duties as the importance and seriousness of the subject demanded. It was hoped by removing the limit of the total sum which the Treasury could pay in the shape of the 50 per cent. grant to local authorities to enable them to embark upon a much more thorough scheme of work than had been possible in the past. The White Paper on this subject showed that the total expenditure contemplated would eventually be £1,400 000. It was not anticipated that the total sum would be expended in any one year before at least five years from now, and, of course, the gradual increase of expenditure could not be accurately estimated. Under the Act of 1913 the Treasury was limited to a grant of £150,000 to the English and Welsh local authorities in connexion with measures taken by them to deal with the feeble-minded. That limitation was very unfortunate and had had a most hampering effect on this very important work. The same applied to Scotland, with the difference that the limit there was smaller, being only £20,000. It was estimated that in England and Wales the number of people who ought to be dealt with was something like 21,700. In Scotland the number was 4000. It was estimated that each case would require something like £60 per annum for treatment. The Bill proposed to remove the limit on the amount of interest payable by local authorities on borrowed money. All that they sought by this measure was that local authorities should be put upon the same footing in this matter as they were in regard to the treatment of tuberculosis and venereal disease. In both cases there was a contribution, in one case of 50 per cent. and in the other case of 75 per cent., towards the total sums spent by the local authorities, but there was no limit to the total amount of the Exchequer grant. The Bill was read a second time.

MONDAY, DEC. 1ST.

Grants to Insurance Practitioners.

Sir ALFRED YEO asked the Minister of Health if he would state why he required facts and figures for measuring the amounts of the Exchequer grants payable to insurance practitioners who were medical officers of Approved Institutions which he did not require from other insurance practitioners.—Dr. ADDISON replied: No such requirement is being made as is suggested in the question. The medical officers of Approved Institutions are not themselves under any contract with the insurance authorities, but with the institutions by whom they are employed; no direct payment can therefore be made to them from Exchequer funds. The information needed to substantiate the claims of these institutions is strictly analogous to that needed in the case of insurance practitioners. I am sending my honourable friend a copy of two letters addressed to the Friendly Societies Medical Alliance on the subject which can, I think, leave no doubt as to the particulars which are required or as to the necessity for such figures being furnished.

Mentally Deranged Soldiers.

Mr. CASEY asked the Secretary for War whether he was aware if there were any British soldiers and sailors in any institution in this or any other country who were suffering from loss of memory or other infirmity whose identity had not been established.—Mr. FORSTER replied: I understand that there are three cases of soldiers whose identity it has not been possible to establish owing to mental trouble and that all three are now in this country, and we are doing our best to clear up these cases. The question as regards sailors should be addressed to the Admiralty.

Pay of the Pensions Medical Staff.

Brigadier-General CROFT asked the Pensions Minister whether from Oct. 6th, 1919, the rate of pay for men on examining boards had been increased by 50 per cent. to £1 11*s.* 6*d.* per session, whilst the pay of assessors and other full-time men paid on sessional basis remained at £1 1*s.* per session; whether a part-time man working at the new rate of two sessions a day, or four days a week, made 52 guineas per annum more than a full-time man who worked six days a week at the present rate; and, if so, whether he would take steps to see that more equitable treatment was meted out to the minority of the medical staff of the Ministry of Pensions.—Sir J. CRAIG (Parliamentary Secretary to the Ministry of Pensions) replied: The answer to the first part of the question is in the affirmative, but the conditions of work of the member of the board and of the assessor are very different. It is not inequitable that the difference between occasional employment, which cannot be counted upon from day to day, and regular and full employment, which can be counted upon, provided the officer's work is satisfactory, should be marked by a difference in the rate of payment. My right honourable friend is, however, considering whether, in view of the greatly enhanced cost of living, some increase in the scale of payment of the assessors should be made.

Educational Grant for Demobilised Medical Officers.

Mr. DEVLIN asked the Secretary for War whether the post-war education grant which was now being given to demobilised medical officers would also be given to demobilised medical women.—Mr. FISHER (Minister of Education) replied: I presume that the honourable Member refers to the grant under the Government scheme for the assisted higher education of ex-Service officers and men. The scheme does not apply to women.

TUESDAY, DEC. 2ND.

Medical Officer's Retention in India.

Mr. PULLEY asked the Secretary for War whether he was aware that Captain Percy George Albert Bott, Royal Army Medical Corps, Staff College, Wellington, India, aged 42, who joined the army in September, 1917, and was immediately sent to Mesopotamia, mentioned in despatches, invalided to India in December, 1918, was still being detained in India, although he had applied on several occasions to be demobilised in order to resume medical practice in Kensington; and whether, having regard to the age and record of this officer, he would sanction his immediate release.—Mr. CHURCHILL replied: Every endeavour is being made to provide reliefs for temporary medical officers serving in India, who, as the reliefs arrive, are sent home in order of priority according to length of service, age, &c. Captain Bott will be returned to the United Kingdom in his turn. The attention of the authorities in India is again being drawn to this case.

Medical Pay in Voluntary Aid Hospitals.

On the motion for adjournment,

Mr. WATERSON called attention to the question of medical remuneration in voluntary aid hospitals. Nobody, he said, would doubt the sincerity and honesty of the medical profession in its patriotism and loyalty to the people who were sufferers, indirectly and directly, through the war. Many doctors went forward to the local auxiliary hospitals to give their services free, and incidentally, owing to those services, many patients were alive to-day who would otherwise have been in their graves. These members of the medical profession volunteered withou hope of reward, believing that they were doin their bit for their country, and many of them ha sacrificed hundreds of pounds, and in many cases the who of their businesses, in order to minister to the wants suffering humanity. After some considerable time a secr circular of a confidential character was issued by the Wa Office on June 16th, 1915, which allowed so much per die to the doctors in charge of voluntary aid hospitals. Th circular stated that it was not intended that the payme should be made unless asked for. The hospitals, &c., shoul not be informed of this authority. Such a circular was disgrace to the intelligence of the War Office and an insu to the medical fraternity. One or two gentlemen in who he was particularly interested had endeavoured to get satisfactory reply from the War Office, but had been completely ignored. THE LANCET on June 23rd, 1917, wrote "It may be that many medical officers of V.A.D. hospita are prepared to give their services gratuitously and to defra their out-of-pocket expenses ......" At this stage a count w called, and the requisite 40 members not being present th House stood adjourned.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg.-Cmdr. W. R. Trythall is placed on the retired list his own request.

Surgeon Lieutenant-Commanders to be Surgeon-Commanders: G. O. M. Dickenson, N. S. Meiklejohn, W. Hingston, R. H. St. B. E. Hughes, A. H. S. Richardso E. B. Kenny, F. J. Gowans, E. R. Townsend, J. C. Eringa G. L. Buckeridge, A. D. C. Cummins, T. W. Jeffery, P. Ramsay, G. D. Walsh, J. E. Johnston, F. Cock, B. Bickford, A. R. Davidson, F. G. Wilson, H. A. Kellon Knight, A. B. Cox, D. D. Turner, B. S. Robson, B. Pic J. H. McDowall, A. B. Marsh, J. M. Gordon, J. D. Ker L. C. Rowan-Robinson, G. Nunn, W. C. B. Smith, T. Blunt, G. E. Hamilton, W. T. Haydon, W. L. Hawkin L. F. Cope, H. B. Hill, H. M. Braithwaite, D. G. Addiso Scott, L. C. Hunt, P. M. Rivaz, J. R. A. Clarke-Hall, Cooper, J. McA. Holmes, E. D. Rutherford, R. Willa R. H. McGiffon, M. W. Haydon, E. L. Atkinson, Bourdas, L. Warren, L. L. Greig, E. Cameron, P. Minett, F. G. Goble, H. A. Browning, R. Connell, J. Barford, J. C. F. D. Vaughan, T. Creaser, H. M. Langdal W. H. Hastings, S. F. Dudley, W. W. D. Chilcott, C. Griffiths, G. P. Adshead, C. Ross, G. G. Vickery, H. Drennan, J. S. Austin, A. R. Fisher, W. H. Edgar, D. H. Given, G. Carlisle, G. T. Verry, G. B. Scott, F. H. Hol C. H. L. Petch, H. H. Babington.

Surgeon-Lieutenants to be Surgeon Lieutenant-Commanders: C. H. Symons, A. B. Clark, G. B. Cockren H. R. B. Hull, C. M. R. Thatcher, E. St. G. S. Goodwi G. D. G. Fergusson, R. J. Barlee, G. D. Macintosh, L. Mos J. A. O'Flynn, J. P. Shorten, A. R. Price, G. V. Hobb F. J. D. Twigg, G. E. D. Ellis, F. J. Burke, A. E. Malon H. M. Whelan, R. F. P. Cary, P. L. Gibson, G. A. Finega J. D. S. Higgins, J. G. Boal, F. St. B. Wickham, A. Henry, G. F. B. Page, A. J. Patterson, W. A. S. Duck, F. Wright, B. E. P. Sayers, A. Simpson, H. E. Y. Whit D. P. H. Pearson, I. S. Gabe, A. J. Tozer, P. B. Walli A. R. Sharrod, J. S. Elliot, A. E. Panter, G. S. Harve W. H. Murray, G. H. Hayes, H. C. A. Tandy-Cannon.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeon-Lieutenant to be Surgeon Lieutenant-Commande W. J. A. Quine.

ARMY MEDICAL SERVICE.

Col. E. M. Hassard, half-pay list, retires on retired pay.

Temp. Col. Sir H. Davy (Lieutenant-Colonel, R.A.M.C. T.F.) relinquishes his temporary commission on re-posting

Temp. Hon. Col. Sir P. J. Freyer (Surgeon Lieutenant-Colonel (ret.), Indian Medical Service) is granted the honorar rank of Colonel on ceasing to be re-employed.

ROYAL ARMY MEDICAL CORPS.

The undermentioned Lieutenant-Colonels relinquish th temporary rank of Colonel: Bt. Col. H. Ensor, S. de C O'Grady.

Lieut.-Col. H. Herrick relinquishes the acting rank o Colonel.

Majors R. K. White and F. E. Roberts relinquish the actin rank of Lieutenant-Colonel on ceasing to command Medica Units.

The undermentioned to be acting Lieutenant-Colonel whilst commanding Medical Units: Major and Bt. Lieut.-Col. M. G. Winder; Major R. C. Wilson; Temp. Majo W. H. G. Aspland.

Temp. Lieut.-Col. T. W. Griffith (Major and Bt. Lieut.-Col., .A.M.C., T.F.) relinquishes his temporary commission on -posting.

Major and Bt. Lieut.-Col. R. A. Bryden relinquishes the mporary rank of Lieutenant-Colonel on ceasing to mmand a Medical Unit.

Temp. Capt. A. C. Renton relinquishes the acting rank of ajor.

To be Captains: Capt. C. E. Petley, from T.F.; Capt. . K. Forbes, late R.A.M.C.; Temp. Capts. O. C. Link, cting Major) F. C. Tihbs, W. F. Hawkins.

Late temporary Captains to be temporary Captains: J. lliott, R. C. Phelps, D. R. C. Shepherd.

T. E. Dohhs to be temporary Captain.

Capts. L. C. Goument and V. J. Perez, from Special eserve, to be Lieutenant, and to be temporary Captain.

D. M. O'Dwyer and E. J. Hynes to be temporary ieutenants.

Officers relinquishing their commissions: Temp. Lieut.-ol. W. T. Prout retains the rank of Lieutenant-Colonel. emporary Majors retaining the rank of Major: W. F. Jones, . C. Stamberg (Surg.-Major, Med. Corps, R. Jersey Mila.), . M. Macmillan, F. B. G. Stahleford. Temp. Capt. and Bt. lajor J. S. Dunn retains the Brevet rank of Major. emporary Captains granted the rank of Major: H. arsons, H. C. Watson, R. H. Rollinson-Whitaker, (acting lajor) W. H. Fleetwood, G. Wilson, W. G. Mumford, . J. Dunlop; Temporary Captains retaining the rank of aptain: J. E. R. Laborda, W. H. Maling, J. C. Warwick, . E. Kitchen, P. Smith, W. K. MacDonald, A. L. Jackson, . J. McLaren, H. Joslen, G. Kirkhope, D. A. Evans, R. M. tewart, J. Walker, I. M. Byers, H. P. Caithness, A. Stokes, . L. Dunlop, J. G. Johnstone, G. M. Grundy, W. Montomery, G. M. Adam, H. H. Butcher, W. J. Olivey, C. H. lart, W. K. Anderson, D. Wood, H. H. Carleton, L. W. oberts, D. M. McGillivray, R. Nichol, J. W. W. Hewitt, . J. Stokes, H. Q. O. Wheeler, R. V. Powell, J. D. Evans, . H. Jones, E. A. Scott, W. F. Shanks, G. C. Linder, . L. Haslett, S. V. Telfer, A. Climie, P. R. Boswell, A. E. lodgkins, A. Wright, F. V. Cant, H. D. H. Willis-Bund, . D. Watson, J. A. Leiper, J. N. Martin, L. H. Terry, A. H. ichardson, A. H. Duckett, C. H. Edwards. Temporary lonorary Captains retaining the honorary rank of Captain: . H. Kagan, E. A. Cayo. Temporary Lieutenants retaining he rank of Lieutenant: E. S. Littlejohn, H. R. F. Towne, . Camphell, C. E. Pengelley.

SPECIAL RESERVE OF OFFICERS.

Captains relinquishing the acting rank of Major: H. C. ook, J. Inkster.

Lieutenants to be Captains: P. J. Corcoran, W. M. asper, W. H. Simmons, G. F. Peters, W. A. Hawes, R. A. lphert.

TERRITORIAL FORCE.

Majors (acting Lieut.-Cols.) J. M. Duncan, A. Milne-homson, and Capt. (acting Lieut.-Col.) P. T. Rutherford elinquish the acting rank of Lieutenant-Colonel on ceasing o be specially employed.

Captain (acting Major) H. H. B. Cunningham to be Major.

Captain (acting Major) J. H. Robinson relinquishes the ank of Major on ceasing to be specially employed.

Capt. G. S. Glass is seconded.

1st London Sanitary Company: Lieut. L. N. Duguid to be Captain.

4th London General Hospital: Capt. (acting Major) A. J. Jex-Blake relinquishes the acting rank of Major on ceasing to be specially employed and is restored to the establishment.

2nd Northern General Hospital: Capt. (acting Major) R. A. Veale relinquishes the acting rank of Major on ceasing to be specially employed.

3rd Southern General Hospital: Major G. S. Ahram is restored to the establishment.

ROYAL AIR FORCE.

Medical Branch.—Capt. (Bt. Major) F. C. Cowtan, R.A.M.C., is granted a temporary commission as Squadron Leader on seconding to the R.A.F.

The undermentioned Flying Officers to be Flight Lieutenants: S. E. Duff, A. Parker, T. D. J. A. Fuller, E. T. McElligott, D. C. Farquharson, J. T. T. Forhes, J. W. Healy, M. J. Smyth.

Capts. A. P. Woollright and V. T. Ellwood are transferred to the unemployed list.

Capt. H. N. Wright relinquishes his commission.

Capt. C. T. Costello relinquishes his commission and is permitted to retain his rank.

Dental Branch.—The undermentioned Flying Officers to be Flight Lieutenants: N. A. Goudge, W. Inman, L. S. Kettlewell, W. J. Singleton, J. Smith, J. Jones, J. Wren.

URBAN VITAL STATISTICS.

(Week ended Nov. 29th, 1919.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at 16,500,000 persons, the annual rate of mortality, which had been 13·4, 13·9, and 14·8 in the three preceding weeks, fell to 13·8 per 1000. In London, with a population slightly exceeding 4,000,000 persons, the annual death-rate was 14·3, or 0·4 per 1000 below that recorded in the previous week, while among the remaining towns the rates ranged from 6·2 in Lincoln, 6·4 in East Ham, and 7·1 in Swindon, to 19·4 in Hastings, 19·5 in Plymouth, and 19·7 in Gateshead and in Carlisle. The principal epidemic diseases caused 251 deaths, which corresponded to an annual rate of 0·8 per 1000, and comprised 77 from measles, 65 from diphtheria, 60 from infantile diarrhœa, 27 from whooping-cough, 20 from scarlet fever, and 2 from enteric fever. Measles caused a death-rate of 2·0 in Preston, 2·2 in Barnsley and in Gateshead, and 2·9 in Carlisle; scarlet fever of 2·9 in Carlisle; and diphtheria of 2·7 in Enfield. The 63 deaths from influenza were 16 below the number recorded in the previous week, and included 15 in London, 4 in Liverpool, and 3 each in Birmingham, Oldham, and Rochdale. There were 2940 cases of scarlet fever and 1603 of diphtheria under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, against 2820 and 1537 respectively at the end of the previous week. The causes of 41 deaths in the 96 towns were uncertified, of which 5 were registered in Birmingham and 3 each in London, Liverpool, St. Helens, Manchester, Preston, and Gateshead.

Scotch Towns.—In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2,500,000 persons, the annual rate of mortality, which had been 13·1, 12·6, and 18·6 in the three preceding weeks, fell to 15·0 per 1000. The 336 deaths in Glasgow corresponded to an annual rate of 15·7 per 1000, and included 8 from infantile diarrhœa, 4 from measles, and 3 each from scarlet fever and diphtheria. The 74 deaths in Edinburgh were equal to a rate of 11·5 per 1000, and included 3 from scarlet fever and 1 from diphtheria.

Irish Towns.—The 117 deaths in Dublin corresponded to an annual rate of 15·1, or 2·7 per 1000 below that recorded in the previous week, and included 1 each from scarlet fever and infantile diarrhœa. The 133 deaths in Belfast were equal to a rate of 17·3 per 1000, and included 10 from measles, 8 from scarlet fever, 2 each from diphtheria and infantile diarrhœa, and 1 from enteric fever.

Communications, Letters, &c., to the Editor have been received from—

A.—Mrs. V. B. Alvarez, New York; Prof. J. G. Adami, C.B.E., Liverpool.

B.—Dr. C. H. Bond, Lond.; Mr. F. G. Brown, Lond.; British Temperance League, Sheffield; Dr. H. Barber, Derby; Dr. S. Barwise, Derby; Dr. V. Borland, Lond.; Dr. N. Bardswell, Lond.; Prof. A. E. Boycott, Lond.; Mr. C. W. G. Bryan, Lond.; Dr. J. Blomfield, Lond.

C.—Dr. H. Campbell, Lond.; Dr. F. G. Crookshank, Lond.; Dr. P. J. Cammidge, Lond.; Dr. H. P. Cholmeley, Forest Row.

D.—*Discovery*, Lond., Editor of; Dr. N. S. Deane, Christchurch; Dr. W. T. G. Davidson, Glasgow; Mr. L. I. Dublin, New York; Messrs. Davis and Soper, Lond.; Col. J. R. Dodd, A.M.S., Bournemouth.

E.—Mr. G. S. Elliston, Lond.; Mr. C. St. Endellion-Wiliams, Rio de Janeiro.

F.—Dr. A. T. W. Forrester, Narborough; Factories, Chief Inspector of, Lond.

G.—Dr. W. E. Gye, Lond.; Dr. L. Grant, Ballachulish.

H.—Dr. A. J. Hall, Sheffield; Dr. C. G. Havell, Felixstowe; Capt. C. R. Harrison, R.A.M.C.(T.); Mr. P. B. Hoeber, New York; H. H. B.; Dr. C. T. W. Hirsch, Lond.; Dr. A. F. Hurst, Lond.; Hospital for Women, Lond., Sec. of; Mr. F. L. Hoffman, Newark; Prof. W. D. Halliburton, Lond.

I.—Dr. E. C. B. Ibotson, Corris.

J.—*Journal of Cancer*, Lond.

K.—Dr. J. Kirkland, Lond.; Mr. J. P. Kruseman, The Hague; Dr. A. Kidd, Gravesend.

L.—Livingstone College, Lond., Principal of; League of the Red Cross Societies, Geneva.

M.—Dr. E. D. Macnamara, Lond.; Medical Research Committee, Lond.; Sir J. Y. W. MacAlister, Lond.; Dr. J. A. Murray, Lond.; Capt. D. McKelvey, R.A.M.C.; Ministry of Health, Lond., Sec. of; Dr. M. Molony, San Francisco; Dr. H. A. Macewen, Lond.; Dr. P. Manson-Bahr, D.S.O., Lond.

N.—National Society for the Prevention of Cruelty to Children, Lond.

P.—Sir D'Arcy Power, K.B.E., Lond.; Mr. W. Platt, Lond.; Capt. J. Pickering; Dr. W. A. Potts, Edgbaston; Major G. S. Parkinson, R.A.M.C., Gibraltar; *Pathologica*, Genoa, Editor of.

R.—Mr. H. M. Rainsford, Lond.; Royal Society, Lond.; Rockefeller Institute for Medical Research, New York; Mr. P. Rons, New York; Mr. W. Rice, Lond.; Robin Society, Lond., Chairman of; Mrs. A. Richardson, Lond.

S.—Prof. W. Stirling, Manchester; Société de Biologie, Paris; Mr. N. Schuster, Lond.; H.M. Stationery Office, Lond.; Dr. R. Sevestre, Leicester; Dr. G. E. Shuttleworth, Lond.

T.—Dr. I. Tewfik, Rochester; Sir John Tweedy, Lond.; Mr. T. H. Turner, Bury; Dr. C. J. Thomas, Lond.

V.—Mr. R. M. Vick, Lond.

W.—Mr. H. L. Whale, Lond.; Dr. J. D. Wynne, Norwich; Dr. F. J. Wethered, Falmouth; Dr. R. McN. Wilson, Lond.

Communications relating to editorial business should be addressed exclusively to the Editor of THE LANCET, 423, Strand, W.C. 2.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY, Burlington House, London, W.

Thursday, Dec. 11th.—Colonel C. F. U. Meek: A Further Study of Chromosome Dimensions (communicated by Prof. S. J. Hickson).—Mr. J. M. H. Campbell, Mr. C. G. Douglas, and Mr. F. G. Hobson: The Respiratory Exchange of Man during and after Muscular Exercise (communicated by Dr. J. S. Haldane).—Dr. A. D. Waller: The Energy Output of Dock Labourers during Heavy Work.—Mr. C. H. Usher: Histological Examination of an Adult Human Albino's Eyeball, with a Note on Mesoblastic Pigmentation in Fœtal Eyes (communicated by Prof. K. Pearson).—Mr. J. Gray: The Relation of Spermatozoa to Certain Electrolytes. II. (communicated by Prof. J. S. Gardiner).

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Monday, Dec. 8th.

WAR (Hon. Secretaries—H. B. Hill, Oliver Robinson, J. McIntyre): at 5.30 P.M.

Paper:

General Sir John Goodwin, K.C.B., C.M.G., D.S.O.: Prevention of Disease on Active Service.

Tuesday, Dec. 9th.

PSYCHIATRY (Hon. Secretaries—Bernard Hart, G. F. Barham): at 5.30 P.M.

Paper:

Dr. Henry Devine: Observations on the Psychogenetic Psychoses.

Thursday, Dec. 11th.

NEUROLOGY (Hon. Secretaries—P. W. Saunders, George Riddoch): at 8.30 P.M.

Clinical Meeting.

Demonstration of Cases illustrating Certain Late Effects of Injuries of the Nervous System.

SURGERY.—Members of this Section are specially invited to attend this Meeting.

Friday, Dec. 12th.

CLINICAL (Hon. Secretaries—T. P. Legg, S. A. K. Wilson): at 5 P.M.

Mr. C. Firmin Cuthbert (Gloucester) will read a short paper.

Cases will be shown.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

Monday, Dec. 8th.—8.30 P.M., Papers:—Prof. A. Keith: The True Nature of the Condition known as Multiple Exostosis.—Dr. B. H. Spilsbury: The Medico-Legal Significance of Hæmorrhage.

ROYAL SOCIETY OF ARTS, John-street, Adelphi, W.C.

Monday, Dec. 8th.—8 P.M., Cantor Lecture:—Dr. J. T. Hewitt: Synthetic Drugs. (Lecture II.)

HARVEIAN SOCIETY, at the Medical Society's Rooms, 11, Chandos-street, Cavendish-square, W.

Thursday, Dec. 11th.—8.30 P.M., Address:—Sir James Galloway: The External Signs of Certain Internal Diseases.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.

Thursday, Dec. 11th.—5 P.M., Bradshaw Lecture:—Sir Charles A. Ballance, K.C.M.G., C.B., M.V.O.: The Surgery of the Heart.

ROYAL INSTITUTE OF PUBLIC HEALTH, in the Lecture Hall of the Institute, 37, Russell-square, W.C.

Course of Lectures on Housing Problems and Town Planning in Relation to Public Health.

Wednesday, Dec. 10th.—4 P.M., Lecture VII.:—Dr. S. G. Moore: Housing in Relation to Maternity and Child Welfare.

Course of Instruction for Candidates as Tuberculosis Officers, General Practitioners, and others. Bacteriological Demonstrations will be given in the Laboratories of the Institute, and visits arranged to Sanatoriums, Tuberculosis Dispensaries, &c.

Thursday, Dec. 11th.—5 P.M., Lecture X.:—Dr. H. H. Thomson: The Diagnosis and Treatment of Tuberculosis in Relation to Public Health.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.

Wednesday, Dec. 10th.—4.30 P.M., Lecture:—Dr. A. C. Inman: Types of Tubercle Bacilli.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, W.C. 1.

MEDICAL SCHOOL.

Monday, Dec. 8th.—2-3.30 P.M., Out-patient Clinic: Dr. Collier. 3.30 P.M., Lecture:—Mr. Paton: Papillœdema. II.

Tuesday, Dec. 9th.—2-3.30 P.M., Out-patient Clinic: Dr. Grainger Stewart. 3.30 P.M., Ward Cases: Dr. Risien Russell.

Wednesday, Dec. 10th.—2 P.M., Lecture:—Dr. Grainger Stewart: Symptoms of Disease of the Pituitary Gland. 3.30 P.M., Dr. Gordon Holmes: Demonstration of Case of Cerebellar Disease.

Thursday, Dec. 11th.—2-3.30 P.M., Out-patient Clinic: Dr. Farquhar Buzzard. 3.30 P.M., Lecture:—Dr. S. A. Kinnier Wilson: Involuntary Movements.

Friday, Dec. 12th.—2-3.30 P.M., Out-patient Clinic: Dr. Gordon Holmes. 3.30 P.M., Ward Cases: Dr. Aldren Turner.

Fee for Post-Graduate Course £5 5s. C. M. Hinds Howell, Dean.

NATIONAL HOSPITAL FOR DISEASES OF THE HEART POS GRADUATE COURSE, Westmoreland-street, W.

Monday, Dec. 8th.—11 A.M., Out-patients: Dr. Goodall. 2 P. In-patients: Dr. Moon.

Tuesday.—2 P.M., Out-patients: Dr. R. Wells. 2.30 P.M., patients: Dr. Gibbes.

Wednesday.—2 P.M., Out-patients: Dr. Moon. 5.30 P. Lecture:—Dr. Gibbes: Heart Affections in Relation Pregnancy, &c.

Thursday.—10 A.M., In-patients: Dr. Hamill 2 P.M., O patients: Dr. Price.

Friday.—2 P.M., Out-patients: Dr. Gibbes. 2.30 P.M., In-patien Dr. Wells.

Saturday.—10 A.M., In-patients: Dr. Hamill.

WEST END HOSPITAL FOR DISEASES OF THE NERVO SYSTEM, 73, Welbeck-street, W.

Wednesday, Dec. 10th.—5 P.M., Savill Memorial Lecture Dr. Harry Campbell: The Integration and Disintegrati of the Mental Personality.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE CLINI

Tuesday, Dec. 9th.—4.30 P.M., Lecture:—Mr. A. Wilson: To Symptoms of Salvarsan.

Appointments

Successful applicants for vacancies, Secretaries of Public Institutio and others possessing information suitable for this column, a invited to forward to THE LANCET *Office, directed to the Su Editor, not later than 9 o'clock on the Thursday morning of ea week, such information for gratuitous publication.*

BRYAN, C. W. G., M.C., F.R.C.S., has been appointed Surgeon Out-patients at the Hampstead General and North-West Lond Hospital.

SPILSBURY, B. H., M.B., B.Ch. Oxon., Lecturer on Morbid Anato and Histology at the Medical School of St. Bartholomew Hospital.

TANGYE, C. E., M.D., B.S. Lond., Chief School Medical Officer a Medical Officer of Health for Wilts.

St. Thomas's Hospital: BROCKMAN, E. P., M.R.C.S., L.R.C. CARDELL, J. D. M., M.R.C.S., L.R.C.P., HIGGINS, L. G., M. B.Ch. Cantab., MOOR, F., M.R.C.S., L.R.C.P., POTTER, A. M.R.C.S., L.R.C.P., SHOWELL ROGERS, E. N., M.B., B.C Cantab., SMART, A. J. H., M.B., B.Ch. Cantab., STORMER, H. M.R.C.S., L.R.C.P., Casualty Officers and Resident Anæ thetists; ECCLES, C. Y., M.R.C.S., L.R.C.P., FOREST SMITH, M.R.C.S., L.R.C.P., PROCTER, R. A. W., M.R.C.S., L.R.C. WHITCOMBE, R. C. P., B.A. Cantab., M.R.C.S., L.R.C.P., Res dent House Physicians; EVANS, H. S., M.R.C.S., L.R.C. FRIEDLANDER, H. R., M.R.C.S., L.R.C.P., WALKER, J. P., M.B., Ch.B. Oxon., WAYTE, J. W., M.R.C.S., L.R.C.P., Reside House Surgeons; RYAN, J. F., M.R.C.S., L.R.C.P., Hou Surgeon to Block 8; BIGGER, W. G., M.B., B.Ch. Canta RICHARDSON, A. H., M.B., B.C., Obstetric House Physician DICKSON, D. McM., M.R.C.S., L.R.C.P., Ophthalmic Hou Surgeon.

Salford Royal Hospital: GHOSH, J., F.R.C.S. Irel., D.P.H. Dub L.M. Rotunda; HELM, W. A., M.B., Ch.B. Manch., Anæsthetist

Certifying Surgeons under the Factory and Workshop Acts HUTTON, T. O., M.B. Toronto (King's Lynn); MILLS, F. C M.B., Ch.B. Edin. (Hipperholme); HALE, E. R. S., L.R.C.P. S. Edin., L.R.F.P.S. (Ashford); DONALD, H. C., M.B., C.M. Glas (Paisley); CLEMENTS, M. A., M.B., B.Ch. N.U.I. (Tinahely).

Vacancies.

For further information refer to the advertisement columns.

Ayr County Hospital.—Res. H.S. £120.

Belfast District Asylum.—Two Asst. M.O.'s. £300.

Bermondsey Dispensary for Prevention of Consumption, 108, Grange road, S.E.—Asst. M.O. £400.

Birmingham, Ministry of Pensions.—M.O. £700.

Birmingham, Queen's Hospital.—Two H.P.'s, H.S., and Cas. H.S £90.

Bolingbroke Hospital, Wandsworth Common, S.W.—H.S. £150 Secretary. £300. Hon. Radiographer and Medical Electrician.

British Honduras.—Asst. M.O. $1900.

Cancer Hospital (Free), Fulham-road, S.W.—Surg. Reg. £100.

Cardiff, King Edward VII.'s Hospital.—H.S. £200.

Central London Ophthalmic Hospital, Judd-street, W.C.—Path. £75

Chelmsford, Essex County Council.—Asst. County M.O.H. £600.

Chelsea Hospital for Women, Arthur-street, Chelsea, S.W.—Anæsth. £42.

City of London Hospital for Diseases of the Chest, Victoria Park, E H.P. £100.

Cockermouth Board of Guardians.—M.O.'s. £80 and £50. M.O.H.'s £70 and £450.

Colchester, Essex County Hospital.—H.P. and H.S. £200.

Croydon County Borough.—Res. M.O. for the Sanatorium, North Cheam, Surrey. £525.

Darlington County Borough.—Asst. M.O.H. and Asst. Sch. M.O. £450.

Dartford Urban District Council.—M.O.H. £700.

Dorchester, Dorset County Council.—Asst. County M.O. £400.

Dumfries, Crichton Royal.—Asst. P. £350.

Dumfries and Galloway Royal Infirmary.—Res. H.S. £150.

Durham County and Sunderland Eye Infirmary.—H.S. £450.

Durham County Council.—Dis. Tuberc. M.O. £600.

East London Hospital for Children and Dispensary for Women, Shadwell, E.—Pathol. and Reg. £200.

General Lying-in Hospital, York-road, Lambeth.—Res. M.O. £100.

Glasgow, Scottish Western Asylums' Research Institute.—Director. £600.

loucestershire Joint Committee for Tuberculosis.—Asst. Tuberc. M.O. £500.

loucestershire Royal Infirmary and Eye Institution.—Ophthal. S.

alifax, Royal Infirmary.—H.S. £200.

ampstead General and North-West London Hospital.—Cas. O. £150.

uddersfield County Borough.—Female Asst. M.O.H. £400.

ensington Royal Borough.—M.O.H. £800.

eeds City Hospitals for Infectious Diseases, Seacroft.—Asst. M.O. £300.

eeds Public Dispensary.—Res. M.O. £200.

iverpool, Royal Southern Hospital.—Non-Res. Path. and Bact. £150.

ondon Lock Hospital, 283, Harrow-road, W.—Reg.

ondon Temperance Hospital, Hampstead-road, N.W.—Hou. Dent. S. Cas. O. £120.

acclesfield, Cheshire County Asylum.—Asst. M.O. £300.

aidstone, Kent County Ophthalmic Hospital.—Hon. Aural S.

anchester, St. Mary's Hospitals for Women and Children.—H.S. £100.

etropolitan Hospital, Kingsland-road, E.—H.P. and H.S. £100. Asst. H.P. and Asst. H.S.

iller General Hospital for South-East London, Greenwich-road, S.E.—Sen. Res. M.O. £350.

ational Temperance League's Science and Education Committee, Paternoster House, E.C.—Medical Secretary.

ewcastle-upon-Tyne, Hospital for Sick Children.—Junior Res. M.O. £200.

ottingham General Hospital.—Cas. H.S. £150.

ldham County Borough.—Asst. Tuberc. O. £390.

ldham Royal Infirmary.—Third H.S. £200.

eading, Royal Berkshire Hospital.—Senior Res. M.O. £350.

ochester, St. Bartholomew's Hospital.—Res. H.S. £300.

oyal College of Physicians, Pall Mall, East.—Milroy Lecturer.

oyal Free Hospital, Gray's Inn-road, W.C.—First H.P., Second H.P., and Anæsth. £50.

oyal Waterloo Hospital for Children and Women, S.E.—Hon. Oph. S. Sen. and Jun. Res. M.O. £150 and £100 each.

t. Albans, Herts County Asylum, Hill End.—Second Asst. M.O. £400.

t. Helens County Borough.—Asst. M.O.H. £400.

t. Marylebone Infirmary.—Consulting Ophth. S. £100.

alford Royal Hospital.—Cas. H.S. £150.

ingapore, Straits Settlements.—Med. Supt. Infectious Diseases Hospital. $7200 (£840).

outhport General Infirmary.—Sen. H.S. £250.

outhwark Union Infirmary, East Dulwich-grove, S.E.—Asst. M.O. £350.

tafford, Staffordshire County Council.—Deputy County M.O.H. £700.

tafford, Staffordshire Education Committee.—Asst. Sch. Med. Inspectors. £450.

urrey, Virginia Water, Holloway Sanatorium (Hospital for the Insane).—Jun. Asst. M.O. £300.

wansea County Borough.—Asst. M.O. £450.

niversity of London, South Kensington, S.W.—University Chair of Pathology. £800.

entnor, Isle of Wight, Royal National Hospital for Consumption and Diseases of the Chest.—Asst. Res. M.O. £200.

ictoria Hospital for Children, Tite-street, Chelsea, S.W.—Sen. Res. M.O. £250.

est-End Hospital for Nervous Diseases, 73, Welbeck-street, W.—H.P. £200. Hon. Clin. Assts. and P. to Out-patients.

est Ham Union Infirmary, Whipps Cross-road, Leytonstone, E. Radiographer.

hittingham, Preston, Lancs, County Asylum.—Asst. M.O. £300.

HE Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Ipswich, Steyning, Workington, and at Whithorn.

Births, Marriages, and Deaths.

BIRTHS.

ARDEW.—On Nov. 25th, Nora, wife of A. Barrett Cardew, M.C., F.R.C.S.E., Overbury, Charlton Kings, Cheltenham, of a daughter.

DAVIES.—On Nov. 22nd, at Charlemont, Oakcroft-road, Lewisham, to Violet (née Aked), the wife of Arthur Davies, M.D., M.R.C.P.—a son.

RICHARD.—On Nov. 26th, at Gibraltar, the wife of Major G. H. Richard, R.A.M.C., of a son.

WATT.—On Nov. 25th, at Littleworth, Egmont-road, Sutton, the wife of James Watt, M.D., Downs Sanatorium, of a daughter.

MARRIAGES.

HAINES—BURKE.—On Nov. 20th, at the Parish Church, Stratford-on-Avon, John Finch Haines, M.D., Dartmouth-park, N.W., to Alice Evelyn, eldest daughter of the late James Marlow Burke, Mem. Inst. C.E., and Mrs. Burke, of West End, Mallow, Co. Cork.

HAMILTON—LEWIS.—On Oct. 22nd, at the Catholic Church, Taganrog, South Russia, Captain Charles S. P. Hamilton, D.S.O., R.A.M.C., to Helen, only daughter of the late James Lewis and Mrs. Lewis, of Petrograd.

SCOTT—WEST.—On Nov. 26th, at Holy Trinity Church, Northwood, Middlesex, Captain Donald Charles Scott, R.A.M.C., to Marjorie Grace Holborn, second daughter of J. Walter West, R.W.S., and Mrs. West, of the Vane, Northwood.

WARE—LAMBERT.—On Nov. 19th, at the Church of St. Mary and St. Paul, Jersey, Major G. W. Ware, D.S.O., R.A.M.C., to Marie, only child of the late Monsieur Eloi Lambert, of Liège, Belgium.

DEATHS.

GRAY.—On Nov. 23rd, at Auckland-hill, West Northwood, S.E., William Harrington Gray, Captain, R.A.M.C., aged 43 years.

HORSFORD.—On Nov. 25th, at Studleigh House, Manor-road, Twickenham, Joseph Alphonsus Horsford, M.R.C.S., L.R.C.P.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

SYNTHETIC DRUGS.

Abstract of First Cantor Lecture, delivered at the Royal Society of Arts

By Professor J. T. HEWITT, F.R.S.

THE number of synthetic drugs introduced in recent years is remarkable, as was plainly evidenced in the opening lecture delivered upon the subject at the Royal Society of Arts on Dec. 1st by Professor J. T. Hewitt. In attempting to give an adequate account of synthetic drugs in a course of three lectures the lecturer said that it would none the less be necessary to set limits regarding the matters considered. The term, synthetic drug, he went on to say, implied that a substance is artificially produced, and that it finds a use in medicine, so that numerous fairly simple compounds could be logically included. Common usage, however, has restricted the term to more or less complex carbon compounds, which are prepared either by truly synthetic methods (e.g., veronal) or by modifying the structure of naturally occurring compounds by oxidation, reduction, acetylation, alkylation, and so forth. Accepting this generally implied meaning, there should be included on the one hand simply constituted compounds like chloroform and ethyl chloride, and on the other complicated compounds such as di-acetyl-morphine. The method of preparation of the simpler compounds was well known.

Their Classification on Therapeutic or Chemical Basis.

The subject may be classified either on the lines of systematic organic chemistry approaching the members of one class of compounds at a time, or the various substances can be arranged according to the effect produced by their employment, considering disinfectants in one group, hypnotics in another; this is the course which has been most generally followed. In adopting a classification based on chemical considerations, the survey of the subject is rendered more systematic, and that plan the lecturer, who is a chemist, followed. Dismissing the fact that small amounts of the paraffins and olefines themselves (the aliphatic hydrocarbons) have no very pronounced action on the organisms, it was pointed out that their halogen derivatives have in many cases well-marked anæsthetic properties. Ethyl chloride, methylene chloride, chloroform, carbon tetrachloride, ethyl chloride ethylene di-chloride, di-chloro-ethylene, were referred to as examples. The bromine and iodine derivatives were next alluded to as bromoform, ethyl bromide, and iodoform. Next were considered the halogen derivatives of the higher alcohols, as, for example, isopral (trichloro-iso-propyl alcohol) used as an hypnotic and chloretone (tri-chloro-butyl alcohol) which, besides possessing hypnotic properties, acts also as a local anæsthetic, analgesic, and antiseptic. Then there were brometone with hypnotic and analgesic properties and employed in sea-sickness, and tertiary amyl alcohol (amylene hydrate), a hypnotic intermediate in its action between chloral hydrate and paraldehyde.

Aldehydes and Ketones.

Coming to the aldehydes, it was pointed out that these were formed by the oxidation of primary alcohols, the two simplest finding extensive application in medicine. Formaldehyde and its polymer, paraformaldehyde, were mentioned and their method of preparation. The consideration of the formation of these compounds by synthetic methods led to an account of hexamethylene tetramine (formamine, hexamine, aminoform, urotropin, cystamin, formin, metramin, urisol, uritone, vesalvine, xametrin). Its synthesis was described in detail and a list of salts and addition products arising therefrom given. The lecturer proceeded next to the ketone derivatives, which include the sulphonals, the starting-point of which is acetone. Following this synthesis come trional and tetronal, all sulphonated derivatives. The fatty acid series next claimed the lecturer's attention, who said that while the acids themselves could be neglected, the formates were obtained synthetically from carbon monoxide and acetic acid, and the conversion of these acids into other substances was of interest. There were, for instance, the halogen derivatives of valeric acid (bromural and iodinal), used respectively in bromine and iodine administration as halogen carriers to the organism in the place of ordinary bromides and iodides, spoken well of in nervous troubles. Following these were neuronal, sabromin, and saiodin. Details were given as to the elaboration of these products, starting with the glyceride of oil of hemp-seed (erucic acid as a basis. The products were described as halogenated behenic acids.

Cyclic Derivatives of Carbamide (Urea).

Veronal was then taken as typical of the cyclic derivatives of carbamide (cyclic ureides). The parent substance, barbituric acid or malonyl urea, was originally obtained from products of the action of nitric acid on uric acid. Examples were given illustrating the extensive research which led to the output of a series of hypnotics useful under the guidance of the physician, but dangerous, as events have proved, when left to be freely purchased by the public. The inclusion of this class of chemical products in the Poisons Act precludes their open sale, and has reduced fatalities from poisoning in this direction. The lecture concluded with an account of the derivatives of cyclic alcohols, of which borneol, menthol, and santalol are representatives in medical use. The methods by which these higher cyclic alcohols are converted into salts (esters) were described, an interesting series being the santalyl group. The structure of the synthetics was illustrated by constitutional formulæ.

THE ROBIN SOCIETY.

THE Robin Society is unsectarian, and has for its double object the provision of free meals, particularly at Christmastide, and a holiday in the summer for the poorest children in the metropolis. We learn from the thirty-eighth annual report (1918–19) that 6500 children were entertained during the winter, and 250 sent for a week at the seaside during the summer. In addition to financial support, the society asks for clothing (old or new), boots in particular, and games. The official address is 421, New Cross-road, London, S.E., and the Bankers are London County Westminster and Parr's Bank Ltd., Deptford Branch.

FAILURE TO PROVIDE SPECTACLES TREATED AS PARENTAL NEGLECT.

AN unusual case was recently heard by the Bootle bench of magistrates, when the father of a school girl, aged 9 years, was summoned under the Children Act, 1908, on the ground that he "did wilfully neglect her in such a manner as to cause unnecessary suffering and injury to health." It was stated by an inspector of the N.S.P.C.C., who prosecuted, that the school doctor had certified the necessity of spectacles. Defendant had been written to, called upon by the inspector, and urged in every way to provide the glasses, but had refused to do so. Dr. R. E. Harcourt said that he had examined the child in the school clinic, and found her so short-sighted as only to be able to read three lines on the 6-metre chart. Neglect to provide glasses had undoubtedly caused the girl unnecessary suffering. She would not be able to see the blackboard without straining her eyes, and in trying to do so might suffer from headache and pain in her eyes. The defendant contended that if he had the girl in court he could prove that her eyes were as good as his own. He was convicted and fined 40*s*., plus the costs of the society and the cost of the summons.

This appears to be the first conviction for failing to provide spectacles, a fact the more remarkable as in London, at all events, parents frequently refuse to carry out the instructions of the school doctor in this respect without external pressure. During the last year three women inspectors of the N.S.P.C.C. have been constantly engaged in seeing that London school children actually get the treatment prescribed for them. 159 cases of defective sight were reported to them up to the time of issue of the society's last annual report. It speaks well for the persuasive powers of these inspectors that no appeal to the court has been necessary in these cases. Evidently the great majority of parents, when warned, make proper provision.

AN HISTORIC CASE OF INSTRUMENTS.

THE case of surgical instruments, which belonged to Dr. David Livingstone and was brought with his body from Central Africa to the east coast by his faithful natives in 1873–4, will be exhibited at the Museum of the Royal College of Surgeons of England during December and January. The case is of mahogany with brass fittings, and contains amputating knives, saws, bone-forceps, scalpels, lancet, artery-forceps, aneurysm-needle, tourniquet, bullet-forceps, various trephining instruments, trocar and cannula, dental key, silver catheters, &c. A few instruments are missing.

The authenticity of this relic of the great missionary-explorer is attested by a manuscript, of which the following is a copy:—

> "Case of surgical instruments, the property of the late David Livingstone, the African explorer, and presented to me by Dr. Oswald Livingstone, the traveller's only surviving son. This case was bought in 1865 by Dr. Livingstone of Messrs. Hilliard of Glasgow, who made and fitted it to his order. It was used by him in his travels in Africa, and was sent back along with his other property from that country in 1874, when the doctor's remains were brought to England. I hereby certify to the correctness of the above statement and the card attached was my father's visiting card. (Signed) W. OSWALD LIVINGSTONE, M.B., C.M.
>
> W. M. Dunlop, Oct. 15th, 1885."

The case has been acquired from Dr. Dunlop, a former fellow-student of the explorer's son in Glasgow, by Dr. Claude Chidell, and will ultimately be presented to the London Missionary Society, which originally sent Livingstone to Africa. Dr. W. Oswald Livingstone went to Africa to inquire about his father's body, and on his return was given a medical appointment in Trinidad by Lord Granville. He returned to England in bad health, and settling at St. Albans died there in 1889.

THE CONQUEST OF THE ATLANTIC BY AIR.

EXTRAORDINARY care has to be devoted to every detail in the equipment of aeroplanes and airships for such undertakings as Transatlantic flight. Messrs. Burroughs and Wellcome are therefore justified in calling gratified attention to the fact that every aeroplane, seaplane, and airship which has crossed, or attempted to cross, the Atlantic was equipped with "Tabloid" First-aid.

A FIFTEENTH-CENTURY PRESCRIPTION.

To the Editor of THE LANCET.

SIR,—Dr. Cholmeley is so good an authority upon medical history that it seems almost an impertinence to criticise anything he says. Yet I would venture to refer him to the Sydenham Society's Lexicon, where he will find that "Manus Christi" was a name formerly given to lozenges made of sugar and rose-water.—I am, Sir, yours faithfully,

S. D. CLIPPINGDALE.

Holland Park-avenue, W., Nov. 29th, 1919.

PROFITEERING AND MEDICAL FEES.

To the Editor of THE LANCET.

SIR,—In reference to your note this week under Medicine and the Law, and with this title, I would remark that, when doctors by reason of their profession become necessary witnesses in legal proceedings, they naturally desire some remuneration for time lost. It is open to them to decline to treat a patient who they think may after recovery subpœna them as witnesses. If he is not an insured person on their list they cannot be compelled to attend him. This, however, involves hardship to the patient, who is then left to seek aid at a hospital, to be followed perhaps by medical evidence from the same source. There again hardship and difficulty arise. The hospital is a charitable institution at which those who can obtain admission are medically treated without charge. It is not maintained with the object of providing witnesses in claims for compensation for injuries, and the plaintiff in a humble station may find it far from easy to secure from a hospital the witness whom his case requires. Unfortunately, although the situation involves hardship for the medical man and for persons in a humble position justly entitled to damages for injury, it is difficult to suggest a remedy.—I am, Sir, yours faithfully,

Nov. 29th, 1919. MEDICO-LEGAL.

AN EXTRA SUGAR RATION FOR ONE-YEAR-OLDS.

AN Order has been issued by the Ministry of Health providing for an extra sugar ration of four ounces per week to certain infants attending welfare centres. Artificially fed babies between the ages of 6 and 18 months are eligible for the ration on certificate from the medical officer or superintendent of the centre. The extra sugar is to be sold to the mother at the ordinary price and under various safeguards against abuse, as the amount available for distribution is limited. It might have been helpful to the officers of welfare centres if the conditions for which the extra ration is recommended had been indicated.

The extra allowance is probably intended as a cold season ration, when the heat of the body requires to be specially maintained, and a plentiful supply of food of the "fuel" order is indicated. It must be remembered that sugar efficiently replaces fats, of which certain are still rare—e.g., butter-fat and animal fats generally containing accessory food factors. The increased ration is probably based to some extent on these facts.

THE LANCET: SUBSCRIPTION RATES.

INLAND	One Year	£1 16 0
	Six Months	0 18 0
	Three Months	0 9 0
ABROAD	One Year	£2 0 0
	Six Months	1 0 0
	Three Months	0 10 0

Subscriptions may commence at any time, and are payable in advance. Cheques and P.O.'s (crossed "London County Westminster and Parr's Bank, Covent Garden Branch") should be made payable to Mr. CHARLES GOOD, THE LANCET Offices, 423, Strand, London, W.C. 2

ADVERTISEMENT RATES.

Books and Publications ... ... Official and General Announcements Trade and Miscellaneous Advertisements	Four Lines and under... ... 4*s*. 0*d*.

Every additional line, 9*d*.

Quarter Page, £2. Half a Page, £4. Entire Page, £8.

Special Terms for Position Pages.

Considerations
ON
EMPYEMA.

A Presidential Address delivered before the Leicester Medical Society on Oct. 8th, 1919,

BY ROBERT SEVESTRE, M.D. CANTAB.,
HONORARY PHYSICIAN, THE ROYAL INFIRMARY, LEICESTER.

GENTLEMEN,—For my address this evening I wish to bring before your notice some considerations on empyema. It is a subject to which a good deal of attention has been paid of late, for there are many problems of its pathology that are waiting to be answered, and though the general principles of treatment are clear, yet some of the modifications of the accepted treatment recently introduced are well worth considering. It is an important subject, for the mortality is higher than one would expect. In a series of cases at St. Bartholomew's Hospital extending over a period of 20 years the mortality worked out at 22·2 per cent. In a recent report of cases at an empyema camp in America it was found to be 27 per cent. Further, the length of time before complete recovery takes place is often considerable, and not infrequently deformity results from the falling in of the chest wall, which of itself may lead to changes which shorten the span of life.

The cause of empyema, is in the majority of cases, fairly evident; it is usually associated with some morbid condition affecting the lung or a neighbouring structure, or it may be part of general hæmic infection; but quite apart from these causes, there are cases in which the condition appears to be primary and may be overlooked.

THE DIAGNOSIS OF EMPYEMA.

The final diagnosis rests upon the withdrawal of pus by an exploring needle, and there should be no hesitation in exploring when there is any suspicion of pus in the pleural cavity. The diagnosis must be made as soon as possible as surgical procedures in the presence of long-standing sepsis are a source of increased danger. The deposit on the surface of the lung from the exudate and the formation of adhesions, if left unduly long, will hinder the expansion of the lung and delay recovery, and consequent changes in the lung itself may lead to permanent deformity.

The character of the fluid withdrawn by the exploring needle should be carefully noted, a smear preparation made at once for microscopic examination and a portion put aside for bacteriological investigation. The naked-eye appearance of the fluid varies considerably, and it may be a very difficult matter to decide whether the fluid is an unusually opaque sero-fibrinous exudate or a thin sero-purulent fluid. The fluid may have the usual appearance of pus, yellow or slightly greenish, it may be blood-stained, it may be stinking. Sometimes the fluid is almost limpid in character; at other times it is thick and glutinous. Occasionally it is sero-purulent, and it is in this class of case that the difficulty of making a differential diagnosis between a purulent or non-purulent fluid may arise. Moreover, in this connexion it is worth bearing in mind that sedimentation may take place inside the chest, and if the exploring needle has withdrawn some of the upper layer of fluid the actual condition present may be missed.

The examination of the smear preparation shows the presence of polymorphonuclear cells in stages of degeneration and in great abundance. A few lymphocytes may be present, and I have seen an occasional endothelial cell, but polymorph cells, lymphocytes, and endothelial cells may be present in other effusions, so that the diagnosis should not rest entirely upon the character of the cells alone; the clinical findings and the other characters of the fluid must be taken into consideration. Information obtained from bacteriological investigation is important, and is often of assistance in forming a prognosis, and in deciding the line of treatment to be adopted.

In purulent effusions many varieties of micro-organisms have been found. They may be in pure culture, or the case may be one of mixed infection in which several varieties are present. The pneumococci and the streptococci are the forms commonly present. The staphylococcus by itself is unusual, and is more often seen in a mixed infection. Many other varieties have been found, such as the ubiquitous colon bacillus. Typhoid bacillus is rare. The influenza bacillus of Pfeiffer may be expected when an epidemic of that disease is present. Actinomycosis has also been described.

Members of the anaerobic group of bacilli are not common in the empyema met with in civil practice, but in examples of infected hæmothorax they are frequent. The tubercle bacillus is found more often in sero-fibrinous effusions than in purulent, and when present is usually associated with members belonging to the group of cocci. It may be said that from one-half to three-quarters of all empyemata are due to pneumococci and about one-quarter to streptococci; further, in childhood pneumococci are in greater frequency, and streptococci are more common in adults than in children.

Some figures taken from a base camp in America show that in pneumococcal cases there was a mortality of 17 per cent., and in streptococcal cases of 62 per cent. Of the varieties of streptococci it seems that the *Streptococcus hæmolyticus* is the most virulent. In infected hæmothorax it was found that when streptococci were present in numbers the general condition of the patient was grave, and that pericarditis and inflammatory lesions in the opposite lung were more frequent. Blood culture, as a rule, is negative.

REACTION OF THE PLEURA.

When an empyema is opened it is usual to find that the pus-containing cavity is shut off by adhesions from the rest of the pleural cavity, and that there is a deposit of varying thickness covering the surface of parietal and pulmonary pleura, binding the lung down and preventing its expansion. Adhesions are found not only at the margin of the pus-containing cavity, but often in the cavity itself, thereby tending to divide it up into loculi, and it is these loculi which tend to get shut off and give rise to trouble sooner or later.

The deposit consists of coagulated lymph, holding in its meshes some white cells, and it is a remarkable thing how readily the lung can be made to expand when this felt-like membrane has been stripped off. Whether it is always present I am unable to say. In dealing with hæmothorax there is usually a deposit on the surface of the pleura, but I have seen the surface smooth, with only a few adhesions, and why there should be this difference I do not know. It is obvious that this is a point of some importance. Erosions and ulceration of the visceral pleura are not uncommonly present. The lung generally shows changes from which the pleural condition has arisen secondarily. After long-standing empyema chronic interstitial changes occur about the lung.

From what has been said, it seems clear that the pleura reacts differently under different conditions. Another instance of this is noticed in some forms of streptococcal empyema, arising from *Streptococcus hæmolyticus*, in which the exudate is poured out with extreme rapidity and in large quantities, differing from pneumococcal empyema, when the exudate is poured out more slowly, and the amount is often not excessive. Further, the cells in the exudate vary. Widal and Ravaut pointed out that when the dominant cells present in an effusion are small lymphocytes the probable cause of the inflammation is the tubercle bacillus; when the dominant cells are polymorphs the probable cause is some pyogenetic micro-organism. When the cells are mainly endothelial, especially if in plaques or sheets, the effusion is usually a transudate. Although the above is a useful generalisation, it cannot be taken as accurate in every instance. In a sterile hæmothorax endothelial cells are not uncommon, and in some of these cases there is a large percentage of eosinophile cells. Another observation made is that the associated collapse of the lung is often more extensive in empyema than in a serous effusion.

We may ask, what is the result if an empyema is left alone? Death may ensue (1) from the causes that led to the empyema; (2) from gradual increase of fluid; or (3) the toxic effects of the purulent collection. The body itself usually makes an effort to get rid of the fluid, and it may rupture externally. The usual place for this to occur is in the fifth interspace in the nipple line, but the pus sometimes tracks, and the opening be anywhere from the collar-bone to the buttocks. Occasionally the empyema ruptures into some internal organ—most frequently the lung, from which it is expectorated; this probably happens with small interlobar collections, and is not an unfavourable termination. Even if the termination is a favourable one the length of time of ill-health with often considerable deformity and the effects of prolonged suppuration are serious matters, so that interference should always be undertaken.

FORMS OF TREATMENT FOR EMPYEMA.

Before considering the various measures that can be adopted it is well to keep in mind the ultimate object aimed at in any form of treatment. It is the restoration of the function of the lung, and this is achieved by the evacuation of pus and the sterilisation and obliteration of the cavity in the shortest time obtainable.

Aspiration as Treatment for Empyema.

The first procedure to consider is aspiration. We have all heard of cases of empyema that have been cured by aspiration, but they are rare, and no instance of this has come under my observation. For reasons which I think are obvious, it cannot be relied upon with any certainty. Aspiration, however, in selected cases, and prior to operation, has its use, and is sometimes necessary. For instance, when there is a great quantity of fluid in the pleural cavity and under pressure, as shown by the displacement of the mediastinum. A preliminary aspiration allows time for the lung to expand and the neighbouring organs to return to their normal position, thereby saving shock which might have proved fatal had an operation been performed prior to the withdrawal of the excess of fluid.

Again, it is possible that the patient is so ill that operative measures could not be undertaken with any hope of success. Such may be the case in the acute stage of pneumonia with consolidation of the lung on the affected side or even in the opposite side. In such a condition aspiration, repeated if necessary to tide over a critical period, is advisable. Further, in some streptococcal cases the exudate is poured into the pleural cavity with extreme rapidity. If in such a condition operation is done in the early or formative stage recent experience has shown that the mortality is higher than when the operation has been done at a later stage, after, it may be, one or more aspirations, and time has been allowed for adhesions to form and the fluid to become more purulent in character. Some form of operation, then, is advisable.

Incision Through an Intercostal Space.

The first operation to consider is an incision through an intercostal space. There are many who advocate this, and it has some advantages. It can be done readily under local anæsthesia—the tissues being infiltrated with novocaine—and the shock produced is comparatively slight. These may be weighty considerations in a patient seriously ill, but the disadvantages are important, for the surgeon is not able to form any opinion as to the extent or condition of the cavity, and the falling in of the chest wall tends to lessen the size of the opening and make drainage difficult.

There seems to be little doubt that the treatment of empyema will undergo some modifications consequent upon what has been learned in the treatment of gunshot wounds and injuries to the chest. The work on chest injuries as seen in the war may be divided roughly into two categories. In the front area treatment has to be directed to the immediate condition of the injured man, and, if possible, the prevention of sepsis, whereas at the base hospital the problems arising are mainly those of septic conditions that have arisen. It was known that an open thorax was associated with great distress and danger to the patient, and ultimately led to a condition of sepsis which frequently induced a fatal result if the primary conditions had not done so already. Good results were obtained by closing the wound in the thorax as soon after the injury as possible and aspirating the chest at short intervals afterwards. This method was applied to certain cases of hæmothorax with satisfactory results also. Then at the base it was found that certain cases of infected hæmothorax could be dealt with in a similar manner—cases in which the constitutional symptoms were mild and the infection of a non-virulent type, but virulent infections, especially when streptococci were present, had to be drained, and the chest cavity irrigated on the lines suggested by Dr. Carrel. Secondary suture was done when, as far as could be ascertained, the cavity was sterile. After suture it was necessary to aspirate, but in a short time the cavity disappeared, partly by expansion of the lung, and probably to a lesser extent from a further falling in of the chest wall.

Thorocotomy without Drainage.

In dealing with empyema the same line of treatment can be adopted, and has been done so already with success—namely, thorocotomy with immediate closure, and thoracotomy with drainage. It will be asked in what class of case can thoracotomy with immediate closure be done? At the present time it is easier to say when it cannot be done than when it can. When severe constitutional disturbance is present, especially with streptococcic infection, drainage seems to be the best course to adopt.

The following case that came under my care is instructive:—

A man was admitted with an empyema on the right side, and gave an indefinite history of about two weeks' duration. The temperature chart showed only a moderate rise, and the pulse-rate was a very little above normal. The patient's general condition was good. The pus contained cocci. An operation was performed by Colonel Seymour Barling, who found, after removing a portion of rib, that the empyema cavity was small, and that the membrane lining it was not closely adherent. Without much difficulty the membrane was removed, and it was remarkable how the lung expanded at once and filled the cavity. The chest was closed completely. An aspirating needle was inserted through the wound on the third day, but no appreciable quantity of fluid was withdrawn. The man was evacuated convalescent.

More recently I saw a patient who had been operated upon for an empyema and the wound was sutured in layers and closed. The notes were very meagre and gave no information except that primary closure had been done. The result was quite satisfactory, and with respiratory exercises fair expansion was obtained.

Thoracotomy with Drainage.

It is necessary that the opening through the chest wall should be of such a size that a good view of the cavity be obtained. It is important to look for pockets and to make certain that the opening into the main cavity is large enough to obtain good drainage. Pockets should be looked for at the costo-diaphragmatic angle, and between the lung and the diaphragm. They may be interlobar, and sometimes a pocket is found extending forwards towards the mediastinum. The possibility of removing the deposit, so as to free the lung and allow of its expansion, should be considered. The condition of the patient, the nature of the infection, the size of the cavity, and the adherence of the membrane are matters that will have to be borne in mind. It is clear that the deposit can be removed only in few and selected cases. It may not be possible to attempt to remove the membrane, and in these circumstances incisions may be made in different directions through the false membrane. After this procedure, it is stated, expansion of the lung has been seen to take place.

In performing the operation it is well to remove a fairly large piece of rib, about 3 in. to 4 in.; then a rib separator can be inserted and a good view of the cavity obtained. A drainage-tube of wide bore should be inserted so that its fenestrated end just passes into the pleural cavity, and it must be fixed in position so that there is no entrance of air into or leakage from the cavity round the circumference of the tube. The tube itself ought to be about 1 ft. in length, and after being fixed in position is clamped near its free end. After the patient is placed in bed another tube is fixed into the free end, most conveniently by a glass connexion, and the other end placed under some antiseptic solution in a bottle placed by the side of the bed. The clamp is then removed.

There are many advantages in this method: the drainage is satisfactory; there is very little disturbance of the patient, for the dressings are kept dry and need not be changed for one or two days. The risk of further infection from the skin round the wound is lessened. Moreover, the wound being air-tight there is a possibility of a negative pressure in the empyema cavity, and the expansion of the lung is thus aided. It is probable that this does not last for very long, but even so it may be of considerable assistance. About the third day it will be noticed that the tube has worked loose, and it should then be removed and the cavity irrigated.

AFTER-TREATMENT BY IRRIGATION.

Irrigation of the chest cavity is said to be a dangerous proceeding, but it is very difficult to get any definite reasons why this should be so. A certain number of deaths have been reported for which no obvious cause could be found post mortem. Convulsions have been observed, also syncope, not always fatal, followed at times by a temporary palsy. Capps and Lewis, quoted by Horder, found that in dogs in whom an empyema had been artificially produced, washing out the pleural cavity led to prolonged depressor effects upon the arterial circulation. They found that artificial respiration was the best means to overcome this effect, and was more efficacious than the injection of adrenalin.

In the presence of even a suspected bronchial fistula irrigation should be avoided. On more than one occasion I have had to stop it owing to the fits of coughing that followed, and the patient tasting eusol in his mouth. In another patient a feeling of faintness was the cause, and for this reason it was omitted.

With due care I believe that irrigation is beneficial. There should be free drainage and the avoidance of any large quantity of fluid in the pleural cavity at one time, and I think it inadvisable to wash out the cavity at the primary operation. Carrel-Dakin solution and eusol appear to be the best irrigants, for they exert a solvent action on the exudate. The most satisfactory method is to pass a Carrel tube with the required number of holes well into the cavity, and to allow the fluid to flow gently through it. In a certain number of cases, especially those of a comparatively mild infection, a daily washing out may prove sufficient to sterilise the cavity and allow of its closure. I have been able to remove the drainage-tube in one week, and to allow the wound to close with good results. In virulent infections something more may have to be done.

I believe it was Carrel himself who was the first to introduce his tubes into the pleural cavity in cases of severe infected hæmothorax for the purpose of frequent irrigation. When sterilisation is complete the opening in the chest wall is closed and aspiration done at intervals of a few days. This method was widely adopted and gave very satisfactory results, but I have seen instances where it was not successful, and when sterilisation could not be obtained. This may possibly have been the result of faulty technique.

The application of Carrel tubes to the chest cavity is beset with many difficulties of a practical nature. In the first place it is desirable to have as clear a mental picture as possible of the size and extent of the cavity, especially as to the position of any pockets that may be present. With such a picture the tubes can be placed so that the whole of the cavity can be sprayed with the solution. Further, it is often advisable to X-ray the chest to see that the tubes are in their proper places, and it may be necessary to pass wire through the tubes to stiffen them and keep them there. The tubes must be of sufficient length, so that they are clear of the dressings, and the patient must not be disturbed more than is necessary. The dressings themselves soon get soaked, and it is remarkable how little this seems to disturb the patient.

The time when the drainage or Carrel tubes can be taken out is often a difficult matter to decide. The temperature usually comes to normal when drainage is satisfactory, although the pulse often takes a little longer to reach the usual rate.

At the time of the operations a smear preparation should be made of the pus, and the average number of micro-organisms in three fields under the microscope should be noted. When the tube is removed another smear should be made and the count of micro-organisms recorded. From henceforth this should be done every three or four days until suture standard is reached. This method is not always accurate from the scientific point of view, but taken in conjunction with the pulse-rate and temperature is of help in forming some idea of the progress made by the patient and the time when the drainage-tube may be left out permanently. It is to the smears that we have to look for the main source of guidance. If smears taken from within the cavity are up to suture standard on three consecutive occasions, then I think the wound should be allowed to close, or if large, sewn up. If there is a cavity left of any size, then an aspirating needle can be passed through the wound without disturbing the patient, and any fluid withdrawn.

OTHER FORMS OF AFTER-TREATMENT.

The recommendations of Tuffier and Depage are of great interest. They advocate in pneumococcal empyema that after the evacuation of the pus the membrane should be removed and the chest cavity closed. In cases of non-pneumococcal suppurative pleurisy after opening the chest wall and allowing the pus to escape, they recommend that Carrel tubes should be inserted into all the recesses of the cavity, and irrigation employed until sterilisation is complete. When the cavity is sterile an attempt is to be made to remove the false membranes, starting at the point of junction of the chest wall and the lung. The lung is seen to expand with decortication, and it should thus be as complete as possible and the wound sewn up. Such is a very brief outline of the main points of their recommendations.

They consider that the thoracic cage is no longer to be placed before the lung in importance, and the lung must be considered before the chest wall. With this treatment the lung resumes its normal activity, whereas in the old treatment everything tended to destroy it. Further, the outlook for the functional future of the patient is better.

Attention should be given to the skin in the immediate neighbourhood of the wound. At the daily dressing it should be cleansed, especially at its edge, and wiped with some antiseptic, for which purpose chloralamine soap is suitable. A strip of bandage soaked in vaseline, the whole being sterile, is then placed on the skin with its edge in close proximity to that of the wound. The advantage of this is that further contamination is avoided, also irritation of the skin from the discharge; especially is this necessary if Carrel tubes are in the cavity and constant irrigation is employed.

One more point upon which I should like to dwell is that of breathing exercises for the expansion of the lung. They may be started soon after the primary operation, and at first should be very simple, gradually becoming more complex as the patient improves. The blowing of bottles and bubbles and bladders just when and how the patient pleases is of little use. The exercises ought to be done systematically and when possible under personal supervision. At the same time the interest and coöperation of the patient should be enlisted. With these conditions the most satisfactory results can be obtained.

References.

System of Medicine, Allbutt and Rolleston, vol. v., Pleurisy (Horder). Ibid., Osler and McCrae, vol iii., Pleuritis (Lord).

Journal of Surgery, Gynæcology, and Obstetrics, vol. xxviii., No. 4, April, 1919.

War Medicine (American Red Cross Society in France), vol. ii., Nos. 6 and 7.

Inaugural Address

[ABRIDGED]

ON THE

TEACHING OF PATHOLOGY.

Delivered before the Section of Pathology, Royal Academy of Medicine in Ireland, on Oct. 31st, 1919,

BY THOMAS T. O'FARRELL, F.R.C.S. IREL., D.P.H.,

PRESIDENT, SECTION OF PATHOLOGY, ROYAL ACADEMY OF MEDICINE IN IRELAND; FIRST ASSISTANT IN PATHOLOGY, UNIVERSITY COLLEGE, DUBLIN, N.U.I.; PATHOLOGIST TO ST. VINCENT'S HOSPITAL, ETC.

GENTLEMEN,—As the subject of educational reform has recently been a source of fruitful discussion in many teaching centres it occurred to me that a consideration of the present position of the teaching of pathology and bacteriology might be a profitable one, and might prove of interest to the Section.

The Student.

Before considering the teaching of pathology and bacteriology it might be well to consider the outlook of the student we have to teach, who is, as a rule, a sound and even an enthusiastic worker. The primary object of the average student is to obtain his qualification, and notwithstanding the abuse which has been levelled at examinations there must be certain tests set up to determine whether he is fit for qualification or not. I am not averse to the system of examinations, because I consider that even if they are not true tests of proficiency, they are an incentive to work, and they direct the student along the course he is expected to read. We should remember in framing examination questions that the student is recommended to read certain books, and realise that he may naturally resent a question upon recent work which has not yet found its way into the text-books.

The Dublin student, at any rate, has set up a certain standard for a teacher, and this is expressed by the statement, "He gives good value" or "He does not give good value." We are happy in having many teachers in our schools and hospitals whose very presence, facility of diction, and enthusiastic exposition are in themselves an attraction to any type of student; but the majority of teachers stand or fall in the estimation of students by the test as to whether they give "good value" and "not good value," from the examination point of view. So much so is this the case, that the lectures of even a great teacher may be described as "very interesting but it (the subject) will not be asked." In other words, if a teacher deviates from the standand text-book, to give a discourse on recent work, his teaching will not be popular. This condition of affairs is not satisfactory, because it kills the spirit of advance.

Current Medical Journals.

Examinations in some form will always be with us, but the spirit of advance should not be discouraged. One immediate improvement could be effected if the teacher accompanies his usual advice on the choice of text-books with a recommendation to read a current medical journal. The student would thus acquire the habit of reading current work, and would also take more lively interest in his subjects. The new point of view encourages him to bring problems to his teacher and at the same time react beneficially on that teacher. It would be an indication to him as to how research work is carried out, and might inspire him with ideas.

The question of expense might be raised, but this does not arise, as the journals of the kind referred to are easy of access in our libraries. The other possible objection is perhaps a more serious one—namely, that articles in journals are only the opinion of individuals and are not necessarily orthodox. This is true to a certain extent. It would appear to me, however, that a reading of original ideas would act as an incentive to the looking up of the orthodox teaching on the subject, and would lead to useful discussions. As the student looks to his teacher and indirectly to his examiner for advice, I think an individual journal should be selected and the student notified that a question arising out of articles in numbers of the current year will be asked at the examination. Such a question might be optional for a pass man, but the additional marks for a knowledge of current literature should be given to an honours student. The idea is not new, and it has been brought with success into many D.P.H. examinations.

Relation of Pathology to Clinical Work.

Recent discussions upon teaching outside Ireland appear to indicate that in some places the teaching of pathology has become too detached from its proper clinical application, and that the subject has become more of academic interest than of practical value to the future general practitioner. This opinion, so far, has not gained much ground in this country, largely, I think, because the teachers of pathology in our medical schools in the majority of instances are also pathologists to clinical hospitals, consequently the natural tendency of the teaching is to make the work in the medical school largely conform to hospital requirements. There are, however, certain conditions which predispose to the want of coördination between the clinical and pathological teaching. One example of this is the bad attendance of clinicians at the meetings of our Section; another is the anomalous position of the hospital pathologist, which has now become an anachronism. With regard to the remarks I have to make on the position of the hospital pathologist, I wish it to be understood that I am not alluding to any hospital in particular, and above all not to the one to which I have the honour to be attached, and where I have always met with the greatest consideration, assistance, and encouragement.

Our work has undergone a complete revolution in recent years. The pure morbid anatomy of bygone days has been extraordinarily modified in the direction of clinical or live pathology. As an example, the preparation of vaccines, purely therapeutic agents, has become a routine. The position of the pathologist is, however, peculiar and antiquated. In the majority of instances he is not an official member of the teaching board of studies—that is to say, he is only unofficially consulted as to the arrangement of the curriculum. He has not the status which would enable him to give or receive advice on the general conduct of hospital teaching, and is excluded from giving any opinion as to the fitness of any candidate for appointment on the junior staff.

I wish to make it perfectly clear to any clinicians who are here to-night that I do not intend the pathologist to usurp the position of the clinical man. The pathologist is indebted to the clinician for practically all his material—tumours removed by operation, puncture fluid, and the like. It would be bad policy, if not bad taste, to interfere with him! But I would like to recommend, in view of modern requirements, that the matter of the status of the pathologist should be given consideration.

Improved Methods in the Teaching of Pathology.

In many centres teaching methods are under consideration, both in these countries and in America, and many books have appeared on the subject. A recent general survey is to be found in "The Future of Medicine," by Sir James Mackenzie. To Sir George Newman we are indebted for two important memoranda, one on "Medical Education" (1918) and the other on "Preventive Medicine" (1919). A monumental work has recently been published by the Edinburgh Pathological Club. The opinions of various experienced teachers in all branches of medicine were asked, and a report embodying their recommendations was drawn up and published in book form. A careful perusal of this work will fully repay anyone who is concerned in the teaching of medicine.

As regards pathology and bacteriology, the following recommendations appear to me to be important: 1. Formal lectures should be retained, as they indicate to the student the course he should follow. 2. The modern view, that pathology is a study of the living as well as of the dead, should be reflected in the teaching. 3. Clinical and pathological teachers should meet on committees so as to coördinate the two subjects.

It is suggested that the first two lines upon which recommendations may be best achieved should be: Firstly, the teaching of clinical pathology—i.e., instruction in the collection of material, methods of examination, and the interpretation of the findings. Secondly, the teaching of "the Unity of Disease." The student should be given an opportunity of following up cases from beginning to end, and should be instructed to correlate clinical signs and symptoms during life with the conditions found after death. Thirdly, the establishment of pathological clerkships in all hospitals.

As regards the teaching of clinical pathology in Dublin, one college has already established a practical pathology class for fourth-year men. This includes the collection of material, the various methods of examination and the interpretation of results, and the diagnosis of such diseases as diphtheria, typhoid, and syphilis. In another college great attention is paid to post-mortem work. In some hospitals pathological clerks have been appointed.

I should like to draw your attention to the method adopted by Professor Lorrain Smith in the study of autopsies. The student is required to work out a report on the pathology of six cases. He is supplied with the details of the clinical record; he makes detailed notes at the post-mortem examination, and is also required to examine the affected organs microscopically. After this he writes a review dealing with all the points of pathological interest which a study of the case reveals. The report and slides are examined by the staff and marks are allowed, which are included in the total which determines the class honours. It is claimed for this method that the student grasps the unity of disease from the first—a claim which I think is well justified. This method has one possible drawback. As the student is said to be provided with the clinical records of the case, it is possible that he may not have seen the case during life, and thus has no vivid impression of the clinical condition. In addition, to keep the idea of "live" pathology uppermost, I think the student should also be required to furnish an account of living cases in which pathological examinations had been made, or in which tissues, removed by operation, had been examined.

In my own experience, the material available from operations and "live" cases is far greater than that obtainable from autopsies, so that there would be little difficulty in providing the student with the necessary means of drawing up such reports. In my opinion, such reports should be prepared by the man in his fifth year. On account of his work in the fourth year he will have a good ground-work of clinical pathology; being a senior man he will be in a better position to understand the clinical findings, and it will have the effect of keeping before his mind, up to the time of qualification, the useful application of pathological methods to the actual practice of medicine. An instructive feature might be added to these reports, if the student who composed them submitted his results, as a paper, before the Students' Medical Society of the Medical School. It would supply material for the society, ensure that the work of the society was done by students, and be an example to junior members.

Before leaving this part of the subject I should like to draw your attention to the fact that an enormous amount of material for the teaching of morbid anatomy is not at present made available, I refer to the source of supply which is present in the union hospitals, hospital for incurables, asylums, and such-like institutions. When the whole question of the teaching of pathology comes to be considered by the various colleges, an attempt should be made to secure an addition to their material from these sources.

Specialisation.

In the course of investigations into the problems of teaching in America, stress has been laid upon the modern tendency to specialisation. Men specialise either because they like the work or because they see an opening in that particular field. Their special qualifications are the outcome of post-graduate work done in preparation for certain examinations, such as Fellowships, Memberships, diplomas, or baccalaureates. If they have sufficient means they may go abroad for a special course of study.

The experience of one writer in America, Harris, speaking of the School of Oto-laryngology, Camp Greenleaf, Georgia (where a course of instruction was organised for specialisation), gives a very gloomy opinion as to the qualification of specialists on the pathological side of their subject. He says that, "although they were men who had practised the speciality for a number of years, with few exceptions, they showed a woeful want of knowledge of its fundamentals. Pathology and bacteriology did not enter into their field of knowledge." I do not mean to imply that similar conditions apply here, but I think that, so far as we are concerned, the student ought to have certain opportunities for realising that our subjects are an essential part of their equipment for any specialised work after qualification. Facilities should be obtained for the laying down of a sound scientific foundation for future specialisation. There are already, in one of our medical schools, special classes given in immunology and the diseases of ductless glands. The giving of special classes, however, in subjects such as gynæcological pathology, pathology of the skin, &c., would throw too much work upon the ordinary teaching staff of a medical school, but if these classes were conducted by extra-mural teachers much benefit would accrue.

I would suggest that men with special qualifications, not on the teaching staff of the school (possibly from another college), should from time to time be invited to give five or more lectures or classes on their particular speciality. All the pathological material available in the laboratory should be placed at their disposal. The fees would not weigh heavily upon the school, and the course would be of mutual benefit to the students of the school and to the individual giving the lectures. The courses should be voluntary, to ensure keen, if small, classes, and if they were open to medical men outside the school they would probably be largely attended. I am convinced that the matter is worthy of consideration and trial.

Conclusions.

To summarise my conclusions they are:—

(1) Examinations and teaching should be so modified as to conform to modern ideas. The reading of a current medical journal should be part of the programme.

(2) In view of the close association of pathology with clinical work the hospital pathologist should be in a position to discuss teaching methods on the same footing as clinicians. Round table conferences should be held from time to time of all teachers in medical subjects.

(3) The following alterations are suggested in the curriculum: (*a*) The third-year men to receive the ordinary courses in general and special pathology, bacteriology, and practical work. (*b*) The fourth-year men to attend a practical course in clinical pathology. They shall also be required to report upon six autopsy cases, not omitting the clinical history. The results of the post-mortem, together with histological findings and other data, to be drawn up as a report. Marks to be given and included in the totals at examinations. (*c*) The fifth-year men to report on a given number of "live" cases, giving the clinical findings and detailing the application of the clinical pathological methods. In surgical cases to give an account of the histological findings in tissue removed by operation. The students to be encouraged to bring their work before students' medical societies. (*d*) A system of lectures, demonstrations, or classes in practical work to be instituted in special subjects. These to be conducted by extra-mural teachers in consultation with the director of the department.

(Continued at foot of next page.)

THE NEED FOR SCHOOLS OF PSYCHIATRY.

BY C. HUBERT BOND, F.R.C.P. LOND.,
COMMISSIONER OF THE BOARD OF CONTROL AND EMERITUS LECTURER IN PSYCHIATRY AT MIDDLESEX HOSPITAL.

IN their fourth annual report, published in 1918, the Board of Control drew attention—not for the first time, but in more extended form than hitherto—to deficiencies in the present arrangements for the treatment of persons suffering from mental disorder, especially in its incipient and early stages; to the insufficiency of attention paid at medical schools to this important branch of medical science, with its consequent ill-effects both to patients and to the medical profession; and to the absence of any special qualification in psychiatry as a requirement for the higher medical posts in public institutions for the insane, comparable to that demanded of medical officers of health in areas with a population of over 50,000.

That these deficiencies could not be made good without amendment of the existing law was recognised, and accordingly a series of recommendations in this direction were included in the report. As at least some of these are *sub judice*, it is not proposed on this occasion to refer to them nor to the establishment of out-patient clinics and beds for mental cases, except in so far as they are connected with schools of psychiatry.

It is, however, submitted that such clinics, whether as independent units or, preferably, closely affiliated with general hospitals, should be regarded as an indispensable part of the clinical facilities of every medical school.

The Establishment and Functions of Mental Clinics.

The reluctance of general hospitals to shoulder this additional burden, quite apart from financial considerations, is not difficult to understand, and, indeed, commands sympathy. But the significance of the mental element in other diseases than those mainly of the nervous system, even in surgical affections, is happily receiving increasing attention; and it is to be hoped, now that the benefit of team work is becoming appreciated, that soon no general hospital staff will be deemed complete without a physician possessing expert knowledge in psychiatry. Consistency requires that mental experts in charge of institutions for the insane should have facilities for consultation with experts in other branches—not merely in emergency, but as part of the routine consideration of the recent cases at least, and others in need of active treatment.

A strong argument in favour of the establishment of clinics for mental cases and for their affiliation to general hospitals is the reluctance of sufferers from premonitory and early symptoms of mental breakdown either to present themselves for advice at, or submit themselves to treatment in, a hospital, which, *res ipsa loquitur*, labels the patient as the subject of a nervous or mental ailment. Perhaps some day, when our profession is more skilled in the differential diagnosis and prognosis of the forms of mental disorder, an end will be made of this prejudice; at present it is too often stimulated by attempts to draw minatory inferences from misleading and ill-digested statistics of heredity. Till that day arrives, the most promising hope of breaking what in reality is a vicious circle of obstacles to treatment, and to advancement of knowledge in the subject, is an invitation and welcome from general hospitals to all persons so suffering, coupled with adequate arrangements, reasonably limited as to extent, for the in-patient treatment of severer but recoverable cases. There is abundant evidence that such persons, either on their own initiative or on the advice of their friends, are willing to go for treatment to a general hospital. Unfortunately the structural and other needs of a mental clinic practically demand that it should be somewhat, if not entirely, an entity. Probably the most promising method is to take advantage of the policy proposed by several general hospitals towards meeting their needs for extension; instead of attempting to enlarge the existing structure, arrangements are made to treat certain types of patients in separate units erected on a site where land is liberally available, their administration forming part of that of the parent building with which their identity is maintained in name also. Clearly, the mental clinic, as respects in-patient treatment, should form one of these units. To this effect definite proposals have been made and schemes are in preparation to which a more detailed reference might be premature.

I should like to protest against a readiness on the part of some of those who welcome the advent of mental clinics to relegate existing institutions for the insane to the rôle of receiving houses for the care and nursing of irrecoverable cases; such a divorce from incentive to treat to recovery would cause these institutions to be pervaded with a most prejudicial feeling of hopelessness. It is scarcely necessary to labour the point, as it is most unlikely that the clinics, whether as parts of medical schools or scattered more widely, will ever be able to meet the needs of all recent cases requiring asylum treatment and of all those that are recoverable.

On the other hand, these clinics for mental cases should aim at fulfilling three main functions, and should provide—

1. Therapeutic facilities (*a*) for a certain proportion of recent and recoverable cases (whether certifiable or not), and (*b*) in a section of the general out-patient department, for incipient, uncertifiable cases and for certifiable cases in early stages.

2. Better educational facilities during the medical curriculum. These facilities, however, would be incomplete without access to the clinical material of the neighbouring public asylum, between which and any school of psychiatry it is most important that there should be a close link.

3. A centre for both laboratory and clinical research and post-graduate study.

If these provisions are feasible they will ensure success to mental clinics. Without their establishment and without their affiliation to general

(Continued from previous page.)

References.—1. Æquanimitas, W. Osler, 1905. 2. An Enquiry into the Medical Curriculum by the Edinburgh Pathological Club, 1919 (W. Green and Son). 3. An Introduction to the History of Medicine, F. H. Garrison, 1917. 4. An Outline of the Practice of Preventive Medicine, Sir George Newman, H.M. Stationery Office, 1919 [Cmd. 363]. 5. History of Epidemic Pestilences in Ireland, Census of Ireland, 1851. 6. History of the Medical Teaching in Trinity College, Dublin, and of the School of Physic in Ireland, T. P. C. Kirkpatrick, 1912. 7. History of the Royal College of Surgeons in Ireland and of the Irish Schools of Medicine, Sir Charles A. Cameron, 1916. 8. Manners and Customs of the Ancient Irish, E. O'Curry. 9. Medical and Philosophical Memoires (Manuscript), 1756-1784, Lib. R.C.P.I. 10. Plea for a Standardised Course of Instruction, T. J. Harris, Jour. Amer. Med. Ass., August 16th, 1919; also v. ibid., August 2nd and 23rd, 1919. 11. Some Notes on Medical Education in England, Sir George Newman, H.M. Stationery Office, 1918 [Cd. 9124]. 12. The French Medical Curriculum, D. Barry, THE LANCET, 1919, ii., 658. 13. The Future of Medicine, Sir James Mackenzie (Henry Frowde), 1919.

hospitals, a number of mentally ailing persons will continue, untreated, to carry on their daily tasks to their own dissatisfaction and to the detriment of themselves and society.

Establishment of Diplomas of Psychiatry.

Lieutenant-Colonel D. G. Thomson[1] has powerfully advocated a series of measures, including the establishment of diplomas, to combat the absence in this country of an adequate scheme of instruction in the institutes and practice of psychiatry. The movement that ensued is so closely associated with his name that it is only with diffidence that another can take up its threads; and, though his goodwill has been secured in advance, my intervention is only the result of representations that now, a decade after the initiation of his proposals, a stock-taking of progress is due, seeing that the time is ripe for further suggestions.

It will also be recalled that Colonel Thomson's paper, and a resolution[2] which he moved at the annual meeting in the same year, led to the appointment of a subcommittee[3] of the Education Committee to consider the matter in detail; and that ultimately a circular letter,[4] signed by the then president, the late Dr. Mercier, was forwarded to each of the universities and other medical examining bodies in the United Kingdom. In making their recommendations, the association formulated a carefully considered syllabus of instructional courses which, it was suggested, should lead up to the establishment of diplomas in psychiatry.

Within the ensuing two years gratifying action was taken by five of the universities—Manchester, Leeds, Edinburgh, Cambridge, and Durham, each of which passed regulations for a diploma after attendance on approved courses and examination in prescribed subjects. A perusal of these five sets of regulations shows that the Association's suggestions have been largely adopted; but, though they present many points of agreement, the courses in the various universities have many differences. A brief summary of their similarities and differences is herewith appended in the hope that it may be of some service. Even if the immediate results of the action of these universities have been meagre and disappointing—for less than a score of candidates have taken these diplomas—any feeling of discouragement would be unjustified. In the first place the war caused a partial, if not entire, cessation of the qualifying courses, and swept into the naval and military services wellnigh all the men who might have been tempted to proceed to one of these diplomas; and secondly, the interval (from two to four years) between their institution and the outbreak of war brought into prominence certain obstacles.

There are difficulties connected with the further study of asylum physicians, such as situation of the institution, need for study-leave, uncertainty of prospects, &c., which merit the attention of both central and local authorities. My colleagues, ever since the institution of diplomas in psychiatry, have watched the movement with interest and sympathy, and, being impressed with its importance, the Board of Control has included in the recommendations already referred to one to the effect that the possession of a diploma in mental diseases should ultimately be obligatory upon the holders of the higher medical posts on the staffs of institutions for the insane. In the meantime and in the absence of any such enactment, they have given further careful consideration to the matter, and, feeling that the remedy for at least some of the principal difficulties is within the discretional powers of visiting committees, the Board contemplate the issue of a circular letter to those bodies. It would be improper to anticipate the details of that letter; but for the purposes of my argument let us assume all circumstantial difficulties can be, and, with mutual goodwill, will be removed.

Scope of the Existing Diplomas.

Upon the scope of the diplomas, especially as at least one of them is under revision, it is desired to raise the following points for consideration:—

1. As to their description, three of them are termed "— in Psychological Medicine," the other two being "— in Psychiatry." It is doubtful if the latter term can now be deemed sufficiently wide in its ambit; the former is probably to be preferred, and, moreover, it lends itself to the use of the letters D.P.M. by way of abbreviation—a triviality, perhaps, but not without importance.

2. It seems a pity that each university does not lay down a minimum period, subsequent to obtaining a registrable qualification, before which the examination cannot be completed—e.g., two years.

3. It is highly desirable that the regulations and syllabus should plainly indicate the term or terms during which each course (whether systematic or practical) is available, with the days and hours sufficiently set out to enable candidates to ascertain their ability to attend.

4. A clear statement would be appreciated as to the minimum extent to which the whole curriculum for the diploma must be attended at the university in question. This can be expressed as so many out of the total number of terms required for the full curriculum, or as so many courses out of the total number of subjects. Two of the five universities do not, apparently, insist on any local attendance. If criticism is permissible, this latitude, though not without its convenience in existing circumstances, is regrettable, as the association of the university's name invites the presumption that at least some important share of the diplomate's knowledge is the fruit of a school of thought with traditions of its own. Should a diploma in psychological medicine be ultimately obtainable at all our universities, and especially should their intramural arrangements permit of the development of a school of psychiatry at each, perhaps this view will prevail.

5. Another point upon which more precise information would be helpful is the matter of fees for instructional courses. The fee for each course should be stated, and it would be advantageous were a composition fee quoted for the courses of Part I. of the examination, another for Part II., and a third for both parts.

6. The examination for each of the five diplomas is divided into two parts, which together comprise subjects which, with some variation, fall under the following eight heads: (*a*) Development and anatomy of the nervous system; (*b*) physiology, histology, and chemistry of the nervous system; (*c*) pathology of the brain and nervous system with post-mortem room and laboratory technique, including cytology of the blood and cerebro-spinal

---

[1] Journal of Mental Science, vol. liv., 1908, p. 550.
[2] Ibid., pp. 791-3.
[3] Ibid., vol. lv., 1909, p. 757; and vol. lvi., 1910, p. 374.
[4] Ibid., p. 373.

fluid; (*d*) bacteriology; (*e*) psychology, systematic and experimental; (*f*) neurology; (*g*) psychiatry; and (*h*) clinical psychiatry. It is suggested that in each of the diplomas Part II. should be reserved for the strictly professional subjects, and that it should be passed as a whole, but that permission should be accorded for candidates to present themselves in the subjects of Part I. separately, and also to be exempted from any subject of Part. I. in which they have previously passed an examination of not less standard and scope. For example, the latter concession might apply, as regards the anatomy and physiology of the nervous system, to those who have passed the Primary Examination for the Fellowship of the Royal College of Surgeons of England; as regards bacteriology (where included), to those who possess a degree or diploma in public health; and as regards psychology—which, under the suggestion as to the scope of Part. II. would fall into Part I.—to graduates in arts or science for whose degree psychology has formed a subject. It is further suggested as regards Part. II. that, besides psychiatry and neurology, the time has come when the importance of psycho-pathology, the psycho-neuroses, and psycho-therapy demands the inclusion of these matters in this curriculum and examination. This view is supported by a commentary by Professor T. H. Pear, of Manchester, lately made to teachers in psychiatry, and by my former colleague, Dr. Bernard Hart, in a communication in connexion with an inquiry into "The Training of the Student of Medicine" carried out by the Edinburgh Pathological Club. Its adoption should carry with it recognition of clinical experience of the psycho-neuroses, either as an extra or in lieu of, say, three months of the time prescribed for clinical instruction in psychiatry where that period extends to not less than a year; such recognition has already been sanctioned at one of the universities. This opportunity is also taken to suggest the strong desirability of specifying in Part II. "The Relation of Psychiatry to General and Preventive Medicine" as a distinct subhead.

7. Lastly, the diplomas and instructional courses should be as freely accessible to medical women as to men. Mention is only made of the point by way of emphasising the useful sphere open to women as asylum physicians.

Importance of Coöperation.

It would, however, be a mistake to dwell too insistently upon the possession of this or that diploma; it is but a hall-mark. The really important result to be attained is that, based upon a previous thoroughly sound knowledge of general medicine, a prescribed course of instruction shall have been followed, and that there shall have been acquisition of knowledge, not merely of facts memorised, but of principles.

Our goal, therefore, should by no means be limited to repetitions of courses of instruction leading to a diploma at certain or at each of the universities. Rather should we urge that the importance of the whole subject of mental health justifies and calls for, not merely a colleagual relationship between the several teachers in our diplomate's curriculum —some of whom may possibly belong to other faculties in the university than that of medicine— but a partnership so manifest as to deserve the name of School of Psychiatry; and differences in tradition between such schools will be all to the good.

THE TREATMENT OF MUSCLES BY ARTIFICIAL STIMULATION.[1]

By G. COOPER, B.A., M.D. Belf.,
MAJOR, R.A.M.C. (T.C.); I/C. ELECTRO-THERAPEUTIC DEPARTMENTS NETLEY.

THE subject chosen for the title of this paper is one which I feel is of general interest to all medical men who have had under their care the treatment of patients injured in the war. Practically every wound has resulted in an injury of some degree to one or more muscle groups, and long after inflammation has subsided and healing has taken place there remain a disability and loss of function in the affected limb which are to a large extent due to pathological changes in the muscles. The treatment of such cases is generally handed over to the department of physio-therapy for treatment by massage and electricity, and too often such treatment is carried out in a mechanical manner without proper knowledge of the rationale of the methods to be adopted for the restoration of the muscle to its normal condition and function.

The injuries sustained by such muscles may be classified according to their ætiology under two heads:—

(A) (1) Injury of the muscle due to direct trauma. (2) Injury due to the action of toxins on the muscle fibre.

(B) Injury due to suspension of the function of the muscle.

Trauma may result in the loss of muscle substance and its replacement by fibrous tissue, or in an injury to its nerve-supply. Such loss generally results in a state of fibrous contracture or in a loss of contractile power if the nerve-supply is involved. Toxins destroy the protoplasm of the cells, fibroblasts develop, and fibrous tissue replaces the muscle fibres. The injury caused to muscles by these two factors, trauma and toxæmia, has been very considerable, but it is insignificant when compared with the widespread injury that has been brought by interference with the normal functions of muscles and their consequent atrophy. A single muscle may be directly affected by trauma, but this injury may interfere with the normal action of all the other muscles of the limb for a considerable period and thus give rise to serious pathological changes in the musculature of the limb.

As we have seen, the type of muscular atrophy known as disuse atrophy is of widespread distribution, and if we exclude the dystrophies and also injuries due to toxins and to direct trauma, it is reasonable to classify all atrophied muscles under one of the following three heads, according to the factors that have brought about their loss of function. (1) Muscles that have lost the power of voluntary contraction through lesions of the lower motor neurone (these have been largely caused by injuries of the peripheral nerves). (2) Muscles whose normal contraction has been suspended by immobilisation of the neighbouring joints—a condition commonly seen in limbs to which splints have been applied. (3) Muscles whose contraction has been reflexly inhibited because their action causes pain in the joints whose movement they control, as, for example, wasting of the quadriceps in arthritis of the knee.

The dictum laid down by Abernethy that diseased parts should be kept at rest is in accordance with the principles of nature, and it is obviously necessary to immobilise joints to secure proper fixation of the fragments of a fractured bone or to limit the spread of acute inflammation; but the muscles and the fibrous structures of the limb concerned, have frequently been involved in the most disastrous results from the application of this principle of rest. Muscles have wasted or undergone fibrous degeneration, and the movements of the joints have been restricted by contraction of the adjacent fibrous tissues.

---

[1] Paper read at a meeting of the Electro-Therapeutic Section of the Royal Society of Medicine on Nov. 21st, 1919.

It is an interesting observation to note that the degree of atrophy of the tissues that follows suspension of function in the locomotor apparatus has no parallel in any of the other systems of the body, where temporary suspension of function to the same extent is not possible.

The Cause of Muscular Atrophy and its Prevention and Cure.

Some reference to the physiology of muscle is necessary in order to attempt to explain the cause of atrophy and to justify the methods adopted both for prevention and cure of muscular degeneration. A muscle fibre contracts either in response to a nerve impulse along the normal channels, or it may respond to direct stimulation in virtue of its irritability. Muscles will contract feebly when pinched, and certain chemicals will provoke a response when directly applied to the exposed muscles. So far as can be ascertained there is no difference in the nature of contraction or in the chemical changes produced by a normal nerve impulse and in that brought about by electrical or other stimulation. The irritability of a muscle fibre would appear to be somewhat akin to the irritability of the amœba, which possesses to a feeble extent the power of response to direct stimulation, and the muscle cell might be regarded as a highly specialised cell of the amœba type, specially developed for contractile purposes and peculiarly responsive to stimuli of a nervous type. Curari, as is well known, places a block at the nerve ending, and stimuli applied to a motor nerve so affected are powerless to produce contraction of a muscle. Stimuli applied directly to the muscle can, however, bring about a contraction. Muscle contraction is therefore a response to an external stimulus, and the questions of loss of contractile power and of change in the muscle substance are closely associated with one another and with the causes operating to bring about loss of function in the muscle fibre. The health and condition of any cell is known to be closely associated with its function; this would appear to be especially true with regard to muscle tissue, the atrophy that takes place being a direct result of its suspension of function. The nutrition of a muscle fibre would appear to be determined by the exchange that takes place between the muscle plasma and the surrounding lymph during the acts of contraction and relaxation, the interchange thus being dependent on its exercise of function.

In response to an external stimulus certain very complex changes take place in a muscle fibre. During contraction lactic acid is formed, but there is no consumption of O_2 or evolution of CO_2 at this stage. The process of *relaxation* is, however, accompanied by an oxidation of certain carbohydrates; oxygen is consumed and CO_2 produced. The lactic acid disappears but not by oxidation; it appears to play a very important part in the contractile process, but the nature of its action is not definitely understood. The actual contraction and subsequent relaxation are very difficult to explain. As a metal rod lengthens when heated and shortens again on cooling, because different degrees of temperature alter the equilibrium of its atoms and produce a reaction of its elastic forces, so the molecular arrangement differs in the muscle according as it is at rest or excited, and its external form differs accordingly. The active muscle is short and thick, the inactive long and thin, and in suddenly passing from one state to the other the muscle contracts or expands, not against an inherent elasticity, but by an elastic action, in order to assume the natural form of *equilibrium* which corresponds to its active or its inactive state. (Weber.)

The carbohydrates demanded by the process of oxidation are undoubtedly drawn from the surrounding lymph, through the limiting membrane of the muscle fibrils, and the expulsion of CO_2 and other metabolites must take place through the same channel.

Certain functional states of the cells are known to be accompanied by increased permeability of the cell membrane, and there is conclusive evidence that the cell membrane is rendered more permeable during excitation of the cell. McClendon found in excited muscle an increase of electrical conductivity—an index of increased permeability to ions. This means that the cell membrane becomes permeable to ions to which it was impermeable while unexcited—in other words, it ceases to be polarised. Siebeck's discovery that potassium chloride enters more rapidly into excited muscles than into resting ones also indicates increased permeability during functional activity. Conversely, Lillie has shown that all agents which cause increased permeability of the cell membrane act in an exciting manner on the cell.

The essential characteristic of life is incessant change, and the maintenance of health and condition of the muscle fibre appears to be closely associated with the acts of contraction and relaxation, interchange with the surrounding lymph taking place during these acts. It is therefore a reasonable line of treatment for muscles which have undergone atrophy to seek to bring about a restoration of their condition by *provoking contractions in the affected fibres.* These may, therefore, be either in response to normal nervous stimuli or evoked by artificial stimulation.

The restoration of muscles by active contraction can only be referred to briefly in this paper. The development of muscles by exercise would appear to be due to at least two factors: (1) Increase of size and tone of muscle fibres taking part. (2) The "calling up" of a large number of muscle fibres of an embryonic or of a dormant type, of which there is considerable proportion in every muscle. The observation has been made that muscles are overwired (Souttar)—that is, that the nerve trunk contains many fibres which do not appear to function—support for which view is obtained from the fact that we have so often on exploration of a nerve been surprised to find that a very extensive lesion of the nerve frequently has not been attended with any marked interference with the function of the muscles supplied.

This theory of overwiring is probably true, the explanation possibly being that such nerve fibres and their corresponding muscle fibres are embryonic or dormant. That such dormant fibres can be "called up" and B 3's drilled into A 1's is a matter of ancient observation, and systematic and periodic stimulation of the neuro-muscular apparatus whether by voluntary effort as in gymnastic training, or by the artificial means employed in physio-therapy, is definitely known to result in an increase in size and tone of the muscles so treated.

Treatment—Preventive and Restorative.

Treatment may be regarded as preventive or restorative, according to the stage of the injury. The preventive treatment of atrophy of the tissues of an injured limb is necessarily a difficult problem, and must be largely circumscribed by the nature of the injury; but even when the exigencies of surgical treatment have been fully considered, it is deplorable to find so many patients sent at a late stage to the department of physio-therapy, the wholesale atrophy of whose tissues bears eloquent testimony to the fact that the suspension of the functional activity of every tissue of the limb was considered a *sine quâ non* of surgical treatment. Fortunately, there were many surgeons who treated the injured limb as well as the injury itself, and even under the most difficult circumstances managed to secure sufficient functional activity to prevent the atrophy that attends absolute disuse.

There is no doubt that too much attention has been given to restorative treatment as compared with preventive treatment, and the surgeon who has conquered sepsis and secured a perfect alignment has but little reason to be proud of the result if the joints of the limb are immovable, and the muscles hopelessly atrophied. For the atrophy of such muscles is frequently hopeless, and in many cases has proceeded so far that a large proportion of the muscle cells have perished and have been replaced by fibrous tissue. No amount of subsequent stimulation can restore such a muscle and "permanent disability" too often marks the measure of the surgeon's skill.

For the treatment of muscles by artificial stimulation two methods are available: stimulation by massage and stimulation by electricity.

Massage.

Bearing in mind that our object is to produce contraction in muscle fibres with a view to determining exchange between the fibre and the surrounding lymph it does not appear that in massage we have an agency of any considerable value in restoring the size and tone of a wasted muscle whose response is limited to direct stimulation, as is the case in muscles suffering from reaction of degeneration. Where the nerve-supply is intact contractions in response to manipulations are largely the result of stimulation of the muscle fibre through the muscle plate, but where the nerve-supply is interrupted contractile response to manipulation must correspond to the irritability of the muscle fibres to direct stimulation, and in most cases this response to direct stimulation is very feeble. I am inclined to regard massage as effective to a large extent in such cases on account of its action on the vaso-motor system, and this result will be largely brought about by mechanical action, as the vaso-motor reflexes are also affected in peripheral nerve lesion.

Contraction produced by Means of Electrical Stimulation.

In electricity we have an agency which is peculiarly effective in producing contractions of muscle fibres, and, as is well known, by utilising this form of energy we can obtain the most complete contractions of individual muscles or muscle groups.

For the production of contraction in muscles, we can use either the faradic or the interrupted galvanic current. The stimulation caused by the electrical current is due to the displacement of the ions in the nerve or muscle and the more sudden the displacement the more stimulating is the effect. A constant current is therefore incapable of producing contractions in muscles, and it is only at the make and break of the current that stimulation takes place. It has been suggested that muscles probably contain two kinds of contractile material, the striated portion and the sarcoplasm. The striated portion responds to brief stimuli and contracts rapidly, the sarcoplasm responds to longer stimuli only, and contracts slowly. A sluggish contraction would represent a contraction of the sarcoplasm. Muscles suffering from reaction of degeneration, as is well known, will not react to the currents of brief duration set up in the ordinary induction coil of faradic battery. They will, however, react to the interrupted galvanic current, and muscles suffering from reaction of degeneration would therefore appear to have sustained a loss of striated elements with survival of the sarcoplasm alone. This appears to have been borne out by the fact that when reaction of degeneration is fully established, the character of the contraction becomes sluggish. For the treatment of muscles suffering from reaction of degeneration the galvanic current alone is effective. The faradic current is ineffective unless its voltage is enormously increased, in which case the intensity would be great and the excitation very painful. It is thus ineffective as a practical method of producing contractions. It is necessary to remember that several factors are concerned in the production of contractions in muscle by electrical stimulation; the current must have a minimum of intensity, and this minimum current, in order to be effective, must last for a definite time, this representing the velocity of excitability of the muscle. In normal muscles this is about one-thousandth part of a second; in paralysed muscles velocity of excitability is much slower, and a current may have to act for one-twenty-fifth of a second to produce contraction in a degenerate muscle. Hence the ordinary faradic current is ineffective for producing contractions in paralysed muscles. The practical problem in the treatment of muscles by electrical stimulation would appear to consist in the selection of that particular type of current that will give the best contractile response.

Considerations in the Selection of Appropriate Currents.

The selection of appropriate current is governed by two considerations. (A) The degree of the contractions produced. (B) The degree of pain caused by the current.

(A) Under the head of "degree of contraction" we are limited to the use of currents of a definite duration in the case of degenerate muscles, but in all other muscles we can simulate normal contractions best by the use of rapidly interrupted currents. The normal voluntary contraction is a tetanus—the effect of rapidly succeeding stimulations, and this continues as long as the stimuli act upon the muscle. Various attempts have been made to estimate the rate of stimulation in normal voluntary contractions. Helmholtz, by analysing the sound of contracting masseter muscles, came to the conclusion that the rate of stimulation was 35 per second. Contradictory results were obtained by other workers, but the present opinion of physiologists is that nervous stimuli pass into a contracting muscle at a rate that varies between 20 stimuli per second as a minimum, and 35 stimuli per second as a maximum.

The production of tetanus by artificial stimuli, however, gives a very much wider range of stimulation. A rate of 20 shocks per second has been found to be the minimum required to give tetanus. The upper limit that will produce frequency tetanus has not yet been ascertained, but tetanus has been obtained with up to 20,000 induction shocks per second (Kronecker). It is a point of considerable interest whether we are right in assuming that the normal rate at which nerve impulses pass into a contracting muscle is really about 40 per second. The sound that is heard in contracting muscle is a low composite note of approximately 40 per second, but this note does not necessarily represent the rate at which nervous impulses are passing into the muscle, and it is but slender evidence on which to base an estimate of the normal impulse rate. If 40 is approximately the rate of normal stimulation we should not expect to find muscle responding to an artificial stimulation of a much higher frequency. It is doubtful if Helmholtz's estimation is correct, and the fact that with improved apparatus much more complete and effective contractions can be obtained at a high rate of stimulation, would favour the view that the normal rate of stimulation is much greater than has been supposed.

(B) Sensation appears to be influenced by two factors: (1) the length of the waves employed; (2) the uniformity of the interruptions. The effect of a current on sensation is very much influenced by the length of the waves, the stimulation of the sensory nerves being due to the movement of ions. Such movement is relatively small with short waves, but with longer waves there is a greater excursion of ions, and consequently the production of a considerable degree of pain. Sensation is also to a very large extent influenced by the uniformity of the interruptions, both as regards their rate and their character. The interrupter in the old type of faradic battery was very irregular in its action, and it gave rise to currents of uneven length and varying voltage. In 1915 Mr. Dean placed a new type of faradic coil on the market—the Wilson coil. In this coil the type of interrupter employed was an adjustable steel spring which gave an interruption of 200 to 300 per second in the primary. These interruptions were much more uniform in type than any that have hitherto been used in faradic coils, and there was consequently much less variation in the induced current, the waves were shorter, and the type of current was much less painful in its action than any that had hitherto been obtained with any other coils. Experimenting on the same lines, I designed with Mr. Dean a new type of telephone interrupter for induction apparatus, which as at present constructed will give an interruption in the primary coil of 800 to 900 per second, and the current obtained from this coil will be found to be the least painful and the most effective yet produced. Interrupted galvanic currents, where the rate of interruption exceeds 20 per second, can also be used for the stimulation of non-degenerate muscles, and of late this interruption has been done principally by the method introduced by Frimandeau.

The Frimandeau coil is best described as a primary coil, fitted at both ends of the iron core with vibrating hammers of similar type. The ordinary circuit may be described as the exciting current, and its passage causes the hammer to vibrate in the ordinary way. Frimandeau makes use of the alternate magnetisation and demagnetisation of the core to cause a synchronous movement of a similar hammer affixed at the opposite end of the core. A galvanic current is made to pass across the gap thus formed, and so we have a means of interrupting a constant current in a circuit, which may be described as the stimulating circuit. By employing various types of interrupters the rate of interruption can be varied, and I have succeeded in obtaining from 2 to 900 interruptions per second in the exciting circuit. The galvanic current so interrupted can be employed for the stimulation of muscles. When the rate of interruption falls below 20 per second single twitches are obtained in response to each stimulation. Above this rate tetanus is obtained from non-degenerate muscles, and the Frimandeau current has proved very useful in evoking effective contractions from such muscles.

For the production of tetanus with this type of current I find that an interruption of from 200 to 300 per second is the most effective. Above this rate the current appears to have the character of the ordinary constant current, and at very high speed of interruption, no contraction whatever can be obtained. The nature of the interruptions at speeds of over 50 per second is most probably not a complete make and break, and the current is most probably of an undulating type, the resistance across the gap never being sufficient to interrupt completely the passage of the current. Various methods of applying the stimulating current are in use. Metronomes for single make and break, and various types of apparatus which give rise to a current of a surging type.

The method most in favour, however, is the method of graduated contraction, the maximum number of fibres being engaged only at the crest of the stimulus, such a contraction approximates most closely to the normal type.

The Question of Fatigue.

The interesting question of fatigue remains to be considered. According to the work of Maggiora and Mosso, and of Treves, who have studied the question by means of ergograph tracings, it would appear that there are three different types of fatigue. (*a*) Fatigue of a personal type for each individual. (*b*) Fatigue of the nerve itself. (*c*) Fatigue of the muscle. Each individual has a personal type for his ergograph fatigue curve; it is constant even with wide variation of the external work. The onset of fatigue of a personal type is the most easily induced. Nerve, unlike the nerve centres, is comparatively inexhaustible, and shows no visible signs of fatigue even when thrown into a state of activity for several hours; this is due to the extremely slow metabolism of nerve tissue. When a motor nerve is excited the muscle apparently becomes fatigued long before the nerve.

Fatigue as regards muscles is purely a *toxic* phenomenon, and is due to the non-removal of lactic acid, which is produced during contraction and for the removal of which oxygen is absolutely essential (Fletcher and Hopkins, 1907). The experiments of Ranke showed that on circulating a saline solution containing no nutrient material through a fatigued muscle of a frog the fatigue disappeared; by further experiment he also demonstrated that the aqueous extract of fatigued frog's muscle circulated through the fresh muscle of another frog produced fatigue phenomena. In the first experiment oxygen was conveyed to a muscle which was charged with lactic acid, and in the second the toxic solution conveyed lactic acid to a resting muscle.

The rhythmic activity and comparative non-fatigability of heart and respiratory muscles is undoubtedly due to (1) the rich blood-supply which provides a plentiful supply of oxygen and nutrient materials; (2) to the definite resting phase between each contraction. In experimental work it has been found that the slower the rhythm of contraction the longer the onset of fatigue is delayed; if a muscle is contracting slowly enough to allow of complete recovery between each contraction it is comparatively inexhaustible. This recovery depends on a proper supply of nutrient to repair waste, and of oxygen to allow of the removal of lactic acid.

In the treatment of muscles by artificial stimulation there should be no danger of fatigue if the following precautions are observed. (1) Some preparation of the limb is necessary to ensure a good flow of blood, such as follows treatment by the whirlpool bath. (2) The limb should be kept warm during treatment, and in a position in which there is no interference with the circulation. (3) Stimulation should be rhythmic in type, and there should be a definite interval to allow of a complete recovery between the contractions; this interval should be at least five seconds.

That artificial stimulation will bring about an improvement in the size and tone of a muscle group has been conclusively proved in practice by the actual measurement of degenerate muscles which, treated by artificial stimulation for some months after the injury, were found to have increased in size and improved in tone, although operation subsequently confirmed the diagnosis of complete interruption of their nerve-supply.

Summary.

1. Excluding the muscular dystrophies and injury due to trauma and toxins, all muscular atrophy is of the disuse type—that is, it is caused by suspension of the normal function of contraction and relaxation.
2. The condition and tone of a muscle are largely dependent on their function—interchange between the cell and surrounding lymph taking place during contraction and relaxation.
3. Prevention of atrophy and restoration of atrophied muscles by rhythmic contractions is therefore a reasonable line of treatment.
4. Artificial stimulation of muscle conserves the nervous energy of the patient and in most cases of injury is the only method that can be employed.
5. Of methods of artificial stimulation electrical is the most valuable.
6. Treatment by electrical stimulation is governed by the consideration of two factors: (1) The degree of contraction produced; (2) degree of pain caused by the stimulation.
7. Pain is largely a matter of the length of waves employed and the uniformity of the interruptions.
8. Apparatus devised to give a uniform type of interruption yields the best results.
9. Fatigue is a toxic phenomenon due to accumulation of lactic acid. There is no risk of fatigue if a proper blood-supply is ensured and a short interval allowed between the contractions.
10. Practical experience has demonstrated the value of artificial stimulation in restoring the condition of wasted muscles and in preventing atrophy.

SOME NOTES ON
120 CASES OF ACUTE APPENDICITIS
OPERATED ON AT THE ROYAL NAVAL HOSPITAL AT SOUTH QUEENSFERRY.

BY C. P. G. WAKELEY, R.N., M.R.C.S ENG., L.R.C.P. LOND.,
ASSISTANT DEMONSTRATOR OF ANATOMY, KING'S COLLEGE, LONDON; TEMPORARY SURGEON LIEUTENANT, R.N.

To write anything new concerning appendicitis may seem to be ambitious, but I venture to publish the following notes for three reasons. First, statistics of cases of acute appendicitis, where men only are concerned, are few. Secondly, the notes give an idea of the health of the Navy in war time as regards this disease. Thirdly, I wish to point out the excellent way in which such cases are rapidly evacuated from H.M. ships to hospital for treatment. Acute appendicitis is even more prevalent in war time than during peace, and this may be explained by the fact that more frozen meat is consumed, which favours intestinal sepsis.

I have preserved and carefully taken notes on the following 120 consecutive cases of appendicitis which were operated on at the R.N. Hospital, South Queensferry. It is now a well-known fact that the male sex is more liable to attacks of appendicitis than the female, and numerous statistics[1] have been published to illustrate the incidence of appendicitis in the sexes. The average length of the appendix is greater in the male than in the female, according to Macphail.[2] In the male the artery to the appendix runs along the free border of the meso-appendix and does not anastomose with any other terminal branch of the ileo-colic artery. The meso-appendix does not extend beyond the junction of the middle and distal third of the appendix, and since the portion of the appendix which projects beyond its free border is less well supplied with blood perforation not infrequently occurs about this spot. In the female a small branch of the ovarian artery reinforces the blood-supply of the appendix. No doubt, especially in the Service, the greater exposure to injury and excessive use of tobacco must be predisposing factors in producing appendicitis.

Anæsthetic.

Chloroform was used in the majority of the operations; chloroform and ether in the proportion of 1 in 2 in the rest. No spinal or local anæsthetic was used, although in my opinion they both rank high as excellent anæsthetics in acute cases; by their use shock is almost entirely abolished, there is absolute relaxation of the abdominal muscles, and there is no bad influence on the respiratory and excretory organs. Chloroform seems to me to be the best anæsthetic, apart from local anæsthetics and spinal anæsthesia. The surgeon works with better relaxation of the muscles of the abdomen and there are no pulmonary disturbances so common to ether.

Diagnosis.

Without doubt palpation is the best way to localise the inflamed point. In some cases palpation may even cause pain at remote points. One great advantage with naval surgery, especially abdominal work, is that the surgeon does not have to consider the possibilities of tubal, ovarian, or uterine trouble. Rectal palpation should be employed in the diagnosis of obscure cases. In such there is a point of tenderness on the right

120 CASES OF APPENDICECTOMY PERFORMED AT R.N. HOSPITAL, SOUTH QUEENSFERRY.

No. of case.	Name and rating.	Age.	No. of attacks.	Duration of illness.	Remarks.
1	J. T. (A.B.).	27	1st.	10 hrs.	Gridiron incision. Acutely inflamed appendix. Retrocæcal (A). Not drained. Complications nil.
2	F. C. D. (A.B.).	29	,,	12 ,,	Gridiron incision. Acutely inflamed appendix surrounded by omentum. Anterior position. Large portion of great omentum resected. Not drained. Complications nil.
3	J. T. (A.B.).	29	,,	6 ,,	Gridiron incision. Acutely inflamed appendix. Retrocæcal (A). Not drained. Complications nil.
4	H. E. B. (S.B.A.).	23	I.O.*		Gridiron incision. Operative 10 days after second slight attack. Retrocæcal (B). Appendix kinked. On section marked constriction of middle third of appendix at site of the kink. Not drained. Complications nil.
5	G. H. P. (L. Boat).	40	1st.	56 hrs.	Gridiron incision. Gangrenous perforated appendix. Free pus in pelvis. Pelvic position. Drained 4 days. (1) Pelvic drain. (2) Drain down to stump of appendix. Wound healed in 18 days. Complications nil.
6	F. C. H. (Sto.).	21	,,	24 ,,	Gridiron incision. Gangrenous appendix. Perforated at tip; small concretion. Local peritonitis. Anterior position. One drain down to appendix stump for 4 days. Complications nil.
7	D. E. D. (Elec.).	25	2nd.	10 ,,	Gridiron incision. Acutely inflamed appendix. Retrocæcal (A). Not drained. Complications nil.
8	T. G. (Mid., R.N.R.).	18	1st.	12 ,,	Gridiron incision. Acutely inflamed appendix. Anterior position. Portion of great omentum resected. Local peritonitis. Small drain for 24 hours. Complications nil.
9	A. S. (Sto.).	25	,,	18 ,,	Gridiron incision. Acutely inflamed appendix. Retrocæcal (A). Large concretion. Not drained. Complications nil.
10	A. L. (Lg. Sto.).	27	3rd.	22 ,,	Gridiron incision. Gangrenous perforated appendix. Small abscess. Many adhesions. Splenic position. Drained for 3 days, 1 tube. Complications nil.
11	G. H. B. (Mid.).	19	1st.	14 ,,	Gridiron incision. Acutely inflamed appendix. Local peritonitis. Retrocæcal position. Not drained. Complications nil.
12	J. B. (Bdr. R.M.A.).	28	2nd.	10 ,,	Gridiron incision. Acutely inflamed œdematous appendix almost perforated. Local peritonitis. Large concretion. Splenic position. Not drained. Complications nil.
13	J. E. M. (Sto.).	19	1st.	25 ,,	Gridiron incision. Acutely inflamed appendix. Anterior position. Not drained. Complications nil.
14	R. C. T. (Sto.).	21	,,	2 dys.	Gridiron incision. Gangrenous appendix. Local peritonitis. Pelvic position. Fluid in pelvis. Small pelvic drain inserted. Complications nil.
15	E. S. (Sto., R.N.R.).	21	,,	24 hrs.	Gridiron incision. Acutely inflamed appendix very adherent to cæcum. Small concretion. Retrocæcal (B). Not drained. Complications nil.
16	—. P. (Mid.).	18	2nd.	34 ,,	Gridiron incision. Acutely inflamed appendix. Hydrops. Splenic position. Not drained. Complications nil.
17	G. S. F. (Spwrt.).	38	,,	46 ,,	Rectus incision. Gangrenous appendix. Local peritonitis. Distinct kink in the middle of the appendix. Anterior position. Small drain for 48 hours. Complications nil.
18	C. J. W. (A.B.).	21	1st.	2 dys.	Rectus incision. Acutely inflamed appendix. Anterior position. Not drained. Complications nil.
19	G. C. F. (Sto.).	20	2nd.	38 hrs.	Rectus incision. Gangrenous perforated appendix. Pelvic position. Pus in pelvis and around the caput cæcum. Pelvic and iliac drain. Complications: Pelvic abscess 8th day after.
20	C. M. (P.O.).	32	3rd.	4 dys.	Rectus incision. Gangrenous perforated appendix. Abscess the outer side of the cæcum. Pelvic peritonitis. Large concretion found in abscess cavity. Pelvic and iliac drain. Retrocæcal position. Complications: Fæcal fistula 4th day; persisted for 6 days.
21	J. A. J. (Ch. Sto., R.F.R.).	46	,,	16 hrs.	Rectus incision. Acutely inflamed appendix. Retrocæcal (B). Many adhesions to cæcum. Peritoneum covering iliac fossa incised to remove appendix. Peritonealplasty performed. Not drained. Complications nil.
22	J. P. (Sto.).	21	1st.	24 ,,	Rectus incision. Acutely inflamed appendix. Anterior position. Not drained. Complications nil.
23	G. E. T. (A.B.).	23	2nd.	18 ,,	Gridiron incision. Large appendicular abscess opened. Appendix, retrocæcal and perforation of cæcum found. Outer wall of cæcum very inflamed. Abscess drained. Fæcal fistula for 14 days. Appendicectomy performed at R.N.H., Bute, 6 months later.
24	J. H. (A.B., R.N.R.).	34	1st.	12 ,,	Rectus incision. Acutely inflamed appendix. Anterior position. Not drained. Complications nil.
25	R. H. (Sto.).	21	,,	24 ,,	Rectus incision. Gangrenous appendix. Anterior position. Large concretion present in appendix. No drainage. Complications nil.
26	G. T. (Pte., R.M.L.I.).	22	,,	24 ,,	Gridiron incision. Large appendicular abscess opened. This was shut off by very firm adhesions. Abscess drained for 8 days, when it healed. Appendix removed later. Retrocæcal in position.
27	H. J. S. (O.S.).	18	,,	3 dys.	Rectus incision. Gangrenous perforated appendix. Small abscess to the outer side of the cæcum. Retrocæcal (A). Iliac drain for 6 days. Complications nil.
28	G. B. (Boy).	17	,,	16 hrs.	Rectus incision. Acutely inflamed appendix. Local peritonitis. Retrocæcal (A). Not drained. Complications nil.
29	S. R. (A.B.).	19	,,	12 ,,	Rectus incision. Acutely inflamed appendix. Anterior position. Not drained. Complications nil.
30	H. K. (Sto., R.N.R.).	30	2nd.	16 ,,	Rectus incision. Acutely inflamed kinked appendix. Anterior position adherent to great omentum. Position of omentum removed. Not drained. Complications nil.
31	F. D. (Sto.).	22	1st.	13 dys.	Rectus incision. Totally gangrenous appendix. Pelvic position. General peritonitis. Pus in kidney pouch and pelvis. Four draining tubes, one in each flank, one in pelvis, and one in right iliac fossa. Complications: Residual pelvic abscess.
32	H. P. (A.B.).	30	,,	16 hrs.	Rectus incision. Acutely inflamed appendix. Anterior position. Not drained. Complications nil.
33	G. T. D. (Sto.).	22	,,	10 ,,	Rectus incision. Acutely inflamed appendix. Anterior position. Not drained. Complications nil.
34	H. B. (Elec.).	28	2nd.	18 ,,	Rectus incision. Gangrenous appendix perforated. Pelvis position. Pelvic peritonitis. Pelvic drain. Complications nil.
35	H. S. (Pte., R.M.L.I.).	19	1st.	24 ,,	Rectus incision. Acutely inflamed appendix. Anterior position. Not drained. Complications nil.
36	H. D. (S.B.A.R.).	21	2nd.	10 ,,	Gridiron incision. Acutely inflamed appendix. Retrocæcal (A) Not drained Complications nil

* Intermediate operation.

120 CASES OF APPENDICECTOMY (*Continued*).

No. of case.	Name and rating.	Age.	No. of attacks.	Duration of illness.	Remarks.
37	A. W. (Sto.).	23	1st.	24 hrs.	Rectus incision. Acutely inflamed appendix. Local peritonitis. Retrocæcal (A). Not drained. Complications nil.
38	W. O. (Ar.Cr.).	25	,,	2 dys.	Rectus incision. Acutely inflamed appendix. Small concretion. Anterior position. Not drained. Complications nil.
39	R. A. (Sto.).	16	,,	24 hrs.	Rectus incision. Acutely inflamed appendix, kinked, lumen, almost obliterated at kink. Retrocæcal (A). Complications nil.
40	N. C. D. (Musician).	21	,,	3 dys.	Rectus incision. Large abscess. Appendix had sloughed off. leaving a fæcal fistula. There was general peritonitis. Peritoneum irrigated with saline. Three drainage-tubes inserted, one in either flank and one in pelvis. Recovery slow. Complications: Jaundice which lasted 8 days.
41	W. E. P. (Sto.).	23	,,	24 hrs.	Rectus incision. Acutely inflamed appendix. Anterior position. Local peritonitis. Not drained. Complications: Small secondary abscess at lower end of wound, healed quickly.
42	A. L. (Off.Stwd.).	23	2nd.	16 ,,	Rectus incision. Acutely inflamed appendix, kinked, and very adherent to cæcum. Retrocæcal (B). Not drained. Complications nil.
43	J. T. (Sto.).	23	1st.	20 ,,	Rectus incision. Acutely inflamed appendix. Gangrenous at tip, which was dilated into a bag of pus. Anterior position. Not drained. Complications nil.
44	H. G. (Sto.).	22	,,	24 ,,	Rectus incision. Gangrenous appendix. Purulent fluid in pelvis. Pelvic position. Pelvic drain for 2 days. Complications nil.
45	R. G. T. (Sto.).	19	,,	38 ,,	Rectus incision. Gangrenous appendix. Local peritonitis. Splenic position. Small concretion. Not drained. Complications nil.
46	J. McD. (Pte., R.M.L.I.).	30	2nd.	3 dys.	Rectus incision. Perforated gangrenous appendix. Retrocæcal (B). Local peritonitis. Iliac drain for 8 days. Complications nil.
47	J. S. (Boy).	17	1st.	36 hrs.	Rectus incision. Acutely inflamed appendix. Splenic position. Not drained. Complications nil.
48	W. H. (Carp. Mte.).	26	2nd.	48 ,,	Rectus incision. Gangrenous perforated appendix. Anterior position. General peritonitis. Drained by pelvic and iliac tubes. Died of pneumonia 4 days after the operation.
49	H. A. (A.B.).	20	1st.	26 ,,	Rectus incision. Acutely inflamed appendix. Retrocæcal (B). Not drained. Complications nil.
50	M. F. (Sto.).	19	,,	30 ,,	Rectus incision. Acutely inflamed appendix. Anterior position. Appendix wrapped in great omentum. Portion of great omentum resected. Not drained. Complications nil.
51	F. S. (A.B., R.N.D.).	40	3rd.	2 dys.	Rectus incision. Gangrenous perforated appendix. Pelvic position, very adherent. Pus in pelvis. Drained by a tube in pelvis. Complications: Cystitis for 10 days.
52	C. H. L. (Ass. Clerk).	17	1st.	18 hrs.	Rectus incision. Gangrenous perforated appendix. Anterior position. Pus in pelvis. Drained two tubes, pelvic and lumbar. Complications: Bronchitis.
53	F. McB. (Sto. H.).	19	,,	24 ,,	Rectus incision. Acutely inflamed appendix. Anterior position. Local peritonitis. Not drained. Complications nil.
54	H. S. (Sto.).	27	3rd.	38 ,,	Rectus incision. Grangrenous perforated appendix. Anterior position. Large abscess. Three large concretions removed. Pelvis drained by large tube. Complications nil.
55	F. K. (A. B.).	19	1st.	26 hrs.	Rectus incision. Acutely inflamed appendix. Splenic position. Tip of appendix adherent to root of mesentery. Not drained. Complications nil.
56	W. B. (A.B.).	29	2nd.	16 ,,	Rectus incision. Gangrenous appendix perforated near its tip. Small abscess. Anterior position. Portion of great omentum resected. Small drain down to stump of appendix. Complications nil.
57	D. K. (A.B.).	34	,,	12 ,,	Rectus incision. Gangrenous perforated appendix. Retrocæcal (B). Retrocæcal fossa drained. Complications: Bronchitis.
58	J. B. (Sto.).	20	1st.	30 ,,	Rectus incision. Gangrenous perforated appendix. Local peritonitis. Anterior position. Drainage-tube for 48 hours. Complications nil.
59	H. O'N. (Sto.).	19	,,	24 ,,	Rectus incision. Gangrenous appendix, not perforated. Anterior position. Small drain for 48 hours. Complications nil.
60	G. B. (Sto.).	22	,,	16 ,,	Rectus incision. Acutely inflamed appendix. Splenic position. Not drained. Complications nil.
61	E. J. A. (Sto.).	20	,,	48 ,,	Rectus incision. Gangrenous perforated appendix. Large concretion. Appendix doubled upon itself. Retrocæcal position. Free fluid in pelvis. Pelvic and iliac drainings. Complications nil.
62	E. A. R. (Gr., R.M.A.).	36	3rd.	28 ,,	Rectus incision. Acutely inflamed appendix. Retrocæcal (B). Many adhesions. Not drained. Complications: Bronchitis.
63	D. F. de M. (Carp. Cr.).	26	1st.	50 ,,	Rectus incision. Acutely inflamed appendix. Splenic position. Not drained. Complications nil.
64	G. B. (Mid.).	19	,,	15 ,,	Rectus incision. Acutely inflamed appendix, kinked, marked appendicular sclerosis. Anterior position. Not drained. Complications nil.
65	J. D. N. (Sto., P.O.).	37	2nd.	24 ,,	Rectus incision. Acutely inflamed appendix. Retrocæcal (A). Small concretion. Not drained. Complications nil.
66	J. T. (Sto., P.O.).	32	,,	26 ,,	Rectus incision. Gangrenous perforated appendix. Anterior position. Appendix surrounded by omentum. Small drain. Complications nil.
67	G. W. (Lg. Sig.).	29	3rd.	36 ,,	Rectus incision. Gangrenous appendix. Abscess. Retrocæcal (A). Retrocæcal fossa drained. Complications nil.
68	R. G. H. (Boy).	17	1st.	28 ,,	Rectus incision. Acutely inflamed appendix. Anterior position. Not drained. Complications nil.
69	D. S. (Sto.).	19	,,	48 ,,	Rectus incision. Acutely inflamed appendix. Splenic position. Not drained. Complications nil.
70	J. H. (Boy).	17	,,	50 ,,	Rectus incision. Gangrenous appendix. Small concretion Anterior position. Not drained. Complications: Small secondary abscess which quickly healed.
71	C. B. (O.S.).	18	,,	46 ,,	Rectus incision. Acutely inflamed long appendix, adherent to bladder. Pelvic position. Small pelvic drain for 4 days. Complications; Cystitis.
72	D. R. (Motor boatman.)	41	3rd.	50 ,,	Rectus incision. Acutely inflamed kinked appendix. Small concretion. Retrocæcal (A). Not drained. Complications nil.
73	V. W. M. (E. R. A.).	23	2nd.	24 ,,	Rectus incision Chronic appendix obliterated at its centre, with well-marked cystic extremity. Pelvic position. Not drained. Complications nil.
74	E. M. (Sto., P.O.).	38	1st.	46 ,,	Rectus incision. Gangrenous appendix. Local peritonitis. Retrocæcal (A). Not drained. Complications: Catarrhal jaundice.

120 CASES OF APPENDICECTOMY (*Continued*).

No. of case.	Name and rating.	Age.	No. of attacks.	Duration of illness.	Remarks.
75	C. B. (Sto.).	21	1st.	48 hrs.	Rectus incision. Acutely inflamed appendix, gangrenous at tip. Splenic position. Not drained. Complications nil.
76	C. H. G. (Sto.).	21	,,	56 ,,	Rectus incision. Gangrenous perforated appendix. Retrocæcal (A). General peritonitis. Pelvis, right kidney pouch, and lumbar region drained. Complications: Fæcal fistula.
77	Wm. H. H. (Sto., R.F.R.).	27	2nd.	18 ,,	Rectus incision. Gangrenous perforated appendix. Anterior. Small drain. Complications nil.
78	B. H. (Mid., R.N.R.).	18	1st.	24 ,,	Rectus incision. Thickened inflamed appendix. Anterior position. Three large mesenteric glands removed. Sections cut. Appendix and glands tuberculous. No drainage. Complications nil.
79	P. D. (A.B., R.F.R.).	40	3rd.	72 ,,	Rectus incision. Gangrenous perforated appendix. Retrocæcal (B). Retrocæcal fossa drained. Complications: Fæcal fistula.
80	W. C. (A.B.).	22	2nd.	18 ,,	Rectus incision. Thickened inflamed appendix. Anterior position. Not drained. Complications: On cutting open the appendix yellow gritty bodies were seen. Appendix was sent to Edinburgh for examination. Report: Actinomycosis of appendix.
81	J. G. (A.B.).	21	1st.	24 ,,	Rectus incision. Acutely inflamed appendix. Splenic position. Not drained. Complications nil.
82	H. S. (Mid.).	17	,,	10 ,,	Rectus incision. Acutely inflamed appendix. Large concretion. Anterior position. Not drained. Complications nil.
83	P. L. C. (Sto.).	34	,,	22 ,,	Rectus incision. Gangrenous perforated appendix. Anterior position. Local peritonitis. Small drain. Complications nil.
84	W. T. B. (Sto.).	21	,,	16 ,,	Rectus incision. Acutely inflamed appendix, kinked, splenic. Not drained. Complications nil.
85	H. W. (O.S.).	20	,,	24 ,,	Rectus incision. Acutely inflamed appendix. Retrocæcal (A). Not drained. Complications nil.
86	C. H. H. (Lg. Sto.).	25	,,	14 ,,	Rectus incision. Acutely inflamed appendix. Pelvic position. Some free fluid in pelvis. Not drained. Complications: Post-operative distension.
87	J. K. (Ch.Elec.).	36	2nd.	24 ,,	Rectus incision. Acutely inflamed appendix. Splenic position. Not drained. Complications nil.
88	J. T. B. (W.O.).	36	1st.	30 ,,	Rectus incision. Gangrenous perforated appendix. Retrocæcal (A). Retrocæcal fossa drained. Complications: Post-operative distension.
89	A. O. (O.S.).	20	,,	16 ,,	Rectus incision. Acutely inflamed appendix. Retrocæcal (A). Not drained. Complications nil.
90	L. C. (E.R.A.).	28	2nd.	28 ,,	Rectus incision. Gangrenous perforated appendix. Large concretion. Anterior position. Pelvic peritonitis. Pelvic and iliac drain. Complications nil.
91	W. J. (Sto.).	33	1st.	36 ,,	Rectus incision. Acutely inflamed appendix, kinked, and adherent to great omentum. Anterior position. Not drained. Complications: Pleurisy.
92	C. H. (Lg. Sig.).	26	,,	20 ,,	Rectus incision. Acutely inflamed appendix. Small concretion. Pelvic position. Not drained. Complications nil.
93	C. P. (Boy).	16	,,	58 ,,	Rectus incision. Perforated gangrenous appendix. Retrocæcal (B). Pelvis and retrocæcal fossa drained. Complications: Fæcal fistula, which persisted for 6 days.
94	C. F. C. (Bugler, R.M.A.).	14	,,	28 ,,	Rectus incision. Perforated gangrenous appendix. Large concretion. Pelvic position. Pelvic drain. Complications: Post-operative distension.
95	C. E. (A.B.).	27	1st.	34 hrs.	Rectus incision. Acutely inflamed appendix. Splenic position. Not drained. Complications nil.
96	W. H. C. (E.R.A.).	24	2nd.	24 ,,	Rectus incision. Gangrenous perforated appendix. Pelvic abscess. Pelvic position. Iliac fossa and pelvis drained. Complications: Post-operative distension.
97	T. T. (Lt.-Com.).	32	1st.	42 ,,	Gridiron incision. Gangrenous perforated appendix. Local peritonitis. Splenic position. Large drainage-tube. Complications: Acute intestinal obstruction on 8th day. Wound opened up and small abscess in the mesentery found. Healed well.
98	J. G. (Boy).	16	3rd.	8 dys.	Gridiron incision. T. B. peritonitis. Appendix removed. Pelvic position. Wound drained for 48 hours. Recovery slow.
99	A. H. (Bugler).	17	1st.	36 hrs.	Rectus incision. Gangrenous appendix. Perforated at tip. Small abscess. Retrocæcal (A). Small drain for 2 days. Complications nil.
100	G. G. (O.S.).	19	,,	36 ,,	Rectus incision. Gangrenous perforated appendix. Pelvic position. Pelvis and right iliac fossa drained. Complications nil.
101	J. B. (A.B.).	20	3rd.†	—	Rectus incision. Operation 8 days after 3rd attack. Retrocæcal (B). Very long appendix, adherent to cæcum along its entire length. Decortication of the appendix performed. No complications.
102	C. K. S. (Lg. Cks. Mate).	36	1st.	3 dys.	Rectus incision. Gangrenous perforated appendix. Anterior position. General peritonitis. Pelvic, lumbar, and cæcal drainage-tubes inserted. Complications: Intestinal obstruction 2nd operation on 4th day; large abscess opened. Recovery slow.
103	J. H. (Gr. Mte.).	23	,,	54 hrs.	Rectus incision. Gangrenous perforated appendix. Retrocæcal (B). Large abscess. Large drainage-tube in retrocæcal fossa. Complications: Fæcal fistula.
104	J. D. (A.B.).	19	,,	2 dys.	Rectus incision. Gangrenous perforated appendix. Retrocæcal (B). Local peritonitis. Small abscess. Condition of cæcum bad. One drainage-tube. Complications: Fæcal fistula developed 3 days after operation, and persisted for 10 days.
105	H. F. (E.A.).	24	,,	48 hrs.	Rectus incision. Gangrenous perforated appendix. Large concretion. Retrocæcal (A). Fossa drained. Complications nil.
106	F. G. (Lg. Sea.).	29	,,	48 ,,	Rectus incision. Gangrenous perforated appendix, kinked on itself. Retrocæcal (A). Fossa drained. Complications nil.
107	G. E. S. (Musician).	21	2nd.	3 dys.	Rectus incision. Perforated gangrenous appendix. Retrocæcal (A). Small abscess. Two concretions. Drainage-tube inserted down to appendix stump, removed after 6th day. Complications nil.
108	P. H. N. (Eng. Lt.-Com.).	42	3rd.	2 ,,	Rectus incision. Gangrenous perforated appendix. Pelvic position. Pelvic peritonitis. Large pelvic drainage-tube inserted, removed 10th day. Complications: Hæmaturia for 3 days.
109	W. R. (E.A.).	17	1st.	56 hrs.	Rectus incision. Perforated appendix and abscess found in the iliac fossa behind the peritoneum on the fascia iliaca. Retrocæcal (C) drained. Complications nil.
110	H. C. (Sto.).	24	,,	24 ,,	Rectus incision. Acutely inflamed appendix. Splenic position. Not drained. Complications nil.

† Intermediate operation.

120 CASES OF APPENDICECTOMY *(Continued).*

No. of case.	Name and rating.	Age.	No. of attacks.	Duration of ilness.	Remarks.
111	A. L. (O.S).	21	1st.	48 hrs.	Rectus incision. Perforated gangrenous appendix. Pelvic abscess. Pelvic position. Pelvis and right iliac fossa drained. Complications: Cystitis.
112	E. J. W. (Sto.).	24	,,	16 ,,	Rectus incision. Acutely inflamed appendix. Splenic position. Not drained. Complications nil.
113	W. R. (Pte., R.M.L.I.).	29	,,	48 ,,	Rectus incision. Acutely inflamed appendix. Splenic position. Not drained. Complications nil.
114	J. D. (Lg. Sto.).	27	4th.	10 ,,	Rectus incision. Chronic kinked appendix removed. Anterior position. Small perforated ulcer of lesser curvature of stomach excised. Drainage for 3 days. Complications nil.
115	A. M. (Stewd.).	20	1st.	26 ,,	Rectus incision. Acutely inflamed appendix. Splenic position. Not drained. Complications nil.
116	J. F. (Sto.).	20	2nd.	2 wks.	Rectus incision. Appendix inflamed. Retrocæcal (A). T.B. peritonitis. Fluid withdrawn. Wound impregnated with iodoform paste and closed without drainage. Condition improved rapidly.
117	L. P. C. B. (Sig.).	18	1st.	10 hrs.	Rectus incision. Anterior position. Acutely inflamed appendix. Local peritonitis. Drained, 1 tube for 4 days. No complications.
118	E. V. (A.B.).	27	,,	24 ,,	Rectus incision. Acutely inflamed appendix. Small concretion. Retrocæcal (A). Local peritonitis. Not drained. Complications nil.
119	E. H. A. (Lg. Sea.).	35	,,	26 ,,	Rectus incision. Perforated gangrenous appendix. Splenic position. Small drain. Complications: Post-operative distension.
120	A. N. (Musician)	18	,,	4 dys.	Gridiron incision. Large abscess opened to the outer side of the cæcum. Appendix retrocæcal in position, and was bound down by many adhesions and not removed. Abscess drained. Complications nil. Appendicectomy performed at R.N. Hospital, Bute, later.

side of the rectum just about the circular ring of muscular fibres which form what is sometimes known as the valve of O'Beirne. I do not consider Bastedo's sign to be of very special use in the diagnosis of appendicitis, although Hertz[3] speaks very highly of it. The test depends upon the production of pain and tenderness in the right iliac fossa on inflation of the colon with air.

Incision.

In 22 cases only was McBurney's gridiron incision used; for the remainder Battle's rectus incision was employed. I consider the muscle-splitting operation is only indicated for interval appendicectomy and in those late cases where an abscess is pointing in the right iliac fossa. For routine appendicectomy the rectus incision is to be preferred, as the gridiron incision has many drawbacks; more room is only to be had by cutting across the muscles of the abdominal wall. Ventral hernia is more liable to follow, and Adams[4] states that right inguinal hernia sometimes follows after the muscle-splitting operation of McBurney, due, no doubt, to the upsetting of the neuro-muscular arrangement of the inguinal canal.

Development and Position of the Appendix.

According to Gladstone,[5] in a human embryo of 7·5 mm. lengths (Harvard College) the cæcal diverticulum is recognised as a slight swelling of the distal limb of the intestinal loop. In an embryo of 17 mm. length[6] this bulging is more pronounced, and forms a rounded swelling, such as is seen in Specimen 629, Royal College of Surgeons of England. In a later stage it becomes conical. Between 40 and 50 mm. a narrower distal part which will become the appendix can be distinguished from a wider proximal part which will become the cæcum. It is not, however, until after birth that a sudden diminution in the calibre of the gut marks off the root of the appendix coming off from its lower point. The asymmetrical form is not developed until a few years after birth. In a human embryo of 45 mm. length the liver comes down to the level of the V. lumbar vertebra; the appendix, which can be clearly seen at this stage of development, is found a considerable distance lower down in the iliac fossa. The reason why the cæcum and appendix are found above the iliac fossa in children is due to the unequal development of the spinal column. The intestinal tract does not keep pace with the development of the vertebræ, and in consequence the cæcum and appendix come to lie at a higher plane. It is common in children to find that the cæcum has not reached the iliac fossa, but has been delayed in descent and remains in the umbilical region. The cæcum descends into the iliac fossa as the colon increases in length. Before the descent of the cæcum takes place the appendix may be in a retrocæcal position and may become fixed there. When the cæcum descends the appendix is in the extraperitoneal retrocæcal position.

The position of the appendix may be: anterior, splenic, pelvic, or retrocæcal; the names explain themselves, but the retrocæcal position requires a few words of explanation. In this position the appendix has a varying relation to the peritoneum, and I have classified all the retrocæcal cases as A, B, or C.

(A) The appendix lies in the retrocæcal fossa covered with peritoneum.

(B) The appendix lying adherent to the posterior aspect of the cæcum in the anterior wall of the fossa.

(C) The appendix lying on the fascia iliaca in the retrocæcal fossa uncovered with peritoneum.

It is in the retrocæcal (B) cases that there is a great chance of a fæcal fistula following appendicectomy, as the cæcum is always in a bad condition. The pelvic position of the appendix is no doubt due to a short mesentery, in these cases the mesentery being attached to the posterior abdominal wall near the pelvic brim. Occasionally the appendix has no mesentery and is entirely retroperitoneal.

Drainage.

There is always the question when operating on cases of acute appendicitis whether the abdominal cavity should be drained or not. In quite a number of cases where the appendix was gangrenous the peritoneal cavity was not drained, and the abdominal wound healed by first intention, and recovery was interrupted. I have never drained a pelvic abscess through the rectum as is sometimes recommended, because I consider it unnecessary, and the patient suffers from additional shock. In several cases in which the appendix lay to the outer side of the cæcum, the abdomen was drained by placing a tube in the right flank, but the method is unsatisfactory and the discharge scanty.

From the tables it will be seen that there were six cases of appendicectomy performed during the quiescent stage. Three of these were tuberculous, two having tuberculous peritonitis, another was a case of actinomycosis of the appendix. The other cases, No. 4 and No. 101, were purposely performed after the acute attack had subsided.

Results.

	Total.		Recovered.		Died.		Mortality.	
During quiescent stage	6		6		0		Nil.	
During acute stage:								
General peritonitis ...	12	114	11	113	1	1	8·33%	0·877%
Abscess	25		25		0		Nil.	
Local peritonitis... ...	38		38		0		,,	
Inflammation localised to appendix	39		39		0		,,	
Grand total	120		119		1		0·833%	

Complications which Occurred amongst the 114 Cases Operated upon During the Acute Attack.

Complications.	No. of cases.	Complications.	No. of cases.
Secondary abscess	6	Intestinal obstruction ...	2
Fæcal fistula	7	Catarrhal jaundice	2
Lobar pneumonia	1	Cystitis	3
Pleurisy	1	Hæmaturia	1
Bronchitis	3	Post-operative distension	5

The 7 cases which developed a fæcal fistula were operated upon late in the attack.

Whenever possible, in acute cases of appendicitis with abscess formation the appendix should be removed. In only two cases (23 and 120) the appendix was not removed at the first operation, but at a later date. In these cases the abscess cavity was a large one and well walled off, the appendix could not be felt, and the condition of the patient grave.

Case 120, musician, aged 18. This boy had just returned from seven days' leave, during which time he was unwell. He went three times to a chemist, who told him he was suffering from colic and gave him some medicine. On rejoining his ship, as he felt worse, he reported to the sick-bay, and was immediately transferred to hospital.

As regards complications, Cheever[7] points out that the most frequent complication of acute appendicitis is post-operative intestinal stasis. This is generally due to paralysis of the bowel wall censequent upon the peritoneal infection. There are other cases, however, in which the obstruction is caused by a twist or kink, most frequently affecting the terminal ileum. Many of the former group recover spontaneously, or are relieved by suitable non-operative treatment. Obstruction from mechanical causes, however, needs early operative treatment if the case is to recover, and it is therefore of the greatest possible importance to recognise these cases.

Cheever thinks that a certain number of cases of this latter group are due to adhesion of the ileum to the inflamed bed of the appendix on the lateral pelvic wall, a condition to be suspected if after a few days of normal convalescence, symptoms of intestinal stasis appear in a patient whose inflamed appendix has been stripped away from the side wall of the pelvis.

References.—1. R. Short: Appendicitis, Index of Prognosis, 1915. 2. S. R. Macphail: Jour. Anat., vol. li., p. 308. 3. Hertz: THE LANCET, 1913, vol. i., p. 308. 4. J. E. Adams: Practitioner, April, 1917, p. 301. 5. R. J. Gladstone: Jour. Anat. and Phys., vol. ccccxvi. 6. Keibel and Mall: Manual of Human Embryology. 7. Cheever: Bost. Med. and Surg. Jour., 1913, i., 179.

A NOTE ON

DEXTROCARDIA, COMPLETE AND INCOMPLETE,

WITH FOUR ILLUSTRATIVE CASES.

BY BASIL PARSONS-SMITH, M.D., B.S. LOND., M.R.C.P. LOND.,

LATE CAPTAIN, R.A.M.C. (T.C.).

DEXTROCARDIA, or right-sided heart, is a condition sufficiently uncommon to merit a most careful inquiry into the physical state, resistance value, and work capacity of all cases that come before our notice, and the four examples hereunder noted may be taken to call for special interest in that each was a soldier who had, for a time at any rate, performed full duty on active service. Dextrocardia, as seen clinically, must be clearly differentiated from a condition to which it is closely allied—viz., pseudo-dextrocardia, where we are dealing with a displacement, not a transposition. True dextrocardia is a congenital anomaly; as the name inplies, it indicates a heart situated on the right side, associated, more often than not, with transposition of the stomach, spleen, and liver. By such visceral dispositions one would expect a practical and efficient compensation for the abnormal site adopted by the heart in its evolution.

Recital of Four Cases.

The following cases may assist us in arriving at reasonably definite conclusions.

CASE 1.—Tpr. R., age 30. The patient came under observation in August, 1918, suffering from "D. A. H." and symptoms of general incompetence which had compelled him to leave his unit some two months previously. In size, height, and general development patient is well above the normal standard. The family history is unimportant, and exhibits no features of note in the present context. The past history from the medical point of view is negative, except for bronchitis at the age of 7. During boyhood the usual athletic pursuits were followed, and until joining the army patient had been employed as a farmer. It is noteworthy, however, that he was unable to make sustained effort, and, being his own master, he was in a position to choose the light work and miss that of a heavy and laborious nature. For this apparent disability no intrinsic medical reason is given by the patient; the only explanation he advances is that he was always subject to colds and pains in the right side of the chest on exertion.

In March, 1917, patient joined the army (R.H.Gds.) and commenced his training in riding, foot-drill, gymnastics, &c. This he managed perfectly satisfactorily for three and a half months; at the end of this time he was seen by the medical officer in consequence of a persistent pain in the chest and a general condition of debility, and for this reason he was transferred for lighter duty to the clipping staff, at which work he remained until coming overseas in March, 1918. On arrival in France he was at once attached to the M.G.C. and performed full duty in the line for two months, when, the old symptoms returning, patient was sent down the line.

The symptoms were few but definite: Shortness of breath with effort, pains in the chest (right), dizziness (postural), tremor and nervousness. On examination, apex beat sixth intercostal space (right), 1½ inches internal to the mid-clavicular line, heaving in character, not tender to palpation. The A.C.D. begins above the fourth right costal cartilage, extends down the left sternal margin, and outwards half an inch beyond the apex beat in the sixth intercostal space. Sounds clear, relative intensity normal. No thrill at apex or base. No abnormal exocardial sounds. Heart's reaction to effort test not good, rate of beat, elevation of blood pressure, and respiratory excursions one and all unduly exaggerated. Pulmonary expansion normal and lungs free from physical signs.

X ray report: Transposition of heart, liver, and stomach; bismuth was given and seen very distinctly on the right side in the fundus of the stomach.

CASE 2.—Rfn. H., age 19. Evacuated from his unit with gas poisoning, presented the usual symptoms which follow exposure to the vapour of the so-called "mustard gas" (di-chlor-ethyl-sulphide); was treated by routine methods and made a satisfactory and complete recovery. Patient's family history is good, and his past life, except for an attack of typhoid fever at the age of 13 and diphtheria when 16, has been perfectly normal from the exercise and athletic point of view. At 18 patient joined the army and underwent the usual course of training without experiencing the least difficulty.

To outward appearance patient is a normal healthy lad, well proportioned and developed; the colour is good; there is no tendency to cyanosis or clubbing of the fingers; the conformity of the thorax and trunk is normal; the heart's apex is seen and felt in the fifth right intercostal space 1 inch internal to the mid-clavicular line, and in the lateral decubitus it is observed to travel outwards (1 inch) and downwards to the sixth space. The cardiac dullness begins above at the level of the third intercostal space, extends down the mid-sternal line, and outwards to the apex beat. The first sound at the apex is split, otherwise the sounds, at both apex and base, are normal in tone and relative value; the rhythm is regular. The response to effort is good and satisfactory. The manometric readings, before and after the test exercise, conform to the normal type. The respiratory excursion is good and equal on the two sides, and the healthy vesicular murmur is heard over both lungs, gastric tympany extends downwards from the sixth intercostal space on the right side, and the note characteristic of hepatic dullness extends from the sixth rib to the costal margin on the left side. Extract from X ray report says: "Transposition of heart, liver, and stomach; bismuth given and seen on the right side in the fundus of the stomach."

CASE 3.—Pte. R., age 31. Was admitted August, 1917, complaining of shortness of breath, choking sensations at nights, exhaustion with the slightest effort, and loss of weight. His past history was not good, all the usual childish complaints with persistent delicacy during adolescence compelled him to adopt a sedentary occupation. After four months of active service, the above-mentioned symptoms of incompetence made their appearance, and patient was sent down the line. The appearance of the man when first seen was noted as follows: medium height, poor physique, and expression of anxiety, sallow complexion, with a definite cyanotic tinge.

On examination, an impulse typical of the heart's apex was seen and felt in the sixth right intercostal space 4 inches from the midsternal line; to percussion, dullness, characteristically cardiac, was found to extend from the third space above, down the left sternal margin and outwards to the impulse; this area was unduly prominent and hyperæsthetic to both palpation and percussion; extra-systoles, with change of position and following exercise, interfered with the otherwise regular rhythm; the first sound at the apex was reduplicated, no bruit was detected, and the basal sounds were clear. The stomach was proved to occupy its normal position, both by percussion and inflation; the liver was situated in its usual quarters on the right side; the heart's response to effort was bad, test exercises were productive of visible distress, the objective phenomena, rise in pulse-rate, respiration and blood pressure, were both exaggerated and prolonged, and sustained effort, even of a mild description, was unsatisfactorily performed. Under treatment slight progress in general condition was manifest, but it rapidly became clearly obvious that patient would never arrive at the standard of fitness which full duty on active service demands.

CASE 4.—Pte. B., age 27. Admitted November, 1917, labelled V.D.H. His history in brief was as follows: Persistently poor health during childhood, inability for games or strenuous exercise of any kind, a sedentary occupation (clerk), and a permanent tendency to bronchitis which invariably incapacitated him during the colder months. Patient experienced great difficulty with his training, and was more often than not on light duty. On arrival overseas he was drafted to his unit; symptoms of general incompetence soon became evident, and patient was sent to hospital at the end of the fifth week.

At the first examination patient was observed to be a poorly developed man of delicate build and sallow, anæmic complexion. The main symptoms included shortness of breath, faintness, giddiness, pains and constriction in the chest. The conformity of the chest was irregular in that the right side was unduly prominent and the left side appeared decidedly flattened; the heart's apex beat was seen and felt in the sixth right intercostal space one inch external to the nipple line; the cardiac dullness (deep) began above at the level of the third rib and extended down the left sternal margin and outwards to the apex beat; this area was prominent and hyperæsthetic to palpation and percussion; the heart-rate was rapid (124 resting), the rhythm was regular and undisturbed; the diastolic interval curtailed; the sounds at the apex were short, sharp, and accentuated, especially the first sound; the basal sounds were complicated by a soft and long-drawn-out bruit which was audible over the upper half of the præcordial area. This bruit varied in intensity, being distinctly louder during the systolic phase and tailing off rapidly in the diastolic interval. After exercise one could easily pick up the murmur posteriorly at the angle of the scapula. A fine thrill was felt on light palpation in the third intercostal space one inch from the right sternal margin. The pulse was rapid, low in tension, and small in volume, though larger in the left radial than the right, possibly owing to the fact that patient was left-handed. The blood-pressure readings confirmed the impression one had formed of the pulse by palpation. The systolic reading was 90 mm., the diastolic 75 mm.; these readings were taken with the patient at rest. Effort, even the elementary tests, was badly borne, the usual symptoms of distress were complained of, and objective phenomena—viz., dyspnœa, cyanosis, pallor, perspiration, and the typical facies of anxiety—were noted. Stomach resonance occupied the normal position on the left and reached the sixth rib in nipple line, merging at this point directly into pulmonary resonance (confirmed by the inflation test). The liver was situated on the right side, and the percussion dullness of this organ extended downwards in direct continuity from the heart dullness above to the costal margin below.

Summary of Cases.

In briefly summarising the above it is clearly evident we are dealing with two entirely different types of right-heart. In the first two cases the transposition not only affects the heart but also the liver and the stomach; in the other two cases (Cases 3 and 4) the heart is transposed, but the liver occupies its normal position on the right and the stomach is in its usual bed on the left side. Comparing now these objective phenomena with the individual symptoms complained of, the reaction to effort, and the response to strain both present and past, one realises how widely different in importance from the prognosis point of view the two types of the condition appear to be. In one variety we recognise an apparently satisfactory solution to the congenital anomaly. In the other it is evident that we are faced with a state of affairs totally inimical to even an ordinary degree of efficiency.

Conclusions.

1. In dextrocardia we recognise one of the rarer of the abnormalities of development which appear from time to time.

2. The significance of a right-sided heart entirely depends upon whether it is associated or not with simultaneous transposition of liver, stomach, and spleen.
3. Associated with complete transposition of viscera dextrocardia does not incapacitate and is usually diagnosed by accident.
4. Dextrocardia without transposition of viscera is of serious moment. Symptoms of incompetence are bound to appear sooner or later; these latter include dyspnœa, palpitation, insomnia, faintness, pain, &c., and result from a general visceral overcrowding, the liver impeding the movements of the heart and the upper lobes of the right lung.
5. Cases of dextrocardia without transposition invariably lay stress on the pains they experience both during effort and when resting; these pains depending upon the visceral overcrowding, are both local and referred, local when they denote pressure upon the intercostal nerves or brachial plexus, referred when the vagus or its intracardiac endings suffer inordinate stimulation.
6. Dextrocardia without transposition is usually, if not always, complicated by actual malformation of the heart and great vessels. In the fourth case above reported it was considered that the ventricular septum was perforate. Likewise we must be prepared to meet with other congenital derangements, pulmonary stenosis or atresia, transposition of great vessels, incomplete septa, patent ductus arteriosus, &c.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

◆

A CASE OF
ACUTE PULMONARY ŒDEMA.

By GUY J. BRANSON, M.D. LOND.

THE following case appears to belong to the class of acute pulmonary suffocative catarrh.

Mr. ——, aged 50, spare and active, was seen by me for the first time at 9.30 P.M. on August 6th. He stated that 20 years ago he had had rheumatic fever, and believed that "his heart had been affected." When examined by a recruiting medical board he had been totally rejected, because (he understood) of his heart; but he had never consulted a doctor, as it never gave him trouble. Earlier in this year he had been unwell for about one month with an indefinite illness, but had received only domestic attention. Otherwise he had led an active business life until this sudden attack, though he admitted not having felt so well as usual for about a week past. About an hour before I saw him he was, whilst playing the pianola, suddenly seized with violent palpitations, which made him retch (not cough) slightly, and he was alarmed to find that a little fluid which he brought up was slightly tinged with blood, but the palpitations were the outstanding feature in his complaints. I found him sitting in a chair. His appearance did not suggest grave illness, and he volunteered a long statement as to his condition. His mental clarity was quite unimpaired and remained so throughout. There was no cyanosis and no dyspnœa. Œdema of the legs was carefully looked for and was not present. The mouth temperature was 98° F. The fingers were markedly clubbed. The heart's action was notably violent, the whole præcordium and epigastrium showing a widely diffused impulse. The A.B. was in the sixth interspace, ½ inch external to V.N.L. The beat was irregular and tumultuous, and a loud-blowing systolic murmur was audible at the apex, and was conducted widely into the left axilla. It was clearly audible at the left scapular angle. No adventitious sounds were audible in the lungs. There was a trifling cough which brought up a thin watery sputum, faintly blood-tinged, and in very small amount. It appeared that fibrillations of sudden onset had supervened on an old mitral lesion, and that œdema of the lungs was starting.

At 9 A.M. on August 7th the heart was steadier, Pulse 120, action still violent, but vessels ill-filled. He again complained chiefly of palpitations which had prevented rest; and, although there was no notable dyspnœa, the breathing was a little more laboured. Fine, moist crepitations were audible over both lungs, back and front. There was now a troublesome cough, and he showed me a large teacup filled with pink, thin, serous fluid. At 7 P.M. he was obviously dying. The face and lips were pale, and there was now some slight distension of superficial veins. The chest was full of rhonchi, as the œdema had obviously involved the larger tubes. Death took place at 8.30 P.M., 24 hours from the onset.

In my view, the heart failed before the full asphyxiating effect of the pulmonary complication could come into operation.

References.—Sir J. Mackenzie: Diseases of Heart, third edition, p. 56, and Principles of Diagnosis and Treatment in Heart Affections, p. 184. F. W. Price: Diseases of Heart, p. 327.

Edgbaston.

A CASE OF
PERIPHERAL MULTIPLE NEURITIS
ASSOCIATED WITH PRIMARY MALIGNANT DISEASE OF THE LIVER.

By T. DAVIES PRYCE, M.R.C.S.,
CONSULTING SURGEON, NOTTINGHAM GENERAL DISPENSARY.

THE following case appears to be interesting as pointing the lesson that when there are symptoms of sensory peripheral neuritis unassociated with diabetes and other known toxic causes, a careful search for malignant disease should be made.

J. B., female, aged 70. Eighteen months prior to her decease the patient began to lose flesh and complained of a slight degree of fatigue on exertion. Associated with these symptoms there was paræsthesia of both legs and hands. The subjective sensations of tingling and formication were well marked, but no definite loss of tactile or thermal sensibility could be detected. The knee-jerks were diminished, but the plantar and other skin reflexes were normal, as also those of the pupil. The blood pressure was normal. No organic disease was discovered. In the course of three months the patient complained of constrictive pains at the waist and the sensation of cold when the lower limbs were apposed. At nine months there was considerable anæmia and cachexia. Only slight patellar reaction could now be obtained, and there was some degree of ataxia, consisting of difficulty in maintaining the balance with the eyes closed and on sudden movement. In walking the sole of the foot was brought down flat to the ground, as in the early stages of some cases of locomotor ataxy. There was no "steppage," and no evidence of paralysis. The reaction to both continuous and interrupted currents was normal. At 15 months from the onset the patient complained of persistent pain in the hepatic region, and this was followed by vomiting, fever, and sweating, together with slight jaundice. These attacks (which were probably due to gall-stones) were repeated at varying intervals. The liver was irregularly enlarged and extended variably to 3 inches below the costal border. Slight patellar reaction on reinforcement. She gradually sank, dying on August 3rd. Unfortunately, a post-mortem examination was not obtained, but there can be no reasonable doubt as to the nature of her ailments.

The association of neuritis with cancer has been demonstrated by Auché, Oppenheim, and others, and in most instances—as in the above case—the poison appears to have exerted a selective action upon the sensory peripheral nerve fibres. Clinically, this case presented many features resembling those of diabetic neuritis reported by me in *Brain*, vol. xvi., 1893, but differed in the absence of diminished tactile sensibility and of perforating ulcers of the feet.

AN UNUSUAL CAUSE OF DEATH UNDER ANÆSTHETIC.

BY ERNEST PLAYFAIR, M.B., M.R.C.P. LOND.,
ASSISTANT ANÆSTHETIST, KING'S COLLEGE HOSPITAL.

ANY death under anæsthesia due to exceptional circumstances is worthy of being recorded, and the following case, if not unique, must at least be of very rare occurrence.

The patient was a young woman the subject of an incomplete abortion, and the anæsthetic was administered in order to empty the uterus. The general condition was good and the heart sounds normal, according to separate examinations by myself and the operator. The anæsthetic administered was A.C.E. mixture, the anæsthesia presenting no abnormal feature until the operation was nearly completed and the actual administration had been discontinued. An active corneal reflex had been maintained throughout. At this stage the patient suddenly became intensely cyanosed and ceased to breathe. With artificial respiration and dilatation of the sphincter breathing recommenced and was continued for a minute or two, but had no effect upon the cyanosis, which continued intense, and on inversion a considerable amount of blood escaped from the mouth. Further methods of resuscitation were unavailing.

The following notes have been kindly supplied by Dr. Bernard Spilsbury, who performed the post-mortem examination:—

Post-mortem.—Heart: Somewhat enlarged, mitral orifice narrowed; mitral valve, cusps thickened and contracted and partly united. Lungs: A little inhaled blood present at the backs of both lungs. There is some blood mixed with mucus in the air-passages from the larynx to the bronchioles. Spleen: Enlarged, congested; on microscopical examination congestion is marked, and there is increase in the number of cells normally found in the spleen, especially lymphocytes and phagocytic cells. There are also present cells resembling plasma cells and numerous nucleated red cells, suggesting a condition of anæmia before death. Alimentary canal: Mouth, tongue, and pharynx smeared with blood. At junction of œsophagus and stomach is a small round puncture in the mucous membrane with a dilated vein beneath the puncture—i.e., ruptured œsophageal varix. The stomach contains a little fluid mixed with blood; chronic gastritis is present. The other organs are normal. Cause of death: Asphyxia, due to the passage of blood from a ruptured œsophageal vein (varix) into the air-passages and lungs whilst under the influence of an anæsthetic.

There was no history of previous illness, nor of the occurrence of hæmatemesis, although Dr. Spilsbury points out that the condition of the spleen implies pre-existing anæmia, with the possibility of previous hæmorrhage as its cause. The hæmorrhage from the abortion had not been great. The escape of blood from the mouth, on inversion, suggested something uncommon as the cause of death, but diagnosis was, of course, impossible, and it is not easy to think of any available method of treatment which could have held out any prospect of success.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF SURGERY.

THE SURGERY OF THE PITUITARY GLAND.

A MEETING of this section of the Royal Society of Medicine was held on Dec. 3rd, Sir JOHN BLAND-SUTTON, the President, being in the chair, when Mr. PERCY SARGENT opened a discussion on the Surgery of the Pituitary Gland, in which he suggested for discussion a certain number of points connected with the surgical aspects of the diseased gland. He realised how much had yet to be learnt before operative treatment of pituitary lesions could be established upon a firm basis. Disease of the gland might manifest itself in many different ways, and the patient might be brought in the first place to the ophthalmic surgeon, the physician, the pediatrist, the neurologist, or the gynæcologist. Lesions of or implicating the pituitary gland gave rise to symptoms which fell into three groups: (1) those dependent upon disordered function, whether in the direction of excessive or of deficient activity or of a combination of both; (2) those which resulted from an increase of the general intracranial pressure; and (3) those due to pressure upon neighbouring structures, particularly the optic chiasma. Tumours which caused pituitary symptoms did not necessarily arise in the gland; interpeduncular tumours, frontal lobe tumours, and growths involving the base of the skull might cause pressure upon it and the surrounding structures, whilst symptoms due to disordered pituitary function were also met with in hydrocephalus. He dealt firstly with the question as to what effects upon the symptoms of pituitary disease were to be expected from operative treatment, and secondly, what was the best method of attack.

Symptoms.

Glandular symptoms.—It was now commonly believed that gigantism and acromegaly were manifestations of excessive activity of the pituitary gland, whilst infantilism, adiposity, and impotence resulted from deficient activity, and that there was thus an analogy with the corresponding disorders of the thyroid gland. In both cases the symptoms of excessive or deficient functional activity might merge into one another. Further, both thyroid and pituitary tumours caused symptoms due to pressure upon neighbouring structures. He was unable to express an opinion as to whether or not an operation for glandular symptoms alone was justifiable. Cushing had related two cases in which he operated on account of glandular symptoms and headache. In one case there was immediate cessation of the headaches, and later a marked change in the patient's appearance. In the other a subtemporal decompression afforded no relief of headache, but later some improvement was noted after a course of whole-gland extract to the extent of 100 grains a day. In a third case the predominating signs were those of deficient glandular activity. Treatment by glandular feeding was carried out for a time with some slight improvement, but later the headaches became more severe and the vision began to fail. A sellar decompression was then done, with prompt cessation of the headache. He himself would hesitate greatly before attempting the experiment in a patient with little or no enlargement of the sella, in whom neither headache of any severity nor neighbourhood symptoms existed. In the opposite class, with a large sella easily accessible through the nose, and with a progressive Fröhlich syndrome, the operation might be more readily undertaken. It was possible that the relief of pressure upon any remaining normal gland tissue afforded by the emptying of a cyst, by the removal of a mass of adenomatous tissue, or by merely incising the dural capsule, might be beneficial.

Symptoms of increased intracranial pressure.—The onset of general pressure symptoms marked the beginning of the terminal stage. A simple decompression operation would abolish the headache due to general intracranial pressure but could not be reckoned upon to relieve the "bursting" frontal pain due to sellar distension. In those cases which showed papillœdema, subsidence of the swelling was to be expected after decompression. It was probable that a simple decompression operation would prove a useful, if not an essential, preliminary measure before making an attack upon a pituitary tumour.

Neighbourhood symptoms.—It was chiefly for visual disturbances that the pituitary region had hitherto been subjected to surgical interference. According to Cope, operation or post-mortem examination on cases of this description revealed a large intracranial extension, and he concluded that all pituitary tumours which came to operation for symptoms other than acromegaly had long before burst the bounds of the fossa.

Nature of Pituitary Tumours.

The majority of the tumours which arose in or primarily involved the pituitary gland appeared to be of an adenomatous character, and were called by Cushing "chromophobe struma"—that is to say, an adenomatous hyperplasia characterised by deficiency or absence of the eosinophile granules which seemed to be associated with functional activity. Of three series of cases quoted 62 per cent. of the tumours subjected to operation were of an adenomatous nature. Another kind of tumour, not arising in but secondarily affecting the gland was the supra-pituitary endothelioma. Although he thought it was impossible to extirpate a solid pituitary tumour completely (so far any removal that had been accomplished had been only partial), nevertheless a sufficiently large part of such a tumour could be removed to afford some relief, at any rate for a time.

Methods of Approach.

These fell into two groups, the *extra-dural*, including transpalatal, nasal, and paranasal operations, and the *intra-dural*, comprising the temporal and frontal. At present the two methods of approach which held the field were the nasal and the frontal. Of the former the trans-sphenoidal operation of Cushing was probably the best; of the latter the orbito-frontal operation of Frazier might be taken as the type. Although rival methods, neither should be altogether rejected. In time it might be possible to make a sufficiently accurate diagnosis to enable one or other to be selected for any individual case.

Mr. Sargent then described Cushing's nasal operation and that of the frontal route, and related his own experience of 14 cases on which he had operated, six of them by the nasal route, and seven by the frontal route. In attempting to make a fair comparison between the two methods he said that we ought to bear in mind not only the route of approach, but also what could be accomplished when the objective had been reached. The nasal route presented several disadvantages. It was narrow and unclean, and the difficulties might be increased by acromegalic deformity of the bones. Even in the most favourable circumstances very little room could be obtained for dealing with a solid tumour, and when (as was always the case when chiasmal pressure was present) there was an intracranial extension, it was only the smallest part of the tumour which could be attacked. The relief afforded by removing this part of the mass or even by evacuating the contents of a cyst was small and transient. On the other hand, the frontal operation was free from risk of meningeal infection, and allowed the intracranial part of the tumour to be inspected and dealt with. Its chief dangers were that the frontal lobe might be injured, and that serious or even fatal hæmorrhage might occur. The latter depended upon the fact that the circle of Willis was stretched out around the tumour, and so might easily be damaged. If these dangers could be avoided a much more radical and efficient operation could be accomplished. From his own experience and from a study of the literature on the subject he had come to the conclusion that the beneficial effect upon vision of partial removal of a pituitary tumour through the nose or of merely allowing it to bulge downwards into the sphenoidal sinus was uncertain, inadequate, and transitory. The effect upon severe headache due to sellar distension was more uniform and might be very striking, but there was a tendency to recurrence. Of the effect upon glandular symptoms it was less easy to form an estimate, the more so as practically all the cases were treated at the same time with large doses of pituitary gland extract.

Importance of Early Surgical Treatment.

Until some medicinal form of treatment had been devised which was capable of arresting the growth of such a common variety of pituitary enlargement as the adenomatous hyperplastic tumour, it was to surgical treatment that we had to look at the present time for the relief of symptoms due to tumours of, or in the neighbourhood of, the pituitary gland. He urged that if surgical treatment was to be given a fair field it should be applied at an early stage, and not merely as a last resort in cases rapidly advancing towards a fatal termination. The existence of a high degree of intracranial pressure due to the invasion of the cranium undoubtedly increased the risks of a surgical attack upon the pituitary tumour, just as in all other cases of cerebral tumour. He looked forward to the time when headache, vomiting, and papillœdema would no longer be regarded as symptoms of cerebral tumour, to be expected and awaited before operation was proposed, but as signs of impending disaster in neglected cases. There was no reason why pituitary tumours should not be diagnosed at a very early stage, for with them we had many sources of information in radiography, examination of the visual fields and optic discs, and all the symptoms which might be due to abnormalities in the glandular function. Whatever advance in pituitary surgery might take place in the future, it was to be looked for in three main directions: firstly, in earlier and more accurate diagnosis; secondly, in a better understanding of the objective to be aimed at in every individual case, so that the most suitable surgical procedure might be selected; and thirdly, in the improvement in the technique of the intracranial operation.

Discussion.

Dr. **HOWARD TOOTH** spoke from the point of view of the physician. He had been anxious to find some evidence as to whether the expectation of life were better with operation or if the pituitary tumour were left alone. He had traced seven cases and found that the average time which had elapsed since the appearance of the first symptom was 7·5 years. The survival period of operation cases was 5·13 years. The symptom above others which called for operation was severe and recurrent headache. He described cases in which headache and polyuria had been relieved.

Mr. **V. Z. COPE** described a case to illustrate the difficulties in diagnosis. There was a large tumour with erosion of the sella turcica. Temporal decompression was done, and a large tumour of the lateral ventricle was found which was pressing upon the pituitary gland. He thought that the surgical outlook was not quite so bad as the last speaker had indicated. Much could be done to relieve the blindness. He spoke of a case of increasing blindness in a dancer; after operation the vision improved and giddiness was so much relieved that the man was able to return to his calling.

Mr. **J. HERBERT FISHER** said that it was impossible to decide by ophthalmoscopic examination when recovery of the optic nerve could take place. Even with advanced atrophy and with poor vision recovery of function might follow. Speaking of organo-therapy, he related a case which had been treated by administering thyroid, in which the visual field and direct vision had much improved, although later the vision had again deteriorated. In another case administration of thyroid and pituitary extract had led to decided improvement. In cystic cases there were usually adenomata as well. The solid growth was probably progressive.

Dr. **F. R. B. ATKINSON** said that few cases of acromegaly, due to adenoma, had been operated upon, yet in this condition the expectation of life was good. Most of the patients operated upon had died; in a few the general condition had improved, though the extremities had not become smaller.

Mr. W. G. HOWARTH thought that there was something to be said for the trans-sphenoidal route. It was simple and gave a wider view than Mr. Sargent would have us believe. Another advantage was that if the tumour proved to be malignant it was possible to insert radium afterwards. If cases were seen early it was useful as a preliminary to more severe operations.

Mr. E. D. D. DAVIS thought that the trans-sphenoidal route was unsatisfactory. The opening was small and there was a danger of entering the anterior fossa.

Mr. SARGENT, in reply, agreed that in some cases the headache was of a most distressing character, and something had to been done to relieve the patient. If ophthalmologists could give the surgeon some indication as to the prospects of return of vision, it would be easier to decide upon the value of operation. The cases which improved under glandular treatment were those with hypoactivity, for this could be compensated for by oral or hypodermic administration.

SECTION OF OBSTETRICS AND GYNÆCOLOGY.

THE TEACHING OF OBSTETRICS AND GYNÆCOLOGY TO MEDICAL STUDENTS: DISCUSSION ON THE REPORT.

A MEETING of this section of the Royal Society of Medicine was held on Dec. 4th, with Mr. J. D. MALCOLM, the President, in the chair, to discuss the recently published Report on the Teaching of Obstetrics and Gynæcology to Medical Students and Graduates in London.[1]

The PRESIDENT having said a few words about the genesis of the movement for better obstetric and gynæcological teaching,

Dr. T. W. EDEN made a statement amplifying certain clauses in the report made by the committee appointed to consider the question. He said that the training of students in midwifery was largely determined by the requirements of the examining bodies, and he pointed out the astonishing fact that the Universities of Oxford and Cambridge are the only examining bodies which have attempted to comply with the regulations of the General Medical Council. Dr. Eden said that there was no doubt that on the whole the training of our students was really bad; nothing more unsuitable than the district conditions could possibly be devised. The present inequality of teaching as between one hospital and another was, moreover, one of the weakest points in the medical education of London. The members of the teaching committee had no preconceived opinions on the subject of reference, and he would like to explain how they arrived at the recommendations made. In the first place, they were satisfied that present conditions are so bad that only drastic and far-reaching changes would suffice. It was no use tinkering at the present system. In the next place, it was obvious that the amount of time allotted in the curriculum to midwifery and gynæcology was quite inadequate and would have to be largely increased. The next step was that proper training in practical midwifery could only be given in hospital. If these principles were to be carried out it was clear that a very large increase in the hospital accommodation for midwifery cases was required. Fortunately, this was required not only from the educational point of view, but also in the public interests. In the next place, they thought that midwifery training should be extended in both directions—i.e., so as to include a fuller view of pregnancy by means of the antenatal clinics, and a fuller training on the management of the infant through the infant welfare clinics. Lastly, they had formed the conclusion that the senior obstetric teachers ought to take a very much larger share in the practical teaching than at present. The next question the committee had to face was, could these principles be put in practice with our present institutions? First of all, they turned to the lying-in hospitals and after consideration had come to the conclusion that they would not do. In the first place, they were needed for the training of midwives, the supply of which was quite inadequate. In the second place, the practical instruction in normal labour in these institutions was all given by midwives. It was against the regulations of the General Medical Council that students should be so taught, and the committee were quite in agreement with these regulations. Dr. Eden explained how the next alternative considered was the creation or expansion of the midwifery ward in the general hospital, and that one of the objections to its adoption was that only the largest hospitals could give up the required number of beds. The committee were then driven to the further alternative of advising the establishment of institutions of a type new to London but similar to the Rotunda Hospital in Dublin. Dr. Eden said that a study of the report on the Maternal Mortality of Childbirth issued by the Local Government Board in 1915 showed that the death-rate was highest in districts where there was least hospital accommodation, and vice versa. There was, therefore, every reason to believe that the increased provision of maternity hospitals would have a very beneficial effect upon the mortality in connexion with childbirth. In the criticism against the isolation from other branches of medicine Dr. Eden reminded the members that the outlying districts which required midwifery accommodation required general hospital services, too, and in all probability general hospitals would be built simultaneously with the provision of such centres. In addition, it was the view of the committee that schools unable to provide a large midwifery department should be affiliated to the new centres. As regards the teaching of midwifery, the committee believed that it could only be properly taught if senior teachers would give practically their whole time to it for a series of, say, five years, during which they would be in residence in the teaching centre. Dr. Eden emphasised the need for agreement between medical men in order that they might be in a position to take their share in directing the changes that were inevitably coming, and not have to submit to changes imposed upon them by others.

Criticism of the Report.

Dr. HERBERT SPENCER then read the following criticism, for which Lady BARRETT, Dr. H. WILLIAMSON, and himself were jointly responsible, of the report of the Committee:—

> We endorse the sections of the report dealing with the deficiencies of the present system of education in obstetrics and gynæcology and wish to express our indebtedness to the Committee for their clear and outspoken review. We agree fully that reforms are urgently needed, but we do not think the system proposed is the best that can be devised.
>
> Although an intermediate phase is suggested the ultimate goal of the Committee is a system of education based upon two essential principles: (1) The establishment of large centres devoted solely to the study of obstetrics and gynæcology and not forming part of a general hospital and medical school; (2) that the student can only be educated efficiently when large masses of clinical material are available.
>
> We think these two principles are wrong. We believe that the obstetric and gynæcological clinic should be part and parcel of a general hospital and medical school. These subjects are only one part of general medicine, and are intimately connected with every other branch. From the point of view both of the student's education and the advancement of the science they should be kept in the closest possible touch with other branches of medicine; the student should not be taught to regard them as something separate and distinct. There is no essential difference between puerperal infections and other wound infections; the fact that cardiac disease complicates pregnancy does not put it in a new category, nor is pyelitis of pregnancy a disease sui generis.
>
> Close coöperation should exist between the gynæcologist, the pathologist, the surgeon, and the physician; such coöperation is only possible when the obstetric clinic forms part of a general hospital both geographically and constitutionally. It is essential that the help of specialists in every branch of medicine should be available—a radiologist, a neurologist, a chemical pathologist, a physiologist, a bacteriologist, a morbid anatomist, and an ophthalmologist, to mention only a few. Consultations should be frequent and should take place at the bedside of the patient in the

---

[1] THE LANCET, Sept. 13th, p. 494.

presence of the student. By such consultations the student is taught the essential unity of medicine and the application of general principles to special problems. The consultants learn much from one another and the patient is benefited. This close coöperation can only be obtained within the walls of a general hospital.

We do not think very large quantities of clinical material are essential for the education of the student. The clinic need not be a large one. The minimum requirements are: (1) An out-patient pre-maternity clinic; (2) a few (say six) pre-maternity beds; (3) a lying-in ward of not less than 20 beds; (4) a few (say four) beds for septic cases; (5) an out-patient maternity district adequately supervised; (6) an infants' welfare centre—preferably a branch of the children's department; (7) a gynæcological ward of 25 to 30 beds with operating theatre; (8) a well-equipped clinical laboratory; (9) a room for storage and investigation of morbid anatomical material.

The staff of such a clinic should consist of: (1) Three visiting obstetricians, all of whom should teach both obstetrics and gynæcology. (2) A resident officer of the standing of a resident assistant surgeon or physician. He should hold office for a period of not less than three years, and should be responsible, under the direction of the visiting staff, for the practical instruction of the students in the lying-in ward, and should also be responsible for seeing that the pathological work of the clinic is carried out. This officer should receive a salary of not less than £500 per annum. (3) A registrar and tutor. (4) Two resident officers of the standing of house physicians or house surgeons.

We believe this system to offer many advantages to the student, the school, and the public over that of the whole-time officer proposed by the Committee. The system of teaching large classes of students by means of lecture demonstrations produces a practitioner inferior to the one produced by a system which aims at the instruction of the student individually by the bedside of the patient. A few cases adequately investigated and well demonstrated teach the student more than many cases hurried over.

We think it desirable that obstetrics and gynæcology should be taught as one subject, should be taught by the same teachers, and that the student's studies in the two branches should be carried on simultaneously. We think that the clinic should remain essentially a part of the general hospital, and the whole course in obstetrics and gynæcology should be taken in one school.

We think that every medical school should have its own lying-in ward. At the present time this appears to be impossible in the case of some of the smaller schools, and in our opinion the deficiency would best be met by amalgamation. One or two new hospital centres in out-lying parts of London might be formed in the near future by coöperation amongst themselves of the smaller teaching hospitals, and by association of their plans for expansion with State schemes of hospital provision. This would involve the sacrifice of their present central positions and the fusing of two or more hospitals and their staffs in the creation of the new hospital. The medical school would still be retained, and its students would have the advantages of modern and efficient hospital equipment, of adequate buildings, of working in a district where the need was great, and of a consultation service with local practitioners. The funds obtained by disposal of existing hospital sites supplemented by State grants would be used for building, equipment, and endowment of the new hospital.

It is likely that under the Ministry of Health obstetric and gynæcological institutions will be established in outlying districts of London, probably as parts of new general hospitals. If these institutions are staffed on the principle suggested by the Committee they will form centres for research and post-graduate work. Such institutions will be of the greatest value and are urgently needed.

We think that the director of clinic of these new institutions should hold office in most cases for a limited term of years, and on his resignation of the post be eligible for the staff of the hospitals with medical schools. The experience and skill he gained as director would then become available for the general public and for the education of medical students.

The Report and the Criticism Compared.

Dr. Spencer then asked permission to say a few words on his own behalf. He pointed out that both documents agreed on the necessity for more beds and for more time to be allocated to gynæcology and obstetrics in the student's curriculum, but disagreed on the question of close association with general hospitals. He considered that not enough credit had been given to the senior men for the time they spent in teaching. He himself had given up one afternoon a week for the last 25 years in order to teach students the important and difficult task of the investigation of the position of the child. Dr. Spencer doubted whether sufficient patients would be forthcoming to fill a large obstetric institution, as it was sometimes difficult now to fill wards. The report had been in favour of allowing the resident director to practise privately. He was against this concession, as the same man could not be available for both hospital and private emergencies. A director who was in general control of the work of an obstetric institution of large size, who took a large share of the administrative work, did most of the operations, was responsible for much of the teaching, was expected to undertake research, and still remained in private practice, would be a very busy man! The suggestion that the staff should take on the post of director in rotation would surely lead to difficulties, since a junior man might be in temporary control of one much senior to himself.

Inadequate Knowledge of Midwifery.

Dr. RUSSELL ANDREWS quoted some cases in his own experience as examples of the inadequate knowledge of the first principles of midwifery exhibited by many general practitioners. He said that in the East End obstetric tragedies were still terribly common—preventable tragedies, due mainly to hurry and ill-applied force. He said that cases were sent up to hospital time after time as obstructed labour, the forceps having failed, when the only obstruction to be found was the incompletely dilated cervix. Dr. Andrews pointed out the difference between surgical and obstetrical practice as regards operations. Surgical operations, except minor ones, are not left to newly qualified residents. Most obstetrical operations, on the other hand, are carried out only nominally by the visiting staff and are actually performed by the residents. In consequence young practitioners often feel confident of their power to tackle midwifery cases, though they would not dare to attempt simple surgical operations. Dr. Andrews said that he was not blaming the overworked and inadequately paid doctor; it was his misfortune, not his fault, that his midwifery training was even more inadequate than his fee. A woman in labour would often be safer under the care of a midwife than under that of a doctor, as he might have been imperfectly trained, whereas the midwife, who had seen labours conducted in hospital, had learnt the virtue of patience. If students were to be taught properly there would have to be on the spot a man who had had a thorough training in midwifery, to deal with a certain proportion of the normal cases and, in the absence of one of his seniors, with all the abnormal cases. He would have to regard this as his real job—not as a nominal job to be sandwiched in, if possible and convenient, between half a dozen other jobs. Such a man could not be obtained, nor given an adequate salary, if all his energies were to be expended on 15–20 beds. A larger number of beds must be procured even if the undoubted advantage of close geographical association with other specialists had to be sacrificed.

Professor HENRY BRIGGS (Liverpool) expressed himself as being profoundly impressed with the difficulties of rearrangement of work in London as opposed to Liverpool, where existing conditions were not so deeply rooted. He would have liked to see obstetric and gynæcological wards in all general hospitals, but he saw that the problem was very complicated. The report and the criticism thereon formed complete evidence of the need of some drastic alterations and he wished it were possible to accept both schemes.

A Barren Alternative Report.

Dr. J. S. FAIRBAIRN said the remedies suggested in the criticism on the report were the obvious ones as a first stage. But the suggestions were much the same as those in the Williams report (1906). The criticism was really a barren alternative report—barren because the conditions specified were no better than those existing already in some medical schools. He considered that the critics had started from the wrong standpoint—that of the four walls of the medical school as a unit. The number of beds required simply could not be supplied by the hospitals connected with medical schools, so the critics were constrained to prove that a mass of material is a disadvantage. In his opinion a large number of beds were absolutely necessary on account of the small proportion of abnormal cases. The staff recommended in the alternative report was substantially the same as that suggested in the report of the committee, with the addition of an unnecessary director at £500 a year. Dr. Fairbairn, who had personal experience of the scheme in the alternative report, had thought before sitting in committee that it was the best obtainable, but he was now convinced that its universal adoption would be impracticable, and that, moreover, no general hospital could give such conditions as were necessary for a first-rate midwifery education for students, though fully appreciating the difficulties connected with separation.

Lady **BARRETT** pointed out that whereas Dr. Eden had shown the two parties in how many ways they were agreed, Dr. Fairbairn had unfortunately dwelt mainly on their differences. The writers of the criticism were, indeed, in agreement with most of the report, but felt strongly that while there was an undoubted need for lying-in hospitals in outlying parts, and while post-graduates should be admitted for study in such institutions, undergraduates should be taught in general hospitals. The weak points of the report were that first slender threads were proposed as bridges between existing teaching hospitals and obstetric institutions, and next it was suggested that new hospitals would probably be needed in connexion with these institutions.

Dr. **W. S. A. GRIFFITH** said that a better chance of reform would exist if the two parties tried to meet on common ground. The essential difference between them concerned the means of providing necessary beds. By those who suggested the addition of large maternity wards to teaching hospitals no hint was given as to how the hospital could provide them. They were, in fact, suggesting an impracticable scheme. He was surprised to hear from one of the speakers the suggestion that it might be difficult to fill beds, as in his experience there was a large demand for them. Two new small hospitals reserved for the teaching of midwives had recently been completed, and since others were in contemplation the provision of beds for the teaching of medical students should be undertaken as soon as possible. The opinion of general practitioners on a subject which concerned them so nearly should be sought.

Problems to be Attacked.

In the unavoidable absence of Dr. **HERBERT WILLIAMSON**, his contribution to the discussion was read by Dr. **J. S. FAIRBAIRN**. Dr. Williamson emphasised especially the disadvantage of removing the study of obstetrics and gynæcology from a general hospital to a special institution. The treatment of malignant disease, of gonorrhœa in women, and of the toxæmias of pregnancy, and of the whole field of radium therapy as applied to gynæcology, were among the many problems which should be attacked simultaneously by many workers along different lines but in close mutual touch. He referred to the importance of teaching the student to take a broad view of medicine, to realise how closely the different parts hang together, and how the advance of one branch is dependent on that of every other branch; and he expressed the conviction that the isolation of obstetrics and gynæcology would destroy this sense of unity. He held that post-graduates alone should be encouraged to work in the special institutions recommended in the report. Dr. Williamson held, moreover, that it was not the function of the senior teacher to guide the hands of the student in a series of labours; he should lay down the routine and found the traditions of his labour ward whilst one of his junior officers, who had held the post of intern, was engaged in obstetrical research, and was a whole-time man appointed for not less than three years, should watch the student conduct the labour and instil into him by example and precept the teaching of his chief.

Need for Expert Advice.

Sir **ROBERT MORANT** said that the Ministry of Health needed the expert advice of doctors on several very important points. In the survey made of the number of beds required for teaching purposes no mention was made of material at present available in existing institutions. Much thought was being given to these problems, which affected the provinces as well as London. The provision of beds at present was quite haphazard—not at all in proportion to the public need. If the provision was to be systematic in the future the survey would also have to be systematic, and existing facilities for the accommodation of women in labour would have to be reckoned with. Moreover, no one section of hospital provision could wisely be considered by itself. Teaching was very important, but the whole of the existing hospital system would have to be analysed. Some suggested that patients were kept in town unnecessarily long, that convalescents at an early stage should be moved by motor ambulance to the periphery. The provision of hospitals where needed was a huge problem in itself, and was becoming complicated as regards maternity patients by the establishment of antenatal centres. The Ministry of Health was already being asked to provide beds in connexion with these centres. Sir Robert Morant agreed with Dr. Griffiths that there should be no difficulty in finding patients to fill the beds. Small lying-in hospitals with 20 beds in connexion with welfare centres might be more useful in training midwives than students; but, speaking as a layman, he urged the profession to take these hospitals into consideration when estimating the beds required. The trouble was that members of the medical profession, like those of other professions, differed among themselves, but he thought that a considered scheme on the whole problem of the provision of hospitals was disastrously overdue. He urged the members of the section to invite their colleagues in other branches of medicine to collaborate with them in forming such a scheme. Small lying-in hospitals of 20 beds were usually arranged by the adaptation of existing dwelling-houses, because this was the easiest way from a layman's standpoint. Sir Robert Morant commented on the agreement of all concerned on the necessity of the same roof for teaching of midwifery and gynæcology, and asked how far such a doctrine would be preached. He emphasised again the need of a clear lead from the profession in these problems. London was a specially difficult area to tackle, as its hospital accommodation was under so many different authorities, but the whole question must be considered together in the same way as that of all the schools had had to be considered together. The Ministry of Health was there to dispense money in connexion with the schemes of the local authority, but was also ultimately responsible for the whole metropolitan area.

Dr. **AMAND ROUTH** suggested that Sir Robert Morant might help them in using the infirmaries and Poor-law institutes for teaching purposes.

Mr. **GORDON LEY** said that there should be no deficiency of material since the population of London is greater than that of the whole of Ireland.

Two Questions for Consideration.

Dr. **G. F. BLACKER** said that this section was concerned with two main problems. The first was how to increase the number of lying-in beds to meet the public need, and the second was how to increase the facilities for teaching. As regards the first problem, the present provision was so inadequate as to form an utter scandal. Four institutions such as proposed in the report could easily be filled—there was ample material. A bed should be available for any woman who desired to be confined in a lying-in hospital. In some districts no such hospitals existed. However, this was a matter for the local authority and the Government. The second problem, of how to improve the teaching, was the one which primarily concerned the doctors. The teaching of obstetrics as compared with that of surgery was admittedly bad; all were agreed that the student did not get the same quality of teaching of operative procedures and, in fact, did not receive as good value for the fees he paid. Under the alternative report presented in the criticism, the resident in charge of the lying-in hospital would get £500 a year instead of £150 and the teaching would be no better, as it would still be given by men of the standing of registrars and by other residents. The contrast with other subjects in which the staff themselves teach the students would still be maintained. If large centres were started, whole-time directors should, in Dr. Blacker's personal opinion, be appointed, with an adequate salary and proper facilities, comparable to those of other clinical units. He concluded by the statement that there was really little difference between the report and the alternative in the criticism, but that the report was much the better of the two schemes.

SECTION OF OPHTHALMOLOGY.

Exhibition of Cases and Specimens.

A MEETING of this section of the Royal Society of Medicine was held on Dec. 3rd, Mr. W. T. HOLMES SPICER presiding.

Mr. G. POTTS showed a case of Keratitis following an explosion of black powder. The powder had scorched the cheeks and eyes, and nothing could be seen of the conjunctiva or sclera or cornea as separate structures. The boy was placed under cocaine, and sclera and cornea cleared. Improvement was setting in, and the vision of the right eye was 6/6, of the left 1/6. He also showed a patient with Detached Retina and an Unusual Condition of the Conjunctiva. In 1900 the patient contracted rheumatism while in the South African War, and had frequently had rheumatic attacks since. The eye trouble dated from April, 1914, commencing with iritis in the left eye. The right conjunctiva was thickened and swollen, the sclera œdematous and thickened, and had a fatty appearance.—Dr. A. HUGH THOMPSON thought the signs pointed to a new growth, and that the nature of it was tuberculous.—The PRESIDENT said it reminded him of the appearances in some syphilitic cases.—Mr. POTTS said he had not had a Wassermann done.

Mr. MALCOLM HEPBURN exhibited a patient with an Aneurysmal Varix of the Cavernous Sinus. He brought the case in order to elicit opinions as to whether anything further could be done. The man had had his common carotid tied, and vision in the proptosed eye was at present 6/6, but the patient was troubled with noises in the head. Some people said tying the angular vein or other prominent vein did as much good as tying the common carotid. He felt sceptical about that, but the man had a dilated supra-orbital vein, and he wondered whether anything could be done to that.—Mr. CHARLES HIGGENS spoke of a case in which a prominent vessel, not the carotid, was tied and the patient was cured.—Mr. PERCY FLEMMING spoke of five cases in which tying the carotid was carried out, and in which the hæmorrhage was very severe, and in consequence of that experience he advocated withholding anything further unless the case got worse.—Mr. J. H. FISHER said in some cases the carotid was injured in fracture of the base of the skull, while in others the artery might burst spontaneously on account of atheroma, and the treatment followed would depend on which category a case came into. If ligation were decided upon it was most important that the patient be kept at rest in bed for a long period after it had been performed. He thought at present such patients were discharged too quickly.—Mr. R. R. CRUISE related a case of his own in which several vessels had been tied in the effort to relieve the distressing head symptoms following gunshot injury, symptoms which made the life of the man practically unbearable.

Mr. GOULD showed a case of Tumour of the Choroid and Mr. OLIVER a Gunshot Wound of the Left Eye, leaving a very large orbital cavity, which he reduced to a size to enable it to take an artificial eye by transplantation of rib cartilage.

The Need for Ophthalmic Physicians for the Advancement of Ophthalmology.

Dr. C. O. HAWTHORNE opened a discussion on Dr. Rayner Batten's paper on this subject, which appeared in THE LANCET of Nov. 29th (p. 962). He said the paper of Dr. Batten was as interesting as it was unconventional. It was unusual, even unprecedented, to see a surgeon clothing himself with sackcloth and ashes. He (the speaker) had said on more than one occasion that a considerable part of the field of ophthalmology required not the art and craft of the surgeon, but the diagnostic and therapeutic methods of the physician, and he had then been severely criticised for the statement. With the general spirit and motive of the paper of Dr. Batten he was in agreement, but he did not quite agree with the proposed name "ophthalmic physician," and he would equally object to be known as a non-ophthalmic physician. He did not pretend to say whether the coöperation of physician and surgeon in such conditions as conical cornea, detachment of retina, and cataract would be fruitful, but that feeling of uncertainty did not apply to cases in which defect of sight was an evidence of nervous disease, cardio-vascular disease, disease of the kidney, and of the blood. The symptoms he had in mind were ocular paralyses, disturbances of the pupil, the cycloplegias, optic neuritis, optic atrophy, cases of retinitis, and retinal and other intraocular hæmorrhages. Each one of these required the investigating methods of the physician. It was a mere accident which led the patient to go, in the first instance, to the ophthalmologist or to the ophthalmic hospital, and if the cases were to be treated adequately in ophthalmic hospitals, those institutions must have the requisite equipment, beds, nurses, and medical staff. He did not think the position taken up by Dr. Batten in his paper could be challenged; it concerned the good repute of the profession, the progress of scientific medicine, and the welfare of the individual patient.

Mr. CHARLES HIGGENS pointed out that the custom when a general practitioner sent a case to the oculist was to report the result of his investigation and state what specialist ought to be seen, while in hospital work the same relegation to the proper man was carried out.—Mr. W. LANG agreed with Mr. Higgens.

Mr. ERNEST CLARKE said London was the only place which insisted that the staffs of ophthalmic hospitals should consist of fully qualified general surgeons. The remedy for the present position of matters was, he declared, to urge the ophthalmic students of the future to learn more general medicine; the great need was for the oculist to be able to diagnose the various conditions which had been mentioned, so as to ensure the patient getting to the right man. The solution would be found in a broader range of education.

Mr. E. TREACHER COLLINS did not consider Dr. Batten's presentation of the position was either pleasing or true to nature. The speaker sketched the gradual displacement of physicians by surgeons on the staff of the Moorfields Hospital since 1804. Those who had been ophthalmic surgeons to a general hospital knew that much of their time was spent in the medical wards helping the pure physician, who had not troubled to learn the use of the ophthalmoscope, in the diagnosis of his cases. The present discussion hinged largely on a question of name. Certainly ophthalmic surgeons were called upon to deal with more than surgical cases. As knowledge advanced, there was an inevitable tendency to split it up into departments, and that meant that there were borderline cases which were liable to be overlooked by rigid devotees to one department or the other. It was, therefore, an advantage to have men to take up two branches, constituting a kind of liaison between the two. There was really need for an ophthalmic physiologist, for an ophthalmic pathologist, for an ophthalmic mathematician; but the greatest need of all was the complete ophthalmologist, by which he meant, the man who was eager to know everything which could be known about any disease in which the eye could be affected.

Mr. A. W. ORMOND contended that the London M.D. should be regarded as equally valuable for a post on an ophthalmic hospital as the London M.S. But he would object to ophthalmic staffs being divided into those who operated and those who did no operating at all. The need was for the specialism to be broader, not narrower. He reminded the meeting that surgeons in eye work not infrequently referred cases to the physician fruitlessly. Men should be given more time for the study of the medical side; at present the younger members of staffs were inundated with refraction work.

Mr. LEIGHTON DAVIES (Cardiff) thought one of the glories of the specialty was that it required a wide view of the field of medicine and surgery.

Mr. J. H. PARSONS thought that the chief value of Dr. Batten's paper was the stress it laid on the feeling many ophthalmologists must have that they were not as fully qualified to deal with the medical as with the surgical aspects of their cases.. The ophthalmologist ought to be able to deal with physiological optics and the relationship of ophthalmology to industrial conditions. The essence of the discussion was the breadth of view which should be capable of being taken, and he emphasised Mr. Collins's point that those who worked at the specialty were ophthalmologists—neither physicians nor surgeons specially as such. To evolve better ophthalmologists meant that those who entered the ranks would have to study all branches of the subjects to the fullest degree, and the opportunities for this must be increased; at present they were faulty in many directions.

Dr. A. S. COBBLEDICK foresaw difficulty in the allocation of cases if both surgeons and physicians were on the staffs.

Dr. BATTEN briefly replied.

SECTION FOR THE STUDY OF DISEASE IN CHILDREN.

DEMONSTRATION OF CASES AND SPECIMENS.

A MEETING of this section of the Royal Society of Medicine was held on Nov. 28th, Mr. P. LOCKHART-MUMMERY, the President, being in the chair.

Chronic Jaundice.

Dr. EDMUND CAUTLEY showed a case of Chronic Jaundice with Congenital Defect of the Bile-ducts. The patient was a male infant, an eighth child, and born in February at full time and apparently healthy. Jaundice appeared on the fourth day and had persisted. Admitted to hospital from April 4th to 12th and from Sept 18th to Nov. 23rd. At first he was breast-fed, well nourished, 9½ lb. in weight, jaundiced, and presented acholia, bilinuria, and a large liver. The degree of jaundice varied. He was readmitted with a temperature of 103° F., falling to normal next day. He weighed 13 lb. There was a history of diarrhœa and vomiting for two days, but neither symptom occurred after admission. Jaundice was still present, but had been clearing up recently. The liver was large and hard, and the spleen enlarged. During his stay in hospital he had a variable degree of fever, due to bronchial catarrh. Acholia and bilinuria had been persistent and the weight had varied from time to time, according to the amount of catarrh and his appetite for food, which consisted of milk and water, with Horlick's malted milk and Benger's food. The liver had decreased somewhat in size and had become harder and irregular; the spleen had got larger and harder. The Wassermann reaction was negative. The case was interesting from the point of view of diagnosis and the duration of life. Dr. Cautley was disinclined to think it one of cholangitis, in view of the absence of febrile disturbance in the early stages. On the other hand, most cases of congenital obliteration of the bile-ducts only lived six to eight weeks. Life was, however, sometimes prolonged for eight or nine months. Dr. Kenneth Kellie showed a patient of this type in 1911, a male baby aged 5 months, who died subsequently at 7 months of age, and had a large, smooth, green liver, a hard spleen, a rudimentary gall-bladder, and a common bile-duct represented by a fine cord. Slight jaundice had been present since the fourth day of life. It was curious that the jaundice was slight and variable in degree in some of these patients.

Dr. F. PARKES WEBER said that the obliteration varied greatly in such cases both in degree and in position. Cases might end in recovery, whilst others might prove amenable to surgical treatment.

Dr. E. A. COCKAYNE regarded the condition as a variety of toxæmic jaundice in infants. In toxæmic jaundice the destructive changes might occur chiefly in the blood, in the hepatic cells, or, as in the disorder under consideration, in the bile channels.

Punctate Ulceration of the Stomach in Infants.

Dr. ERIC PRITCHARD and Dr. W. T. HILLIER showed four specimens of Punctate Ulceration of the Stomach in Infants. These specimens were all taken from cases of young infants who died of a peculiar form of gastritis occurring in cases in the wards of the Queen's Hospital for Children; they showed numerous and very minute ulcers; excessive vomiting was characteristic of all the cases, and in most of them blood-stained mucus was present in the vomit. Similar ulcerations of a follicular character were also found in the intestines.

Hypertrophic Pyloric Stenosis.

Dr. PRITCHARD and Dr. HILLIER also showed specimens from a case of Hypertrophic Pyloric Stenosis with Associated Hypertrophies. These specimens were taken from a baby, aged 3 months, who died of hypostatic pneumonia; they showed great hypertrophy of the lower end of the œsophagus, of the pylorus, and of the ileo-cæcal sphincter. At the cardiac orifice there was a polypus-like growth of mucous membrane about the size of a small pea. The stomach intra vitam had a capacity of about 4 oz. The transverse colon opposite to the greater curvature of the stomach was dilated. Macroscopically the adrenals were normal. The interest of this case lay in the association of hypertrophies at three points in the alimentary canal, which it had been suggested may be dependent on overaction of the adrenals, either before birth or after, or on want of compensation by antagonistic secretions.

Mr. H. TYRRELL GRAY said that it need not be supposed that the adrenal would show morbid changes, for the hyperadrenalism might occur in the mother and be in action before the child's birth. The absence of symptoms of pyloric stenosis, although there was considerable hypertrophy of the sphincter, was of interest, and bore out his own experience. He believed that many children were born with the anatomical lesion, but who developed no symptoms. If the latter arose they were due either to an unusual degree of hypertrophic stenosis or to some additional factor not fully understood. One of these causes which determined the onset of pyloric obstruction was the moderate over-development of the penis with a variety of phimosis which he had described, and which accounted for the greater number of cases in boys. He did not believe that hypertrophy of the pyloric muscle was any less frequent in girls than in boys, but boys more often developed pyloric obstruction.

Dr. CAUTLEY said that for the hypothesis of hyperadrenalism as the cause of hypertrophic stenosis to be correct there were three essentials, first hyperadrenalism must be present; secondly, it must be capable of causing spasm; thirdly, spasm must cause hypertrophy. None of these had been proved, and much more evidence was required than any which had been produced. He had seen the condition in Jew boys and in Gentiles who had been circumcised. If the hypothesis were the true one why should the cases be first met with almost always in infants in the first three months of life? One of the effects of wasting in children was to lead to marked atrophy of the adrenal glands with hypoadrenalism.

The PRESIDENT said that it was difficult to believe that the anatomical lesion, one of pure hypertrophy, which was a normal process and not a morbid condition, was the cause of the malady. He drew a comparison between it and megalocolon. It had been shown in monkeys that if reverse peristalsis were induced in a part of the colon, a circular band of hypertrophy developed above it, and he suggested that some such functional disturbance accounted for hypertrophy of the pyloric sphincter.

Tuberculosis of the Heart.

Dr. T. H. GUNEWARDENE showed a specimen of Tuberculosis of the Heart. The tuberculous focus was situated in the wall of the left auricle and had invaded the mouths of the pulmonary veins, the interauricular septum, and the rings of the auriculo-ventricular orifices. There were areas of caseation, and tubercle bacilli had been shown to be present. The lesion was apparently primary, and no tuberculosis was found elsewhere in the body. The history was of two months' duration, and the signs during life were those of hypertrophy and dilatation merely; no bruits were heard. Of 41 cases of tuberculosis of the heart which he had seen records of only one had so extensive a lesion.

Cirrhosis of the Liver.

Dr. R. C. JEWESBURY showed a case of Cirrhosis of the Liver in a boy aged 4½ years. He had been well until 2½ years old, when jaundice appeared, and was followed by abdominal swelling. The jaundice lasted only a few days. There had been attacks of epistaxis but no other hæmorrhage, and vomiting had been occasional only. The liver was very large, hard, and irregular; the spleen reached to the level of the umbilicus. The fingers and toes were clubbed. Only a faint variable systolic murmur was heard. The mother had confessed to giving the child a teaspoonful of gin in hot water occasionally for 3½ years. The Wassermann reaction was negative. The blood examination showed considerable anæmia, a colour index of 1, and 2200 white blood corpuscles per c.mm. The diagnosis of alcoholic cirrhosis was suggested.

Dr. F. S. LANGMEAD pointed out that the systolic murmur was loudest at the pulmonary base and was was conducted through to the back. This favoured the view that congenital cardiac malformation was associated and accounted for the clubbing and the dusky appearance of the patient. Clubbing was well known in hypertrophic biliary cirrhosis in children, but not in multilobular cirrhosis.

Isolated Scaphoid Disease.

Dr. COCKAYNE showed skiagrams of a case of Isolated Scaphoid Disease (Köhler's disease). The patient was a cretin, aged 4½ years, who had complained of pain in the left foot and had limped for a year. Recently the foot had become more painful. There was some tenderness over the scaphoid region. The skiagram showed the left scaphoid bone to be small, narrow, dense, and irregular, and to project on to the surface. There was no evidence of tubercle.

MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.

THE ordinary quarterly meeting of the association was held in the rooms of the Medical Society of London on Nov. 25th, under the presidency of Dr. BEDFORD PIERCE, who in his introductory remarks spoke with much feeling of the recent losses which the society had sustained by the death of Dr. T. Drapes, Editor of the journal of the association, Dr. Charles Mercier, and Dr. E. G. Fearnsides. A vote of condolence with the surviving relatives of each of the deceased members was carried by members rising in their places.

The Need for Schools of Psychiatry.

A paper on this subject was contributed by Dr. C. HUBERT BOND, which is published in this issue of THE LANCET.

Dr. J. R. LORD said that patients suffering from mental diseases were, too frequently, looked upon as a class apart, and this idea should be combated. He thought the cure of mental conditions should be cultivated as a specialism far more than was the case at the present time; there was need for a concentration of the best effort to this end, effort was now too diffuse.

Dr. D. G. THOMSON alluded to the importance of the teaching and even the non-teaching hospitals taking this matter up, but he foresaw obstacles to this. He referred with pride to the unified curriculum, for which the association was answerable.

Sir FREDERICK MOTT said that 40 years ago the London County Council, at its inception, proposed the establishment in London of a hospital for acute mental cases, but nothing came of it. But 11 years ago the late Dr. Maudsley offered to give the London County Council £40,000 to enable it to build such an institution. It took the Council a long time to find a site, but eventually it did so, and then the war intervened to stop the building, so that neither Dr. Maudsley nor Mrs. Maudsley saw the hospital a reality. The Council was now very anxious to use the building for the civil population, and it was hoped shortly to have clinics there in correlation with the asylums of London. He believed there would be a better standard of knowledge on psychiatry among medical students if examiners in medicine would occasionally set questions on it.

Dr. R. H. STEEN referred to the general misconceptions on the subject of insanity, and to some efforts which had recently been made to provide clinical teaching in psychiatry.

Dr. T. S. GOOD stated that for two years there had been a psychiatry clinic in association with the Radcliffe Infirmary in Oxford.

Dr. DEVINE commented on the lack of systematised teaching on insanity in this country, and pleaded for opportunities for intensive study. Specialists in psychiatry should combine and start a school and a tradition of British psychiatry; short of that he did not see a prospect of real progress.

Dr. G. E. PEACHELL thought much good would be done if an extended epitome of Dr. Bond's paper could be sent to various asylum committees.

Sir ROBERT ARMSTRONG-JONES gave his experience in starting a mental department at St. Bartholomew's Hospital, and said that every medical man ought to have a chance of seeing in his neighbourhood a case of acute mania, one of melancholia, of epilepsy, of general paralysis, and of arterio-sclerosis. There was a great need to kindle interest in the subject.

TUBERCULOSIS SOCIETY.

AT a joint meeting of this society with the Society of School Medical Officers, on Dec. 1st, Dr. JAMES KERR opened a discussion upon

The Various Aspects of Tuberculosis in Relation to School Life.

He said that the economic effect upon the school authority was very considerable, as tuberculosis was extremely prevalent and caused the loss of money for which no return was received. Actual phthisis in children, however, was almost a rare disease. Of 300 children inspected at Bradford only two showed definite phthisis, and Dr. J. E. Squire and Dr. A. Gowdey in London 12 years ago examined 2000 children and found less than ½ per cent. (0·44) with definite signs. In Paris, Grancher examined 4200 children, of whom only 2 had open tubercle, but 600 proved positive to a very delicate test (altered inspiratory murmur). There was much difference in the figures given by different school inspectors and this only emphasised the necessity of uniformity and a definite basis upon which the diagnosis should be made. He said that the child had naturally a high immunity to the disease, which should be preserved by improving the conditions in the present schools, by providing more open-air schools, and by doing everything possible to remove the natural environment of tuberculosis, which was poverty.

Dr. F. N. KAY MENZIES had no doubt that 0·5 per cent. was the correct figure for pulmonary disease. He found that the higher figures were usually given by the younger members of the service. He had been struck by the enormous numbers of children attending the London dispensaries and did not agree with the wholesale distribution of cod-liver oil and malt which was practised. The London County Council now had 500 beds at its disposal and this would soon be increased to 600, with an additional 400 beds, through the Children's Aid Society, for lighter cases. He hoped for more open-air schools, but preferred the child treated while still in its own home, as thereby it was possible to improve the home environment. The infection in children was chiefly of the human type in those over 5 years old, and of the bovine in those under 5; the former was the more active and fatal. Two things which needed remedy were tuberculosis in cattle and the segregation of the advanced adult case, in both of which the "massive dose" was the chief adverse factor.

Dr. L. J. SHORT pointed out the advantages of close coöperation between the tuberculosis officer and the school medical officer. In Somerset this was obtained by means of a history card which was sent with the findings of the school doctor to the dispensary. This was, after the tuberculosis officer had added his diagnosis, returned to the school, and in this way a complete record was kept. He had found that simple exclusion for a period from school was sufficient to bring about the cure.

Dr. CLIVE RIVIERE said that there was no separation of infection and incidence; the latter was so universal. Most children had bronchial gland with slight hilus disease, but of these few developed signs or symptoms which demanded treatment. The X ray showed many shadows, which meant very little. All children who showed physical signs had at some time suffered from the disease, and possibly this would light up in adult life. He recognised a class of "subtuberculous" children who should be under supervision at school, be weighed regularly, and sent to convalescent homes for short periods to improve the general health. He thought the acute and chronic catarrhs were responsible for the development of tubercle.

Dr. HALLIDAY SUTHERLAND considered that the main symptoms were failure to gain weight and an irritability coupled with dyspepsia. Care should be taken not to overlook worms, which caused the same symptoms. He did not agree with the pre- or sub-tuberculous class; either a child had or had not got the disease. The school medical officers and the tuberculosis officers had much in common, and he hoped that the meeting would lead to a closer union of the two societies.

Dr. F. S. LANGMEAD said that tuberculosis in children was a lymphatic disease. 55 per cent. gave a positive von Pirquet reaction, but intracutaneous injection gave a positive reaction in 95 per cent. He uttered a note of warning against sending the rheumatic child to the open-air school, which would be very detrimental for it.

Dr. J. SORLEY spoke of the impossibility of obtaining sputum from children and of the method adopted by Dr. L. E. Holt. It was difficult to know how to avoid numbers of children at the dispensaries, as if they were turned away there was no method at present for them to obtain treatment or supervision.

Dr. F. C. SHRUBSALL said that it was simplest and probably most correct to consider that everybody had tuberculosis, but it was not everyone who suffered from it. He thought that all schools should be made very airy and bright, and that prevention should begin there. School teachers should be encouraged to bring forward ailing children, a procedure which had been put in the background by routine inspection.

Dr. HORACE WILSON was of opinion that the infection of childhood produced an immunity to disease in later life, and that few of the cases when once healed come back as adult cases.

THE MEDICO-LEGAL SOCIETY.

A MEETING of this society was held on Nov. 28th at 11, Chandos-street, London, W. In the unavoidable absence of Mr. R. HENSLOWE WELLINGTON, the President, Dr. MORGAN FINUCANE took the chair, and read Mr. Wellington's inaugural address on the rise of forensic medicine as a subject of first-class importance in practice and in education.

Dr. A. P. GIBBONS read a paper entitled

Suggested Reforms in the Workmen's Compensation Act.

The author, whilst paying tribute to the courtesy and painstaking endeavours of many county court judges, referred to some of the unhappy incidents that have occurred and do occur in courts where doctors, especially when appearing on behalf of defendants, are in compensation cases treated with something less than the courtesy due to them as professional men desirous of assisting justice. Dr. Gibbons criticised the manner in which medical assessors and referees are appointed by the Home Office, since it results not infrequently that consulting physicians, innocent of surgical experience, are called upon to act as experts in cases of surgical importance, and bacteriologists in cases of industrial disease, such as lead-poisoning and the like. The suggestion was put forward that boards of medical assessors or referees should be appointed for areas, and that to these boards all medical questions and disputes in respect of compensation cases should be referred. A further suggestion was made to the effect that workmen should be assessed for incapacity after accident, not merely in respect of the skilled work performed up till the time of the accident, but in percentages of earning capacity in the broad sense of the phrase, without reference to trade-union restrictions.

Discussion.

In the discussion which followed Dr. F. S. TOOGOOD agreed that there exist at present good grounds for discontent, but was not convinced of the applicability of Dr. Gibbons's proposal that boards should be appointed for the decision of the medical problems involved.

Mr. A. S. MORLEY insisted on the need for amendment of the Act, whereby it should provide that a case should be heard before a medical referee if *either* party to the suit so desire, and not only when, as at present, *both* wish reference. He questioned the wisdom of the present state of affairs, whereby sickness secures less pay during disability than does accident; and asked if it would not be possible to amalgamate the Insurance and the Compensation Acts?

Mr. G. C. GARDINER favoured Mr. Morley's suggestion of reference on the desire of either party, and thought it desirable that county court judges should be bound to refer cases to medical assessors when asked to do so.

Mr. A. HAIR, disapproving of Dr. Gibbons's notion, drew attention to the inextricability of the medical questions from those of fact involved in compensation cases, and declared that the assessment of earning capacity was not a purely medical affair.

His Honour Judge BURROWS agreed with Mr. Hair that the medical part of a case could not be conducted separately from the legal, and insisted on the advantage of medical witnesses being present for examination during inquiry into the facts.

Dr. F. G. CROOKSHANK, recognising the difficulties commented on by Dr. Gibbons, supported the nomination in each area of a panel of referees or assessors, so that appropriate specialist experience could be utilised; but, after a not inconsiderable experience in the courts before the war, and of medical boards at home and abroad during the war, expressed himself strongly in favour of the present system, whereby conflicting evidence given by medical men in open court was candidly and acutely balanced by a trained legal intellect. He pointed out that great part of medical evidence in court deals with the attributability or otherwise of present conditions to antecedent events, and that medical men, too often obsessed by the notion of the "single cause" of "special diseases" (which they persist in regarding as things having objective reality), fail to appreciate the true question as it appears to the more logical and philosophic lawyer: "Would this man be as he now is if the accident that happened to him had not occurred?"

The CHAIRMAN briefly summed up the discussion, observing that at present county court judges are not bound to accept the award of medical referees.

The next meeting of the society will be held in January, 1920. Applications for membership should be addressed to either of the honorary secretaries, Mr. E. Goddard, 3, South-square, Gray's Inn, W.C. 1, or Dr. B. H. Spilsbury, 31, Marlborough-hill, N.W. 8.

WELSH PRIORY OF ST. JOHN.—It has been decided to build, at a cost of £70,000, headquarters for the Welsh Priory of the Order of St. John of Jerusalem at Cardiff, on a site near the ruins of the ancient Greyfriars Priory in Cathays Park. The land belongs to Lord Bute, who has offered to contribute £5000 towards the building fund.

Reviews and Notices of Books.

SIR VICTOR HORSLEY.

A Study of His Life and Work. By STEPHEN PAGET. London: Constable and Co. 1919. Pp. 358. 21s. net.

"A man with a boy's heart; a hater of cruelty and injustice, and also with a brave, indomitable belief that ...... and his own cause were generally in the right, whatever the quarrel."

"A man, it is true, of a warm heart rather than of a cold judgment, but a man whom for that very reason many admired, many loved, and many will miss, almost every day of their life."

SUCH are two estimates by two good judges, Andrew Lang and Max Müller, of a man whom Horsley in many ways resembled—namely, Charles Kingsley. Both spent their lives in the service of humanity, both had a passionate sympathy with the "under dog," both were lovers of children and animals, to both we can apply what Mr. Paget says of Horsley on p. 280 of his book, that he was a man "who was always willing to set aside his own interests for the whole-hearted, full-blooded pursuit of an unpopular cause." Even in the manner of their deaths they were not divided. Kingsley wrote a passionate panegyric in praise of the "brave North-Easter," and it killed him. Horsley was so assured that a total abstainer could face risks that would be fatal to a non-abstainer that he exposed himself to the rays of a Mesopotamian sun with fatal results. Of course, this parallel does not imply that we consider Kingsley's intellectual capacities on a par with those of Horsley, for the latter was a brilliant genius, but in their unsparing spending of themselves for their fellows, and in many another way, they were much alike.

Horsley came of an artistic family; his grandfather was William Horsley, who ranks with Stevens, Webbe, and Callcott as a master in that peculiarly English form of composition, the glee. His father was John Callcott Horsley, R.A., and his mother was a sister of Sir Francis Seymour Haden, surgeon and etcher. J. C. Horsley was twice married, his first wife being Miss Elvira Walter. She had three children and died from consumption, while her three children did not long survive her, all dying from scarlet fever, a not uncommon event in those days. In 1854 J. C. Horsley married Rosamund Haden and by her had seven children, two of whom died from scarlet fever. Victor was the third child, and was born on April 14th, 1857, the same day as the Princess Beatrice. Queen Victoria, noting the coincidence, sent word to his parents that she wished the child to be named after herself.

In 1858 J. C. Horsley bought a country house near Cranbrook, in Kent, and here the children up to 1873 were brought up, Victor and his brother Walter being educated at Cranbrook school, whence in 1874 Victor passed to University College, London. Mr. Paget is of opinion that Horsley lost by not having been through the discipline of a public school and, indeed, he only just missed going to Charterhouse, but for some reason or other the scheme fell through. He studied medicine at University College Hospital, and took his M.R.C.S. in 1880 in the month of November, and was appointed house surgeon to Mr. John Marshall in December. From this date until 1884 he held various hospital appointments, and in the latter year began his work with Professor Schäfer and Dr. C. E. Beevor, being later appointed professor-superintendent of the Brown Institution. Here he planned out for the most part his three great researches: the localisation of function in the brain, the pathology of the thyroid gland with special reference to myxœdema and cretinism, and the protective treatment for rabies. The research upon the brain was developed not only at the Brown Institution with Beevor but also at University College Hospital with Schäfer. The brilliant results are known to all medical men, and we need not further pursue them here; suffice it to say that the investigations on the brain, together with those on the spinal cord, begun by Horsley in collaboration with Gotch at Oxford in 1888, made the relief or even cure of hitherto hopeless cases possible.

Two years previously to this Victor Horsley had been appointed surgeon to the National Hospital for the Paralysed and Epileptic, Queen-square, and here it was that he carried out that striking series of operations which gave him a world-wide reputation. Fifty years previously, says Mr. Paget, the surgeon "must have something to guide him, something to go by: wound or scar or depressed fracture. Trephining itself was not brain surgery, but skull surgery; it was the repairing of the roof of the house of life. The skull must be dealt with for the sake of the brain; but the less that the surgeon saw of the brain the better he was pleased." He goes on to remind his readers of the earliest recorded case, in this country, of real brain surgery—namely, that of Macewen, of Glasgow, in 1876, where that surgeon successfully localised a cerebral abscess. Operation was not allowed, but a post-mortem examination was and the abscess found where Macewen had predicted that it would be. Before Horsley's advent the treatment of paralysis had been mainly mechanical; by the end of 1886 Horsley had done ten operations on the central nervous system; nine were successful, ranging from improvement to complete recovery, one was followed by death, that of a boy with cerebellar tumour, paralysed in all four limbs, and worn out with pain, vomiting, and fits.

We must pass from Horsley's epoch-marking work in surgery and pathology to other activities in which he showed no less zeal for the good of his fellow creatures, though the results were not always as successful—namely, his work in professional politics. The fields of his labour were three: The Medical Defence Union, the General Medical Council, the British Medical Association. Like another brilliant but freakish public man, with whom he had many points in common, Lord Randolph Churchill, Horsley could not stand "the old gang"; and his doings on the General Medical Council brought out this side of his character in a marked manner. He was elected to the Council as one of the three Direct Representatives chosen by the whole profession in October, 1897. He went to the Council, as he made no secret of doing, with the express intention of stirring it up, and he certainly did so. He offended many, but in the long run he succeeded in getting the basis of his views adopted. At the end of his first term of five years he was re-elected by a large majority and just before the end of his second term he resigned. As president of the Medical Defence Union he was a power of strength, while the democratic constitution of the British Medical Association owed to him its origin. Also at the Royal College of Surgeons of England he was unsparing in his advocacy of the claim of Members to sit on the Council, but in vain. If his work here was not so successful as on the General Medical Council, yet it kept the question before the College, and in general, even if he did not always succeed in bringing about reforms, he produced an atmosphere favourable to them. Reformers are usually troublesome, but it must always be remembered that the Pool of Bethesda only showed its healing qualities at the time when the angel *troubled* the waters.

Of the last scenes of his life little need be said, for all the world knows of the grave by the Tigris. After many delays he was sent to France early in 1915 in charge of the surgical division of the 21st General Hospital. In May the hospital left for Egypt, in September he went to Gallipoli, and in March, 1916, to Bombay, and thence to Basrah in April, arriving at Amarah on May 21st. On July 16th he died from heat-stroke. Just before he left Egypt he said to Lady Horsley, "Don't worry about me; I don't matter. I can't live for ever; it's the young that matter." That was the true man's unselfish self who spoke, but as a fact he was always young; no one could imagine him old. He died as he had lived—consumed with a desire to do good to his fellows.

Mr. Paget has had a worthy subject for a biography, and the biographer has proved worthy of his subject.

GENERAL SURGERY.

Practical Medicine Series. Edited by ALBERT J. OCHSNER, M.D., F.R.M.S., LL.D., F.A.C.S., Major M.R.C., U.S. Army; Surgeon-in-Chief, Augustana and St. Mary of Nazareth Hospitals; Professor of Surgery in the Medical Department of the State of Illinois. With 140 illustrations and 49 plates. Chicago: The Year Book Publishers. Series 1919. Pp. 624.

THIS volume is a résumé of the surgery of 1918, and deals to a great extent with war surgery. The editor has succeeded in reducing the contents of a vast amount of literature into a comparatively small compass, and has produced a useful book of reference. Recent work on bone defects is well discussed, the methods of closing gaps in the skull are explained; the advantages of bone over metal or celluloid plates are insisted on. Especial preference is given to LeFur's method of cranioplasty, and that of ingrafting a portion of the scapula; the advantage of the later method is that the bone removed from the scapula is so thin that it can easily be moulded into the desired shape.

The section on general abdominal surgery contains, among other things, useful references to the abuse of drainage-tubes; the disadvantages of drastic preoperative purgation; and the treatment of various post-operative complications. Stewart's operation of gastrostomy, by the formation of a dermal tube, is described in detail and is well illustrated. The vast amount written on hernia shows that in a large number of cases the usual methods of operating are not satisfactory, and Major Ochsner's chapters suggest that the number of recurrences probably exceed those published in statistics. The opinion of surgeons in general seems to favour the intercalation of artificial support in the layers of the abdominal wall, either by means of the silver filigree, or by some sort of "darning" operation, such as that advocated by Mr. Sampson Handley. The guillotine amputation, for which there is, in our opinion, no justification, still appears to have some partisans. The formation of skin flaps involves hardly any delay in the operation, while its advantages are too numerous and obvious to discuss. The sections on blood-vessels, joints, the surgery of the face and mouth, and malignant tumours all introduce important and interesting points.

WAR SURGERY OF THE FACE.

By JOHN B. ROBERTS, A.M., M.D., Fellow of the American College of Surgeons. London: John Bale, Sons and Danielsson. 1919. Pp. 442. 20*s.*

A COMPARISON of this book with "Surgery of Deformities of the Face," produced by the same author in 1912, forms a powerful illustration of the advance made in facial surgery during and owing to the war. The work is comprehensive and well arranged. Some sections are especially good, such as that on fracture-dislocations of the nose; although exception will be taken by most who have done this work to the use of paraffin, which the author recommends for selected cases. The chapter on radiographic diagnosis would be more valuable if it were not entirely devoid of illustrations. The section of anatomy is unnecessarily long and detailed; most of its contents are available in any anatomical text-book. Here and there the author mentions facts which must be too obvious to require allusion—for instance, that before anæsthesia the clothing should be loosened and pieces of chewing-gum removed from the mouth. The chapter on plastic repair of the ear confirms the general impression that surgical repair has made less advance here than in other parts of the face. In fact, the discreet silence maintained by all writers on the enormous difficulty in reproducing (with a cartilaginous scaffolding) the delicate curves of helix and antihelix is a grim testimony to this difficulty. In another chapter, of more general surgical interest, an excellent point is discussed regarding nerve surgery. The suggestion made, of exposing nerve-trunks by raising skin-flaps rather than through linear incisions, will appeal to any surgeon who has undertaken, through a small incision, a deep anastomosis such as a facio-hypoglossal.

One of the best features of this book is that the illustrations are for the most part from excellent photographs, whereas in the author's former work, as in most of the older treatises on this subject, drawings and diagrams were chiefly used.

MENTAL DISEASES.

By R. H. COLE, M.D., F.R.C.P. Second edition. London: University of London Press. 1919. Pp. 351. 15*s.*

A SECOND edition of this unpretentious and useful book. Should it reach a third edition we would suggest that it might be improved here and there in grammatical expression, and that such metaphysical references as it contains should be omitted. Few medical men are versed in the technique of philosophy, and we do not gather that the author is one of the number. He had better stick to his last and hammer out a good description of mental diseases. He is quite capable of that, as this book shows.

PRACTICAL SANITATION.

A Handbook for Sanitary Inspectors and Others Interested in Sanitation. By GEORGE REID, O.B.E., M.D., D.P.H. Nineteenth edition, revised. London: Charles Griffin and Co., Ltd. 1919. Pp. 376. 7*s.* 6*d.*

THE thirteenth edition of this work was reviewed at some length in THE LANCET of August 17th, 1907. The criticisms made at that time remain pertinent to-day, though six editions have since testified to the continued popularity of the book. Possibly from a wise caution the author has hesitated to discard the old and to embrace the new. The revision of the present edition has evidently not been very exhaustive. The section on the housing of the working classes, for example, quotes the Act of 1909 as the last authority in the present law. The section on tuberculosis is another example of careful work allowed to grow a trifle stale. We hope that the twentieth edition will receive the drastic revision which the book undoubtedly deserves and wants.

LETTERS TO A YOUNG MAN ON LOVE AND HEALTH.

By WALTER M. GALLICHAN. London: T. Werner Laurie, Ltd. 1919. Pp. 123. 4*s.* 6*d.*

A CORNER STONE OF RECONSTRUCTION.

A Book on Working for Social Purity among Men. By Four Chaplains to the Forces. London: Society for Promoting Christian Knowledge. 1919. Pp. 156. 3*s.* 6*d.*

SINCE it became recognised wisdom to write frankly of sex difficulties and the diseases incidental to an irregular life, there has been a generous output, both in the press and in the form of books, of teaching, sound and unsound. There is nothing mawkish or unsavoury about either of these two books. Mr. Gallichan believes—and we are of his opinion—that without some knowledge of sex hygiene, sex psychology, and the reproductive process in man, the chances of living a healthy moral and useful life as a celibate, a lover, a husband, a father, and a citizen, are very considerably reduced. Whether such knowledge is profitably conveyed in this series of pseudo-letters is another question, though the object is good. We say pseudo-letters because we do not believe that any writer would begin a real letter to a real nephew with the words: "My dear Leonard, I wish to give you some sound reasons for early marriage. The pleas for wedded life in early manhood are physiological, racial, social, and mental, and moral." Nor are these the pleas which would naturally have occurred to Leonard.

The four chaplains are less clerical in their style and they are no less well balanced in their outlook. They deal in a very practical manner with the problems of workers for social purity, and their book is one which may well be recommended to such workers. Naturally, at the great controversial point they condemn without reservation the provision of prophylaxis for venereal disease. They consider it "quite certain that when men are informed as to how to use such preventives and are told where they can be obtained, the moral safeguards which lie in the individual conscience are at once undermined." The soldier, they believe, says in effect, "As they seem to expect it of me, I may as well go and do it." That there is something in this argument no one can deny, but the difficulties are not removed by setting them out.

JOURNALS.

Quarterly Journal of Experimental Physiology. Editors: E. SHARPEY SCHAFER, W. D. HALLIBURTON, C. S. SHERRINGTON, E. H. STARLING, and A. D. WALLER. Vol. XII., No. 3. London: Charles Griffin and Co., Ltd. 1919. Pp. 199–301. 10*s*.—A New Method for Crossed Circulation Experiments, with Some Observations on the Nature of Pressor Reflexes, by H. C. Bazett and W. C. Quinby. In 1880 L. Fredericq introduced the use of cross circulation experiments as a means of testing the relative importance of chemical and nervous factors in the control of respiration. Various modifications have been used by other observers for other purposes. The authors' method allows the crossing of the whole circulation of two animals through the ascending aortas. By means of a special stopcock the circulation can be crossed or returned to "normal" at will and at any moment. It was originally devised as a means of studying the causes of surgical shock, but it was not found readily adaptable for this purpose, as the animal in the better condition bled into the other animal. The chief part of the paper deals with pressor reflexes. The analysis of these responses shows that they are the result of complicated interactions of nervous, chemical, and mechanical factors, and emphasises the relative unimportance of all these factors, except vaso-constriction. Adrenalin is regarded by some as playing a considerable part in the rise of blood pressure on sensory stimulation, but this was not the case in these experiments. The character of the pressor response on stimulation of the sciatic nerve varies to a large extent according to the nature of the respiratory reaction. There is some evidence that an acapnic condition may alter slightly the reaction of the circulation to sensory stimulation. Under urethane anæsthesia, during crossed circulation, the pressor response to sciatic stimulation is almost entirely nervous in origin, while chemical and mechanical factors play an almost negligible part. The veno-pressor factor must also be subsidiary.—Traube Waves and Mayer Waves, by W. D. Halliburton. This is a short paper on the various waves seen in a blood-pressure tracing, especially the large sweeping waves seen during asphyxia in curarised animals, which appear to be identical with similar waves sometimes noticeable in the arterial blood-pressure tracings of uncurarised animals. They are probably of vasomotor origin. It seems appropriate to designate them after their original discoverer, Traube (1865). In 1869 Hering studied the same phenomenon, and hence in many text-books they are called Traube-Hering waves. The waves described by Sigmund Mayer (1876) are of an entirely different nature, and are produced in an artificial manner and have no physiological significance.—Experiments on the Cervical Vagus and Sympathetic, by E. Sharpey Schafer. No evidence was obtained here of functional regeneration of the peripheral vagus 2 years and 50 days after section of the nerve in the cat. The fatal result which follows double vagotomy, and which occurs within three days of section of the second vagus, no matter how long previously the first had been cut, is due not to pneumonia but to slow asphyxia caused by obstruction at the glottis from paralysis of the laryngeal muscles. If this paralysis is obviated, animals survive double vagotomy indefinitely, and show no abnormal symptoms, except a certain difficulty in swallowing, with sometimes a tendency to vomit, and increased pulse-rate. Although slowing and depression of respiratory movements often result from double vagotomy, the phenomenon is not constant, and if the trachea is previously opened, it may not occur at all. Especially when a long period has elapsed since the section of the first vagus, the "slow deep inspirations" which form the classical picture of the effect of double vagotomy are not observed, provided tracheotomy has been performed. In the dog and cat when the sympathetic nerves are cut in the neck—either along with the vagus or separately—the resulting symptoms in the eye and in the vessels of the ear have been found to persist as long as the animal was kept alive—two years (dog, cat)—although becoming less manifest as time went on. If the sympathetic of the opposite side is now severed—after a certain interval of time, probably exceeding eight days—the symptoms, which are at once very pronounced on the side of the second section, may disappear on the side of the first section, and may even be replaced by a "swing" in the opposite direction—i.e., the pupil becomes abnormally dilated, the eye abnormally prominent, the membrana nictitans may entirely disappear, and the blood-vessels of the ear become contracted, so that the ear is cold to the feel. These "reversal" conditions tend gradually to pass off, but as long as the animals have been kept alive there remains a decided difference on the two sides, the signs of section being always more obvious upon the side last operated on. In rabbits the effects of section of the cervical sympathetics or extirpation of the superior ganglia are more variable than in cat and dog. Salivation and lacrimation on the side of the section of one sympathetic have been observed in some cats. The probable significance of these symptoms is discussed.

Archivio Italiano di Chirurgia (*Italian Archives of Surgery*) is a new periodical, published under the direction of Professor M. Donati, of Modena. Each volume will consist of at least 600 pages, and will appear in six parts. The first part contains four papers which cover 152 pages. The first paper, written by the director, deals with Latent and Atypical Forms of Tetanus. The author, as a result of routine bacteriological examination of the discharges from septic wounds, came to the conclusion that the presence of *B. tetani* in these wounds was by no means rare. These infections, as a rule, were unaccompanied by symptoms, which fact the author attributes to the prophylactic dose of serum which the patients had received soon after being wounded. Exaggeration of reflexes is often the only detectable physical sign in these cases, and further injections of serum bring about a complete cure. In the second paper Dr. Banchieri reports a case of tetanus localised in one lower limb which appeared 14 months after the infliction of a wound which had healed up, but from which the foreign body had not been removed. The disease went on for five months, and extraction of the F.B. and more serum completely cured the disease.—A paper by Dr. Fasiani deals with the preparation and properties of immune sera against the commoner organisms found in cases of gas gangrene. Dr. Fasiani found that *B. perfringens*, *B. œdematis maligni* (Ghon and Sachs), and *B. œdematis maligni* (Novy) occurred most frequently in the cases of gas gangrene from the Corso and Piave. Sera, which were actively agglutinating, precipitating and antitoxic, were obtained by intravenous injection of unfiltered broth cultures into horses. According to the author, the sera obtained by this method in the case of the first two organisms were even more powerful than those prepared in other ways. The third did not yield such a powerful serum. The last paper gives an account of an experimental investigation by Dr. G. Forni on the effects of nephrectomy on the evolution of tubercle in the remaining kidney. After a general review of our present knowledge on this subject the author proceeds to give an account of his experiments. The animals used were rabbits and guinea-pigs. A culture of T.B. was injected directly into one kidney, and after a variable period the other kidney was removed. After a further lapse of time the animals were killed and the infected kidney examined. The author found that in the nephrectomised animals the lesions found post mortem were always much less marked than in the control animals, which had been infected but not nephrectomised. He concludes, therefore, that the compensatory hypertrophy following nephrectomy increases the resistance of the kidney, and may even lead to regression of the tuberculous process. The paper is illustrated by coloured plates, which are quite good. The *Italian Archives of Surgery* promises to be a very useful addition to the list of surgical periodicals.

THE LANCET.

LONDON: SATURDAY, DECEMBER 13, 1919.

The New Measles Notification Order.

THE Ministry of Health announce an important change in the system of compulsory notification of measles, which will take effect at the New Year. It will be remembered that the present notification requirements in England and Wales were imposed during the war by a Local Government Board Order of 1915, which applied to the whole country. It was made the duty of doctors in every sanitary district to notify first cases of measles in a household, as well as first cases of rubeola or German measles. The duty of notifying all other cases of measles and rubeola, except first cases already notified by a doctor, was placed on the parent, guardian, or other person having charge of the patient. This order is now to be withdrawn. Compulsory notification of measles and rubeola will cease as a general measure, but it will be continued in those districts in which the town or district council decide that some form of notification will be helpful to their local measures for the treatment of these diseases, and can satisfy the Ministry of Health that these measures are in themselves sufficiently active and useful to warrant a local notification order. The new local orders may provide for the continuance of the same notification requirements as those contained in the present general order; or the latter may be varied, for example, by requiring that all cases of measles, not only the first case, are notifiable by doctors; or the notification of rubeola may be omitted. The question is thus one of some urgency for medical officers of health, as it is obviously desirable that a local authority which wishes to continue notification after the end of this month should make early application to the Ministry, while it is equally important that the medical officer of health should obtain the views of medical practitioners in his district before advising his authority.

It is common ground that in measles, unlike some other acute infectious diseases, notification is of little value as a means of preventing spread of infection. However promptly cases may be diagnosed or reported, no administrative measures which are practicable under ordinary conditions of life in this country can check the recurrence of measles epidemics. Even where measures of isolation and segregation can be so thoroughly and promptly taken as for the moment to avoid the spread of infection—for example, in schools—the after result may not always be advantageous. This was illustrated during the war by the severity and heavy mortality of the numerous adult cases of measles which occurred among men joining the army from the Highlands and other remote places in which epidemics occur only at long intervals. Nor can it be said that measles notification figures, such as have been obtained in the last four years as a result of the general order, have much value as a means of increasing epidemiological knowledge. Allowances have to be made in three directions, namely: for the limitations imposed by the "first case" rule on notification by doctors; for the uncertainties of parental notification, which in the large majority of cases is not observed; and for the different extent to which doctors are summoned to attend measles cases. When all this is taken into account it is evident that facts as to periodic waves of measles prevalence, and comparisons between one district and another in regard to measles, can be as well or better obtained from study of death-rates or of special case returns from schools or institutions. The practical thing by which notification must be judged is the part that it plays in the essential business of securing the good treatment of measles, so as to remove or diminish the risk of secondary complications, the pulmonary or ear disease, the chronic disability, and formidable mortality. Fortunately, we have now a considerable body of experience of the good work which can be done by the public health authorities in this matter. Its nature and scope are well set out in the circular from the Ministry of Health to county councils and sanitary authorities, which accompanies the new rescinding order. This circular (No. 35, Measles and German Measles) gives excellent practical advice as to the manner in which local action can be taken by the use of health visitors, by provision of home nursing, by advising medical aid in all cases and supplying it when necessary—at the expense of the sanitary authority—by the use in appropriate cases of isolation hospitals and convalescent homes, and by "after-care." Local authorities are strongly urged by the Ministry to develop their activities in these directions, and when children under 5 years of age are in question, Government grants in aid can be obtained. The circular states that, as a result of experience, the receipt of notifications under the general order which is now being rescinded is not to be considered an essential factor in a practical scheme having the diminution of mortality from measles as its aim. Local authorities which have been most active in this work have still in large measure to rely on their own means for finding out cases of measles, for example, through health visitors or schools, with the result that notification afterwards received has been redundant. On the other hand, in many districts the notifications are filed without any appropriate action, and in such cases it is difficult to justify the expenditure on notification fees. By their new policy of local option the Ministry evidently hope to secure that the notification will only be imposed where it is likely to be of some real value in practice, while the department is evidently not averse from experiments with different forms of local notification, some of which may well prove better than the system which is stereotyped in the present general order.

The new policy is likely to have its critics from lovers of uniformity, and it will no doubt be inconvenient to medical men who practise in several different districts to have to remember that in one area it is necessary to notify in one way, in a second area in another way, while in a third no notification is required. But, on the other hand, uniformity can be purchased at too high a price, and in the present day, when medical certificates are asked for almost everything, we may welcome a measure coming from the Ministry of Health which makes it unnecessary to fill up notification forms in cases where no use will be made of them. It is much more important that the Ministry of Health should actively pursue, and promote by means of grants, the main lines of local action against measles which are formulated in its circulars, while differential study is made at the same time of the extent to which one or another form of notification is in practice found to foster local action against measles mortality. The question of payment for notification, to which no reference is made in the new order or circular, is of course important in connexion with the new local orders which are to be issued. It may confidently be assumed that notification fees in this and in all other cases will be restored at least to the standard half-crown rate which was so unjustifiably reduced during the war.

The Teaching of Practical Midwifery.

THE discussion at the Obstetrical Section of the Royal Society of Medicine on the teaching of obstetrics to medical students will have done good if it calls the attention of the profession to two important questions—viz., the necessity for the provision of larger numbers of beds for lying-in women not only in London but all over the country, and the necessity for improving the teaching of practical midwifery to medical students. That the number of beds available for lying-in cases in the London hospitals attached to medical schools is very insufficient is shown by the fact that there are only 97 of a total of 5250 beds in these 12 hospitals set aside for this purpose, and of these 69 only are available for the teaching of medical students. It is a scandalous fact that in most parts of the United Kingdom it is quite impossible for any woman who desires to do so to obtain admission to a lying-in hospital for her confinement, and the number who are delivered in such surroundings forms but a very small fraction of the total number of the deliveries in any one year. Yet it is a truism to say that the safest place for a woman to be delivered is in a well-conducted lying-in hospital, and the appalling death-rate, almost entirely preventable, which still occurs in this country as a result of child-birth will never be reduced to a minimum until such facilities are rendered readily available in every part of the United Kingdom, and both in towns and rural areas. It is an astonishing thing that in London, the largest and wealthiest city in the world, the hospital accommodation for lying-in women should be totally inadequate; and, indeed, there is no lying-in hospital in London to be compared either in size or equipment with many of those to be found in quite small cities abroad or in the United States. In the general reorganisation of hospital accommodation, which may be one of the hardest problems awaiting solution by the new Ministry of Health, this question must be taken into account, and there is some evidence that local and other authorities are having their attention called hereto.

It is evident from the discussion to which we have alluded that there is some difference of opinion among London obstetric physicians as to the best method of obtaining a definite improvement in the teaching of practical midwifery; while some of them believe the right course to be the establishment of large midwifery and gynæcological institutes, self-contained and closely associated with maternity and child-welfare centres, others believe that a better solution is the provision on a more generous and better-equipped scale of lying-in wards at the various medical schools. We regret that where the situation by common agreement calls for amendment there should be divided counsels among those who are so largely concerned in the wisest method of procedure. It seems certain that the policy of the Ministry of Health contemplates a critical review of the hospital accommodation all over the country and, if necessary, its reorganisation, so that there shall be no overlapping or waste, and that beds may be available so far as possible for all varieties of disease. This will involve necessarily complete reorganisation of the Poor-law infirmaries and a reconsideration of their relationship to the general hospitals and to the hospitals associated with medical schools; and in connexion with this latter relationship some means should be found for making use of the vast amount of material in these institutions for clinical teaching which is so completely wasted at the present time. The teachers in midwifery at the medical schools should remember that if the suffering and mortality of childbirth is to be ameliorated, not only must the teaching of the medical student be improved, but also that of the midwife, and any plans they may put forward must provide for both these purposes. The blame for the present large mortality and morbidity of childbirth cannot be laid solely at the door of the doctor or of the midwife; they are both involved, and no one who knows the facts could say that improvements in the teaching of both are not urgently called for. This is not a time for destructive criticism; a via media must be found if the best use is to be made of the opportunities which will soon arise, and which, if not taken advantage of, may never recur.

It seems to us that the provision of large maternity centres in various parts of London, fully equipped for the reception of lying-in cases and perhaps also for gynæcological cases, and certainly associated with maternity and child-welfare centres, must be a feature of hospital evolution in the near future. The need for such centres is pressing, and once the public learns that the present death-rate and the present dangers of child-bed are almost entirely preventable they will not be content with the existing inadequate provision for the hospital treatment of such cases, they will demand, and rightly demand, ampler and better provision. And the public authorities will have to yield to their cry. The maternity centres will furnish opportunities of teaching undergraduates, post-graduates, and midwives, on a larger and better scale than exists at the present time; and it is the business of the teachers of midwifery to take advantage of opportunities that may offer for the institution and management of the centres; let them not throw away chances because they cannot agree among themselves as to the relative merits of two schemes which in reality differ but little from one another. By all means let the small number of hospitals which can do so enlarge their existing accommodation for maternity cases and at the same time take steps to improve their teaching, which at present is admittedly defective; but the total number of beds which these hospitals will be able to set aside for midwifery will be quite inadequate to fill the demand; there will remain ample scope and material for the new institutions, to be run on the lines of the Committee's report. It would be suicidal for all the medical schools of the metropolis—and we are for the present discussing the situation only as it affects London—to try to establish maternity wards with a sufficient number of beds; this should be attempted by not more than three or four schools, and the students of the other schools should obtain their clinical instruction either at one of the schools furnished with a maternity ward, or, better, at one of the new and large midwifery institutions, of which at least half a dozen will be required in the different areas of London. We hope that the present policy which has been initiated in some local areas of starting small lying-in homes will not be continued to any great extent; these homes are extravagant to equip and to administer, and cannot afford either the competent nursing staff which is so essential, nor will they attract the services of the right kind of well-trained and sufficiently skilled practitioner. Any that are opened should be affiliated ultimately to one of the larger institutions, so that in case of necessity they may be able to command the services of the experts who will form the members of the whole-time staff of these establishments. We sincerely hope that the Obstetrical Section of the Royal Society of Medicine will not stop the good work they have initiated, but will draw up alternative schemes which might form the basis of such a plan as we have outlined. Then, when the Ministry of Health develops its plans, the teachers of midwifery in London will be able to point out the right path for it to follow, and will not be found with divided counsels and with no defined policy.

◆

The Place of the Physician in Ophthalmology.

WE published in a recent issue of THE LANCET the proposal of Dr. RAYNER BATTEN that definite provision should be made on the staffs of our hospitals for the appointment of ophthalmic physicians as well as ophthalmic surgeons. The proposal, which gave rise this week to an interesting discussion at an adjourned meeting of the Ophthalmological Section of the Royal Society of Medicine, was seconded by Dr. C. O. HAWTHORNE, who pointed to the frequency with which patients suffering from general diseases, such as diabetes, nephritis, meningitis, or acromegaly, come in the first instance under the notice of the ophthalmic surgeon on account of ocular symptoms which may be only of minor importance. As was pointed out by other speakers, however, there is no reason to suppose that such cases are kept in the ophthalmic department or hospital when they might be more appropriately put under the care of the general physician who certainly ought himself to be an adept in the use of the ophthalmoscope and the perimeter, instruments essential for the diagnosis of many general diseases.

Dr. BATTEN'S argument for the due recognition of ophthalmic physicians was differently based. There are many conditions, such as retinal hæmorrhages of various kinds, several varieties of retinitis, choroiditis, iritis, and cyclitis, and numerous other ocular conditions not associated with symptoms on which the diagnosis of a general disease can be founded, for dealing with which the training and methods of the physician rather than of the surgeon are required; further, there are many unsolved problems concerning diseases of the eye—such as the causation of cataract, the channels by which septic infection reaches the eye, or the prophylaxis of detached retina and conical cornea—in the solution of which we look for help, if anywhere, from ophthalmologists who are also trained physicians. In the discussion on Dr. BATTEN'S paper the obvious objection was raised that to recognise two species of ophthalmic specialists would be to encourage the tendency towards specialism, which has already gone too far, and although the author of the paper repudiated any such intention it is difficult to see how it could be avoided. The ideal which the specialist in ophthalmology sets before himself is, in the first place, to know all that there is to be known about the conditions by which vision is affected, and in the second place, in cases where the affection of sight is the sole or most prominent symptom, to complete both diagnosis and treatment himself, except in cases where he cannot do without the coöperation of other specialists. We should regret the narrowing of this ideal, which would ensue if one set of specialists renounced from the outset of their career the practice of eye surgery, and another set, devoting themselves exclusively to operative work, lost all interest in the countless problems which the ophthalmoscopic examination of abnormal eyes continually presents. Nor would it be in the best interests of patients to come under the treatment of men who could with any justice be suspected of undue bias, either, on the one hand, towards operative methods of treatment, or, on the other, towards any rival methods which vaccine-therapy, organo-therapy, or drug treatment may in the future evolve.

Having said so much, we may admit that there is a great deal of truth in Dr. BATTEN'S contention that the conditions of appointment to the post of ophthalmic surgeon now in force at our principal London hospitals are urgently in need of review, on the ground that most of the knowledge acquired during the years of hard work necessary to the attainment of the English Fellowship is entirely irrelevant to the work of the ophthalmologist. In this connexion we may call attention to the report of the Council of British Ophthalmologists on a Higher Qualification in Ophthalmology, recently published.[1] They remark on the fact that in the higher surgical examinations as at present conducted there is seldom any adequate test of a candidate's knowledge of ophthalmology, and they suggest that all universities and colleges, which confer higher surgical qualifications such as are required of candidates for the post of ophthalmic surgeon in most large hospitals, should make ophthalmology one of the optional subjects, as has already been done in the case of the Edinburgh Fellowship and the degree of M.S. of the University of London. If such an examination is adopted, says the report, it is desirable that it should be definitely stated that the degree or diploma is granted in ophthalmology. This would be a valuable reform, though scarcely going far enough to satisfy those who desire to place the medical side of ophthalmology on a footing of equality with the surgical. We would suggest that the advocates of this view should devise means by which their end may be attained without causing ophthalmologists to specialise inside their own subject at too early a period in their careers. The operative experience gained before appointment to the staff of a hospital must be limited, and there will always be some who will prove better operators than others. Similarly, none can hope to approach the solution of such ophthalmological problems as we have indicated from the medical side without years of experience. There is surely no reason why division of labour on some such lines should not be practised by completely qualified ophthalmologists without any hard-and-fast line being drawn between ophthalmic physicians and surgeons which would be confusing to the public and not in the best interests of ophthalmology.

---

[1] THE LANCET, Dec. 6th, 1919, p. 1046.

Annotations.

"Ne quid nimis."

THE PREVENTION OF DISEASE AMONG TROOPS ON ACTIVE SERVICE.

AT the Royal Society of Medicine on Monday last Sir John Goodwin, Director-General of the Army Medical Service, delivered an interesting address on the prevention of disease among troops on active service, noting at the outset that some 14 years ago he read a paper on the same subject at the Royal United Service Institute, in which he indicated that the future success of all armies in the field must, and will to an enormous extent, depend upon the proficiency in which measures for the prevention of disease are carried out. Much medical history is contained in the thought that such a statement, which to-day is an accepted truism, should only a few years ago have been considered an arguable proposition. And despite our experience in the Boer war it must be admitted that 14 years ago none of our soldiers planned their measures in case of war with the idea that the fighting man would have largely to depend upon preventive medicine for his effectiveness. But the Royal Army Medical Corps was more alive to the situation than any other section of our society, and when Sir John Goodwin told the Royal Society of Medicine that the British share of the success in the Great War had been largely owing to unceasing efforts of the Corps for the past ten years in establishing army hygiene he was only claiming for his branch of the service its due credit. Sir John Goodwin reviewed briefly the various communicable diseases which threatened the British armies in the recent war, giving at the same time notes on the means which were adopted towards meeting them. He narrated the statistics of the enteric group of diseases in former wars, and contrasted the grievous and alarming figures with the figures of the Great War. Taking the French Army, he said that during the opening three months of the war 8000 cases fell into the enteric group, with 3000 deaths (we give the figures roughly); from Nov. 1st, 1914, during the next year there were 87,000 cases and 8000 deaths; and during the year from Nov. 1st, 1915, to Nov. 1st, 1916, there were 17,000 cases and 700 deaths. Inoculation was not made compulsory in the French Army until March, 1914, and only 125,000 men had been inoculated on mobilisation. If incidence and mortality had remained what they were at the end of 1914 the number of cases would have exceeded a million and the deaths would have been 145,000. As regards the British Armies in France, from the commencement of the war until December, 1918, there were 7423 cases, with 266 deaths, in an average strength of 1,200,000 men. The explanation of these extremely satisfactory figures, Sir John Goodwin said, lay in the advance of our scientific knowledge, the perfection of methods of purification of water, the rigid disposal of waste products, effective field sanitation, improved education in hygiene, and, lastly, the increase of preventive inoculation. As regards typhoid and paratyphoid vaccine, during the five years of the war 25,000,000 c.cm. of vaccine were issued, and he recorded a special debt of gratitude to the inoculation department of St. Mary's Hospital, which during the first six months of the war supplied over 1,000,000 c.cm. of typhoid vaccine;

at the same time, he detailed the enormous quantities of vaccine which had been issued during the last five years from the vaccine department of the Royal Army Medical College. Sir John Goodwin dealt with similar particularity in respect of the incidence of dysentery, and the measures which had been taken for the control of malaria in the field and for the prevention of its spread to civilian populations. In an instructive address he showed the influence that prevention and education have in giving man the mastery over plagues hitherto considered the invariable and invincible concomitants of war.

THE HEALTH OF THE SCHOOL CHILD.

THE appearance of the annual report for 1918[1] of the chief medical officer of the Board of Education, a detailed account of which we hold over to a later issue, brings once again under notice the immensity of the task which lies before the health authorities of the country, who are charged with the duty of producing an A 1 population. Roughly, one-half of the children in the public elementary schools are found on medical inspection to be defective in some particular, and more than one-third of the whole are referred for treatment. Under the health provisions of the Education Act, 1918, the powers and duties of local education authorities are greatly widened in scope and extent. Medical inspection of pupils is now extended to secondary schools and continuation schools, which will in time provide for the whole of the adolescent population up to the age of 18. Further, provision is made for the establishment of nursery schools for children between 2 and 5 years of age. In regard to secondary schools, from 25 to 50 per cent. of the pupils are usually found to require treatment mostly for dental caries, defective vision, enlarged tonsils, disorders of the heart, malnutrition, anæmia, spinal curvature, and flat-foot.

It is clear that a great deal of this defect is preventable, and the task of the authorities should be to ascertain the causes which produce it and to deal with the evil at the root. To this end the coöperation and coördination of every agency are needed. The school medical service cannot stand alone. Much of the defect is already in existence before the child arrives at school. Much is due to adverse home environment, and more to maternal ignorance. The greatest obstacle to progress is the chaotic manner in which various health functions have been, and still are, distributed between rival and overlapping central and local authorities. Through the Ministry of Health Act, 1919, we have, at any rate, arrived at unity of command. This must be followed without delay by unity of action among the forces in the field. Under the Act the health duties of the Board of Education are transferred to the Minister of Health, provided that the powers and duties of the Minister may be exercised and performed by the Board on his behalf and with his authority. We now learn that under this proviso the Board will continue to act for the Minister of Health, and local education authorities will continue the school medical work which they have hitherto undertaken, but with the increased powers and duties laid upon them by the Education Act, 1918. Locally, therefore, things remain as they were and no step forward has yet been achieved.

Where the local education authority and the local sanitary authority are united in the same body considerable coördination of action is possible. Thus at St. Helens, for instance, it has been found possible to combine the school nurse, the health visitor, and the school attendance officer in the person of a single official. This makes alike for economy and greatly improved efficiency. Since the health duties of the local education authorities must continue to be directly performed, it would seem these authorities should also everywhere be the coördinating head, with controlling powers over all subsidiary health authorities in the area. Legislative action is urgently needed on the lines of the report of the Maclean Committee for the transfer of the Poor-law health functions to the local health authorities, and at the same time the fusion of the present multiplicity of overlapping local health authorities into one coördinated system must be effected. Only thus will the present confusion of effort and ruinous duplication of officials be abolished, and only thus will the way at last be cleared for dealing with the ill-health, and consequent inefficiency and incompetence, which are found wherever the conditions of the people are studied—found not alone in the school but in the maternity centre, the recruiting centre, the workshop, and the factory.

WANTED: A PATHOGNOMONIC SIGN OF EARLY ACTIVE TUBERCULOSIS.

> "The moral is that pulmonary tuberculosis should not be confidently diagnosed until tubercle bacilli have been found in the sputum."
>
> "A case can no longer be considered early when once tubercle bacilli appear in the sputum. I consider, with only a few exceptions, that a patient with a positive sputum is past the prospect of ultimate arrest."

IN a recent number of the *Practitioner* there are two papers containing these two statements, which, if contrasted, must be interpreted as a confession of a deplorable flaw in our knowledge of the early manifestations of tuberculosis. In the first paper Dr. A. J. Jex-Blake is referring to McCrae's and Funk's observation that among 1200 consecutive cases admitted to hospital for advanced pulmonary tuberculosis 72, or 6 per cent., were found to be non-tuberculous. Dr. Oscar Holden is responsible for the second statement, with the pessimism of which many physicians will disagree. It has been estimated that France lost the equivalent of more than a division owing to the mistaken diagnosis of pulmonary tuberculosis early in the war. Of the Americans sent home from Europe with the diagnosis of pulmonary tuberculosis, an extraordinarily high proportion was subsequently judged to be non-tuberculous. The importance of the differential diagnosis increases yearly with the introduction of measures tending to isolate the consumptive from the rest of the community. A generation back there may have been little provision for the care of the consumptive, but he was, at any rate, free from the stigma that is attached to the diagnosis of pulmonary tuberculosis at the present time. And it is the recognition of this stigma that is reflected in the tardy diagnosis and notification of the disease by many medical men. Could it be counteracted by compensatory benefits, such as the allotment of a State pension, a potent stimulus to early diagnosis would be given, while, in the interests of the patient, practitioners would focus their attention more than heretofore on the signs of early, active tuberculosis. What are they? A reference to text-books on the subject leaves the reader bewildered by the wealth of minutiæ which specialists bring forward as aids to the diagnosis of active tuberculosis, yet none of their tests, short of the demonstration of the tubercle bacillus or a necropsy, is pathognomonic. Another unsatisfactory feature is the lack of unanimity as to the importance attached by various authorities to different signs. In the most recent and comprehensive text-book on the early diagnosis of tuberculosis not even a passing reference is made to the blood pressure, whereas Professor M. Fishberg finds a low blood pressure an invaluable aid to diagnosis in doubtful cases. So long as an early diagnosis is in most cases only a "probability diagnosis" we must admit ignorance of a matter of incalculable importance.

---

[1] Cmd. 420. H.M. Stationery Office. Price 1s. 3*d*.

DEXTROCARDIA.

At first sight the condition of transposition of the thoracic viscera appears to be very infrequent. Colonel A. Webb, of whom we made inquiry, kindly informs us that in the National Service records there is no note of its occurrence among the quarter of a million men placed in Grade 4, nor among the 16,000 men in each of the three higher grades, whose case-sheets were analysed as samples of the whole. On the other hand, three cases were observed during the examination of 20,000 men in Liverpool. It is, of course, very difficult to obtain trustworthy figures in regard to a condition unattended by disability. Dr. B. Parsons-Smith puts four cases on record in our present issue, and in so doing brings out a novel point. The significance of a right-sided heart depends wholly, he considers, upon its association or not with transposition of the abdominal viscera. Complete transposition does not incapacitate, and is only discovered by accident such as a recruiting examination. If, however, during fœtal development there is a twist one way in the thorax without a corresponding twist in the abdomen, the liver and the heart come to lie next each other to the detriment of the latter. There is overcrowding of viscera with production, in course of time, of cardiac incompetence. Presumably there is another class of case, which Dr. Parsons-Smith does not mention, in which the viscera in the chest are normally placed, while abdominal transposition brings the liver across to the left side to annoy the heart. It would be interesting to learn if this has been ever recognised as the cause of circulatory disability.

DIFFICULTIES IN SLUM CLEARANCE.

The City of London Corporation, which has almost autocratic powers, is considering the improvement of a considerable slum area in the region of Hutchinson-street, at an estimated cost of nearly £140,000. Dr. W. J. Howarth pointed out to his authority the great responsibility which would rest on the Corporation if disease broke out in this area. His suggestion is that some of the single-family houses should be turned temporarily into tenements, and by this means the clearance extended over about four years. The most active reformers can see that it is not desirable at the present time to turn many people out of their homes. The clearance is likely therefore to obtain a temporary respite on account of the present lack of alternative dwellings. But the slum, and what it stands for, has obtained an astonishing ally in the shape of the British Temperance League, which has issued a pamphlet entitled "Alcohol, Housing, and Tuberculosis." Intent on showing the connexion between chronic alcoholism and the incidence of tuberculosis, the league sees in the present outcry against bad housing conditions a dangerous counter-attraction to its own propaganda. The pamphlet contains a violent attack upon the Minister of Health and all who believe as he does that bad housing conditions are largely responsible for the spread of tuberculosis, and contains the sentence: "From a study of the facts it would be very easy to show that the slum protects from rather than invites tuberculosis, and this demolishes the theories of the word-spinners." The demonstration consists in pointing out the relatively higher death-rate of males as compared with that of females during the industrial years of life, and overlooks two determining factors—namely, the probability that infection usually takes place in early youth and the influence of fatigue in wearing down resistance to the disease. The medical profession has a right to ask whether this pamphlet was submitted before publication to the distinguished pathologist who is president of the league.

REMARKABLE GUNSHOT INJURY OF THORAX AND ABDOMEN.

Dr. C. H. Waters has recently recorded[1] a very remarkable case of gunshot injury. A boy, aged 15 years, climbed a steep embankment, and while on his knees in the act of drawing up his gun with his left hand, the muzzle being directed towards him, it was discharged. A great hole was torn in the antero-lateral aspect of the left side of the thorax. With assistance he managed to walk about 600 ft. to the nearest house, where he was seen about 20 minutes later. He was in a state of considerable shock. The entire stomach, much distended, was found extruded through the opening. It occupied much the same position as a football carried in the angle of the elbow, and was about the size of an adult head. It seemed to be intact, and was covered with a debris of dirt, grass, and fragments of clothing. It was prevented from retracting by the jagged ends of the ribs. The boy was given gr. ½ of morphia and transported to hospital. For operation only the upper clothing was removed. Under light ether anæsthesia the stomach was thoroughly irrigated with saline solution. As no perforation was found it was replaced in the abdomen, its size having been reduced by compression. There was a linear laceration of the diaphragm 3 in. long, which involved only the muscular portion. Exploration of the thoracic cavity showed complete retraction of the lung, a portion of the margin of the lower lobe shot away, and clotted and fluid blood present. The heart, which was readily palpated, had retracted to the right and was lying under the sternum. The inner extremity of the thoracic wound was probably not more than ½ in. below and to the outer side of the normal position of the apex. The cavity in the chest was carefully cleared of clots, fragments of ribs, and clothing, and attention was directed to the diaphragmatic rent. Suturing had been begun at the inner angle when considerable blood was observed to issue from the abdominal cavity. Exploration showed that the spleen was almost torn in two and its diaphragmatic surface extensively lacerated. An attempt to deliver the organ through the diaphragmatic opening did not give convenient access to its pedicle. Suture of the diaphragm was hastily completed and the abdomen opened through a left rectus incision. A quart of free blood was found in the peritoneal cavity. The spleen was removed after double ligation of its pedicle and a yard roll of 3-in. gauze was packed in the subdiaphragmatic space to control oozing and to serve for drainage. The abdomen was then closed. Then arose the problem of closing the thoracic wound, which was 8 in. long and 2 in. wide. The seventh, eighth, and ninth ribs having been shot away, an inch or more of the fragmented ends was removed, permitting further collapse of the chest wall and facilitating closure. The wound was closed with interrupted sutures under considerable tension. Tube drainage was maintained for 48 hours. At the conclusion of the operation, which took about an hour, the patient was in fair condition with a pulse of 150. After 36 hours the gauze pack was removed, and the thoracic drainage-tube the day following. After 10 days a daily rise of temperature began. A suspicious area of dullness in the left chest yielded on aspiration at first only old blood, but later muco-purulent exudate. Rib resection showed a small pocket of pus containing a buckshot. The abscess was drained. Sloughing of the chest wound prolonged healing. To prevent scoliosis, which began to develop, breathing exercises were given. The left chest soon filled out, and the heart returned to its normal position. The patient gained rapidly in strength, and returned to school 2½ months after the injury. He grew into a robust boy apparently none the worse for it. X ray examination revealed almost complete expansion of the lung with free action of the diaphragm. Numerous shot, evidently in the chest wall, were also shown.

---

[1] Journal of the American Medical Association, Nov. 15th, 1919.

A NEW SOUTH AFRICAN MEDICAL SCHOOL.

UNDER the auspices of the Johannesburg University College the new building for the University of South Africa Medical School has been commenced. It is situated in immediate proximity to the Johannesburg Hospital, which has over 500 free beds, and to the South African Institute for Medical Research. We commented editorially in THE LANCET of Nov. 29th, p. 984, on a recent publication issued by this institute, with which the new medical school will be intimately associated. The departments of anatomy and physiology are already working, and it is confidently expected that the present first year students—25 in number—will be able to complete their education in Johannesburg and graduate M.B., B.Ch. in the University of South Africa. The course of study is the result of much work on the part of the leading medical men of the city, in coöperation with the staff of the University College. The curriculum occupies six years, and meets the requirements of the local medical councils. As it is modelled on that of the English and Scottish Universities it is hoped that the General Medical Council will in due course recognise the South African medical degree. In the past South Africans who wished to study medicine were at a double disadvantage. They were unable to take a course in their own country, and on arrival in Europe found to their dismay that the Cape matriculation was not universally recognised as equivalent to the standard required for entrance to British universities. The majority of them have taken their training in Edinburgh, which, unlike London, accepts the Cape matriculation, or in Holland, whither those who speak Dutch for preference are attracted by the special consideration in fees offered to them. In the future they will be able to study medicine either in Johannesburg or in Capetown, where a well-equipped school of medicine has recently become part of the university life. There will be an honourable competition between the two schools for recognition by the General Medical Council.

SURVIVAL OF QUADRUPLETS.

THE analyses made by Professor Johann Veit of Halle of the official records of 13 million births in Prussia have long counted as the classic information for the relative frequency of multiple pregnancies. The proportion of twin to total births was given by him as 1 : 89, the figures for triplets and quadruplets in round numbers 1 : 8000 and 1 : 400,000 respectively. Puech's table, quoted in Playfair's standard midwifery text-book of the last generation, adds other values for the quadruplet proportion, varying from 111 in Wurtemberg to 2074 in France, the numbers in each case representing thousands. Puech held that multiple pregnancies were an index of average national fertility. Dead broods only interest statisticians, and there is little recorded evidence of the survival of quadruplets, although Sir J. Y. Simpson mentions a female who, with her three quadruplet brothers, survived herself to give birth in turn to triplets. Playfair stated that in his time premature labour and the death of the fœtuses were the almost certain sequel of quadruplicity. And the absence of any contemporary record of living quadruplets at the present time suggests that the chance of survival has not increased. Dr. J. Livingstone Loudon has been good enough to send us notes of a recent case of survival of quadruplets in the burgh of which he is in sanitary charge. The father is a Scotsman, 27 years of age, and a miner by occupation; the mother is Irish and 28 years of age. They have been married for four years and live in a single apartment. There are two previous children, aged 3 and 1$\frac{10}{12}$ years respectively. There is no history of multiple pregnancies on either side of the family. The confinement, on Nov. 29th, was at full term, and was attended by a midwife. There were two placentæ, one with three cords and one with a single cord. The quadruplets consisted of three boys and a girl, the weights at birth being 5 lb., 5 lb., 5½ lb., and 5 lb. They were born at 1.10 A.M., 1.40 A.M., 3.40 A.M., and 3.50 A.M. Mother and children are doing well. This case throws no light on the share of the male and female elements in the production of multiple pregnancies, which is a matter well worthy of serious study. There is the historic case quoted by Sue of a Parisian shopkeeper named Brunet who begat 21 infants in seven consecutive years, and seduced a young servant who at the end of nine months presented him with triplets. Heredity ordinarily appears to play a large part in plural bearing, and in France, at all events, it is greater in certain departments than others.

THE MEDICAL DIRECTORY.

THE seventy-sixth annual issue, which is before us, of Messrs. J. and A. Churchill's Medical Directory contains the names of 44,260 medical men and women with their record of academic distinction and professional standing. This is an increase of 1160 names on last year's record, the increase being due chiefly to "practitioners resident abroad," a striking circumstance not wholly to be explained by temporary post-war conditions. In the introductory section of useful information, the abstract of laws affecting the medical profession has been brought up to date for the moment, although we opine it will require largely to be rewritten next year. A guide to British spas still occupies the space which used to be given to foreign health resorts; with the resumption of ordinary travelling facilities readers would, doubtless, be again glad of guidance in regard to patients wishful to go abroad. The staffs of the Ministry of Health, of the Medical Research Committee, and of the Board of Education appear in full, but the perplexing modesty of the Medical Department of the London County Council leaves the reader in ignorance of its important and varied staff. The Directory is a little nobler in external form than heretofore. Twenty-four shillings is a heavy price to pay for it, but is not out of proportion to the increased expense of production.

MEDICAL INSURANCE AGENCY.

A MEETING of the Committee of Management of the Medical Insurance Agency was held at the offices of the British Medical Association on Nov. 26th when the chairman, Dr. G. E. Haslip, was happy to announce progress all along the line. The business of the agency had progressed under every heading, and he was able to show that it was not only self-supporting after large distribution in rebates and grants, but that it promised to go much further. For the nine months ending Sept. 30th last the income of the agency from commissions and other sources totalled £2027 as against £1410 in 1918. The committee decided to make the following grants to medical charities: The Royal Medical Benevolent Fund, £200; the Guild of that Fund, £200; the Royal Benevolent Fund, Epsom, £210; the Royal Medical Benevolent Fund Society of Ireland, £25; the Birmingham Medical Benevolent Society, £25. This distribution of £660 makes the total sum distributed in medical charity during 1919 £1015. During the last four years, in three of which the country was in the throes of war, the Medical Insurance Agency has distributed £3722 10s. in this valuable manner.

Sir William Osler, who has been suffering from a severe attack of influenza, shows some improvement as compared with last week.

THE House and Library of the Royal Society of Medicine will be closed from Monday, Dec. 22nd, to Saturday, Dec. 27th, both days inclusive.

LOCAL arrangements are being made for the annual meeting of the British Medical Association, to be held in Cambridge next year from Tuesday, June 29th, to Friday, July 2nd. The President of the Association, Sir T. Clifford Allbutt, is to deliver the general address on Tuesday, at 8.30 P.M. The afternoons of each succeeding day are to be given up to demonstrations, for the conduct of which arrangements are being made in Cambridge by the following sectional directors: Medicine, Dr. J. Aldren Wright; Surgery, Mr. Arthur Cooke; Physiology, Professor J. N. Langley; Pharmacology, Professor W. E. Dixon; Neurology, Dr. C. S. Myers; Pathology, Professor Sir G. Sims Woodhead. There will be a temporary pathological museum and it is hoped that the various sections may arrange for collections of specimens, drawings, models, and photographs illustrating their particular topics.

AN ACHONDROPLASIC SKULL

EXCAVATED ON THE SITE OF THE ROMAN CEMETERY AT CHESTER.

BY J. ELLIOTT, *O.B.E.*, M.D., B.SC., F.R.C.P.

(*With a Note on the Character of the Skull by* Professor ARTHUR KEITH, F.R.S.)

IN the spring of 1912 the renovation and reconstruction of the Chester Infirmary necessitated building operations on an adjoining field known as "the Infirmary Field" and in ancient times as "Lady Barrow's Hey," the origin of the latter name being obscure. Lady Barrow's Hey was an extensive "croft" in ancient days, and comprised, in addition to the present Infirmary field, the ground also on which the old infirmary and other buildings were subsequently erected. Tradition had consistently pointed out this as "the plague field," a view in favour of which no evidence has been furnished either by old chance excavations or by those undertaken in connexion with the erection of new wings to the infirmary in 1912 to 1914. The site, although within the circuit of the Edwardian walls (Edward II., 1307–1327), was extra-mural to the Roman city of Deva, and consequently the fact that Roman burials had been unearthed at various points in the field—e.g., in 1858, 1863, &c.—was quite in accordance with the known burial customs of the ancients.

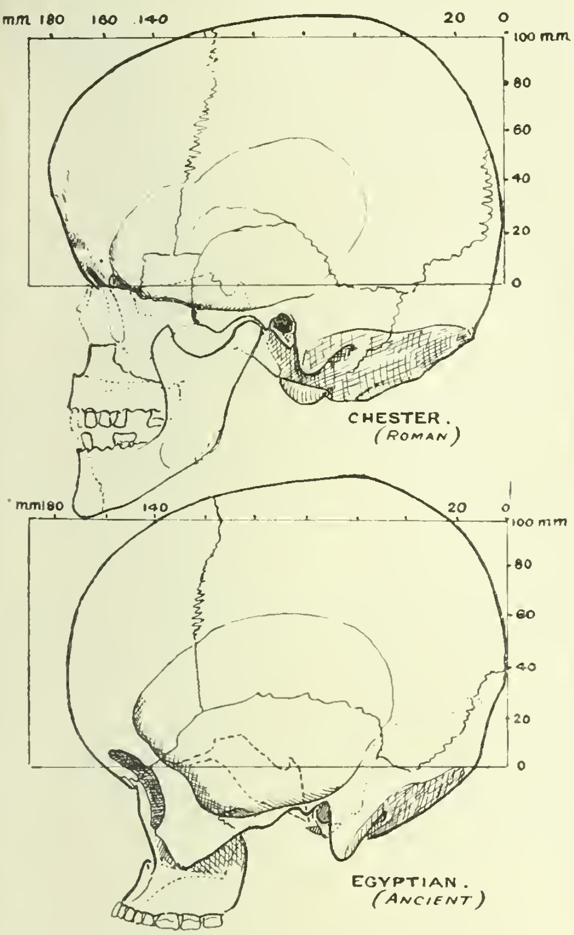
The records of such finds, as also the existing traditions as to plague burials, led one to anticipate interesting discoveries. Professor Robert Newstead, F.R.S., and myself were placed by the infirmary board in charge of the excavations, and it soon became evident that the portion of the field examined was undoubtedly the site of a Roman cemetery. From the commencement of the building operations in 1912 until the opening of the new wings of the Royal Infirmary in 1914 some 31 interments had been located and examined in the Infirmary field proper, whilst an additional nine were found on the site of the new out-patient department, which site, in near proximity to the infirmary field, had formed a part of Lady Barrow's Hey.

This particular site is referred to in Professor Newstead's report as the "Bedward Row" site, and the following quotation from his report establishes the date of the burials here:—

> "The material found on the site near 'Bedward Row' included the remains of nine skeletons, and although the major portion of these were hopelessly disorganised, due to a later disturbance of the soil, three of them were found lying intact in a stratum containing innumerable fragments of Roman vessels and two coins, so that we may justly claim the burials to be contemporary with the chronological data afforded by these relics."

The skull, which I immediately recognised to be an achondroplasic specimen, was found in one of those three intact burials, No. X.C. in Professor Newstead's report. Unfortunately, the other bones completing this particular skeleton were not removed intact, and it is now impossible to give any account of their characteristics. The skull, although broken, was in a state of sufficiently good preservation to be easily reconstructed, when its peculiar formation could be at once appreciated. In this case the body had been interred in made earth above the level of the boulder clay. Many skeletons which were found in the latter stratum presented extraordinary difficulties in preservation and restoration. The bones were so soft that they crumbled like cheese between

FIG. 1.



the finger and thumb, and could only be handled after being steeped in warm gelatin solution and subsequently dried. Many of the skulls were broken into innumerable fragments by grave pressure, and were only restored after infinite labour. Without the skilful help of Professor Newstead their preservation would have been impossible. His report (see reference below) gives a full account of the excavations, with the various objects of interest found in association with the burials.

The accompanying coins, pottery, and other objects present in the burials show that they belong to the later part of the second century. The human remains are in my charge, and provide most interesting anthropological data, as well as a few facts of pathological interest. A full report on these remains is being prepared for publication, as well as on some additional burials excavated since 1914.

Although we may be considered fortunate in having secured a specimen from the Roman period it is certain that achondroplasia was by no means rare in ancient times, when these achondroplasic dwarfs were often secured as court jesters and valued for their precocity and eccentric appearance. The figures of the gods Phthah and Bes in ancient Egypt were representations of achondroplasia, as were also the dwarfs in the canvases of Velasquez in more recent times, and to-day we see occasionally examples of the affection.

The Chester skull has been presented by the board of the Royal Infirmary to the Museum of the Royal College of Surgeons of England, and I append a note by Professor Keith, with his permission, fully describing the specimen.

Note by Professor A. KEITH.

In the accompanying drawings I have compared the achondroplasic skull you had the good fortune to find in the Roman graveyard at Chester with a similar skull found by Professor Flinders Petrie in an Egyptian grave of the eighteenth dynasty, which has been described by Dr. C. G. Seligman,[*] and by myself in an article on achondroplasia.[†] Recently Dr. J. B. Christopherson has presented to this museum the skeleton of a negro who was a subject of achondroplasia.

Unfortunately, in your specimen the base of the skull is broken and cannot be restored with accuracy, but there can be no doubt as to the correctness of your diagnosis. One cannot insist too strongly upon the fact that achondroplasia is a pathological condition and varies in the severity of its incidence; it may be so slight as to be barely recognisable, or it may reach such a degree as that shown in the ancient Egyptian skull, when the arrest in the growth of the cartilaginous base of the skull is profound. In your case the arrest in the basal growth belongs to the minor degree.

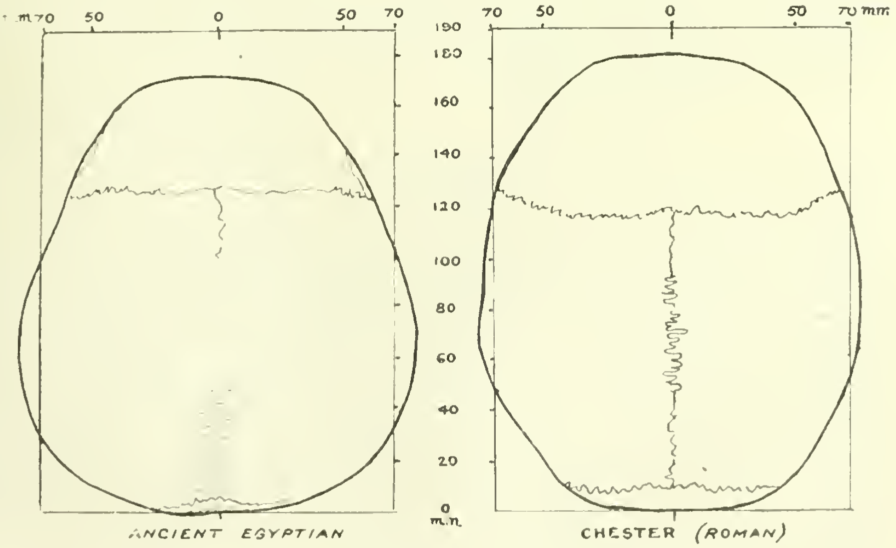
As will be seen from the profile drawings of the Chester and Egyptian skull (Fig. 1), both occipital and spheno-ethmoidal regions of the Egyptian skull are affected, with the result that the lower occipital and lower frontal regions are drawn inwards and approximated. In your case the occipital region is

---

[*] Man, February, 1912, No. 8.

[†] Journal Anat. and Physiol., 1913, vol. xlvii., p. 189.

FIG. 2.



very little affected; the arrest of growth falls chiefly on the spheno-ethmoidal region, leading to a marked retraction of the nasion and supra-orbital region of the forehead.

In the profile drawings the skulls are orientated on a plane which passes through the fronto-malar suture in front and the posterior inferior angle of the parietal behind—a plane which I find very useful for the comparison of skulls in which the facial parts are absent or broken. I have fitted each profile into a framework of lines, the horizontal lines being 100 mm. apart and the vertical 190 mm. When a normal skull is orientated as I have indicated and placed in such a framework the vault should reach the upper horizontal and the lower part of the forehead the anterior vertical line. In achondroplasia the vault tends to rise far above the upper horizontal line and the supra-orbital region, to fall far short of the anterior vertical line. In the Chester skull the vault rises 8 mm. above the upper horizontal line; in the Egyptian skull 16 mm. On the other hand, the lower frontal region falls 26 mm. short of the anterior vertical line in the Chester skull and 30 mm. in the ancient Egyptian.

The explanation of those peculiar features—the elevation of the vault and retraction of the supra-orbital region—lies in the manner in which brain-space is obtained in the subjects of achondroplasia. Owing to the arrest of growth in the basal parts of the skull the brain expands upwards and laterally, giving the vault of the skull its high and globular form. The drawings of the vault bring out other characteristics of the skull in achondroplasia.

The length of the Chester skull I estimate to be 183 mm., its greatest width 149 mm. (Fig. 2), the height of the vault above the ear holes 120 mm.; the cubic capacity must have been about 1450–1500 c.cm. The bones are thin, those of the vault varying from 4 to 5 mm.; at the glabella the thickness of the frontal bone is only 12 mm.

It is very difficult in such cases to form an opinion as to sex, all the sexual characters being masked, but I suspect that in both the Chester and Egyptian cases the sex was feminine. Although the teeth in the Chester skull are much worn, and many of them lost from disease—apparently not caries—the sutures of the vault are still clearly seen; I think the age of the individual may be estimated at about 40 or 50 years.

References.—Newstead; Annals of Archæology and Anthropology, vol. vi., No. 4. Dr. Murk Jansen: Achondroplasia, its Nature and its Cause, 1912. With introduction by Professor Elliot Smith. Keith: Journal of Anatomy and Physiology, 1913, vol. xlvii., p. 189. Cautley: Diseases of Children, 1910.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Scottish Board of Health and Panel Chemists.

THE Scottish Board of Health have issued a statement with reference to the claim put forward by the panel chemists for a 50 per cent. increase on the Scottish scale put forward, but not granted, in 1913, or a 200 per cent. addition to the rates at present in force. In other words, the dispensing fee of 2*d.* would in every case be raised to 6*d.* Apart from the profit on drugs, the Board claim that in a 50 hours' working week, dispensing six prescriptions per hour, the average annual payment would be £375, whether the assistant were qualified or not. The Board believe that the rate is considerably in excess of the actual average remuneration, and that even a fully qualified assistant is not generally paid more than £250 per annum, and that their offer leaves ample margin for any reasonable increase in salaries of assistants. The rate claimed by Scottish chemists is considerably in excess of that for England, and the Government will not agree to so substantial a difference in the two countries. Further, the chemists claim a dispensing fee of 6*d.* for every service rendered, even in handing over a finished article, which might be delivered to the general public in the ordinary course as a sales transaction. Chemists, says the statement of the Board, receive no less than 33⅓ per cent. gross profit on each ingredien of a prescription in addition to the dispensing fee. The Board think that chemists generally are not aware o the profit the tariff is yielding, and state that an investigation undertaken by the Drug Accounts Committee at the Central Checking Bureau in 1916 showed that the gross profit on drugs as shown by a scrutiny o over 200,000 forms was over 50 per cent. Over and above this the dispensing fees showed an average payment of 2·31*d.* While the dispensing fee ha remained the same, the profit on drugs has steadily risen, and for the first half of 1919 shows an increase over 1913 of nearly 47 per cent. The Board emphasise the danger of insisting on such a demand as the present A general refusal of Scottish chemists to contrac would compel the Board to consider an entirely different method for the supply of drugs, and migh even entail the closing of the panel for a considerabl time.

Presentation to a Scottish Medical Man.

The residents of Culter, Aberdeenshire, and surrounding districts have made a presentation to Dr. Rober Rannie, who has practised in Culter for over 30 years and to Mrs. Rannie. Mr. A. F. Irvine, of Drum, spok warmly of Dr. Rannie's efforts to undertake the wor of a particularly large district, stretching as far a Portlethen and Muchalls, during the war. The gift were subscribed to by close upon 500 people. Dr Rannie, in returning thanks, referred to his work fo the National Health Insurance Act. He had a panel o 1000, and in the seven years since the Act had com into force the relations between him and his patient had always been cordial.

Medico-Chirurgical Society of Edinburgh: Debate on Psychotherapy.

At the meeting of this society held on Dec. 3rd discussion took place upon psychotherapy. The discussion was opened by Dr. George M. Robertson, wh gave a general outline of the subject in an exceptionall interesting and able paper. It is, he stated, only comparatively recently that the importance of psychotherapy has come to be recognised, though it has bee unconsciously practised from the earliest times. Mos symptoms are mental, such as malaise, discomfort sense of ill-being, pain, and in every case the brain i the ultimate seat of their interpretation. For an symptom to be fully appreciated complete consciousnes is necessary, and hence it is that psychotherapy can b of great value in removing or relieving symptoms, no only in functional cases, but also in those where thei production is dependent upon some definite anatomica lesion. Cases cited were pneumonia, toothache whitlow, and inoperable cancer. Dr. Robertson the gave instances of diseases which were the resul of auto-suggestion, and showed how this migh also be a means of retarding recovery—instancin particularly the slow recovery in war neuroses durin the continuance of hostilities, and the hysterical con plications of rheumatism. Disease might also result o be prolonged in consequence of suggestions receive from other people—as in hysteria major—and invalidism from any cause might be protracted by similar means The mind is more susceptible to suggestion durin disease, especially of a toxic nature, than in health and hence, although psychotherapy cannot remove th organic changes of morbidity, it can nevertheless be o great value in relieving suffering. The influence of th mind over the body is well recognised, one of the bes examples being the phenomena which occur afte severe emotional disturbance—such as fright—whic is followed by circulatory disturbances, palpitation, sweating, &c. It has even been stated tha blisters may be produced by psychic influences every precaution in the case cited having bee taken to preclude any possibility of fraud. Treatment by psychotherapy in the modern sense was probably first employed about the time of the French Revolution, when the "moral treatment of the insane" was introduced. Further progress was made when susceptibility to suggestion was noted first in individuals under the influence of hypnotism, and later in the waking state. The use of psychotherapy, however, can be traced to a much earlier period, and it doubtless explained the success of amulets and charms, weapon salve, sympathetic powder, faith cures and the benefits obtained from religious relics, as well as at the successes attributed to Christian Science. The most important therapeutic influence of the physician was that of his personality, and the confidence which his patients have in him plays a large part in the success of his treatment. Of the many drugs in use only a small number had any definite and proven value. All had seen drugs introduced which apparently at first were of value, but shortly were abandoned as useless, hence the advice: "Hurry up and take the new medicine, while it still cures." The methods of employing psychotherapy were numerous, and varied according to the individual practitioner. The simplest form—and one which every doctor was constantly using, even though unconsciously—was suggestion. The giving of a prescription and at the same time telling the patient the action expected from it was an example of its use. The personality of the physician was of paramount importance—undue anxiety on his part, if apparent to the patient, might prolong an illness or intensify symptoms. Persuasion, by a combination of instruction, education, and argument, was a more active form of suggestion. Psychoanalysis might be of value in given cases, but was seldom successfully employed above middle age, and might give offence to the patient, and in some cases prove actually harmful.

In the discussion Dr. H. C. Marr spoke of the value of psychotherapy in cases of shell shock, but opposed its general use as risky. Dr. A. Ninian Bruce dealt particularly with psychotherapy in early incipient insanity, and Dr. D. Murray Lyon gave an outline of psychotherapeutic methods with illustrative cases. Professor J. C. Meakins, Dr. D. Chalmers Watson, Dr. Yellowlees, and Dr. A. J. Brock also contributed to the discussion.

Glasgow Medico-Chirurgical Society: Detail in Abdominal Operations.

The opening meeting of this society was held on Nov. 21st, when Mr. A. Ernest Maylard, the President, delivered an address on the Practical Significance of Attention to Detail in Abdominal Operations. It was not, he said, in books, and but rarely in special monographs that such surgical minutiæ were described; rather they were to be observed in the practical work of individual surgeons. No detail should be considered too trivial; it might lessen the possibility of subsequent complications, hasten the process of repair, or diminish the occurrence of pain. Details in abdominal operations could be considered in connexion with (1) the abdominal parietes, (2) the parietal and visceral peritoneum, (3) the viscera. The incision should, where possible, be carried through aponeurotic tissue, as the efficient healing of the aponeurosis is the surest preventive against subsequent hernia. As few cuts as possible should be made; to "dissect" an incision was to lacerate the tissues, so that in addition to the time entailed dissection also exposed devitalised tissue to the risk of autogenous infection. In the closure of a wound the most perfect possible co-aptation of the margins should be aimed at, so that no spaces be left for the accumulation of blood, serum, or liquid fat. Hence, if the deep part of a very fat wound cannot be effectually co-apted it was wise to introduce a small rubber drainage-tube along the floor of the wound. Tight stitching, more likely to occur with interrupted than with continuous sutures, especially if the knot was a "reef" and not a "surgical" one, led to strangulation of tissues and should be avoided. The "granny" knot and so-called "anchor" dressing were undesirable because apt to cause discomfort to the patient. The procedure, advocated by Dr. C. J. Bond, of wiping the wound previous to its final closure with 3 or 4 per cent. iodine solution, was of proved value, but not the least soiling of the peritoneum must be permitted, as it would almost certainly lead to the subsequent formation of intraperitoneal adhesions. Of details associated with the parietal and visceral peritoneum one most frequently neglected was the failure to evert the edges of the peritoneum in suturing the parietal wound, the result being the formation of adhesions. In suturing a visceral wound, on the other hand, the peritoneal edges should be carefully inverted. The edges of divided peritoneum should of course be seized by sharp hooks, and not by pressure forceps. Among details associated with the viscera all raw surfaces must be carefully obliterated, not only to prevent subsequent adhesions, but to avoid infection of the peritoneal cavity from the intestinal canal. All undue mechanical irritation of the peritoneum, by long exposure, undue manipulation, or prolonged contact with foreign material, such as dry gauze compresses or plugs, must be avoided, as must also any accumulation of extravasated blood, which may later become organised into fibrous tissue. With a view to inhibiting the formation of organised tissue during the period required for the healing of the peritoneal lesion, a 3·8 per cent. solution of citrate of soda should be used for soaking gauze compresses, &c., and for washing away blood and other exudates from the peritoneal cavity. It was doubtful whether drainage-tubes were of any service except to drain distinct abscess cavities and the pelvic cavity when it is practically a large abscess, and it was certainly pernicious to retain them for any length of time, as ulceration might result from their pressure on the bowel. The retaining safety-pin should never be inserted through the centre, as the lumen was thus partially occluded. As to sutures, if the skin edges are united by non-absorbent material, such as silk or silkworm gut, not less than 10 days should elapse before removal in wounds which have healed by primary union. The patient after an abdominal operation should be kept in the recumbent position until it is felt that the cicatrix will not yield, and a good test of its complete organisation is that when pressed upon no difference can be felt between it and the surrounding parts; in other words, any obvious thickening along the line of the incision indicated that soft tissue was still present. On an average the period of recumbency may be taken as four weeks.—A discussion followed the address, in which Dr. H. Jones, Dr. G. Balfour Marshall, Dr. W. D. Macfarlane, and others took part.

Dec. 8th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Royal College of Surgeons in Ireland.

AT a meeting of the College, held on Dec. 5th, Mr. John B. Story, the President, in the chair, Surgeon-General R. H. Sawyer, A.M.S., was unanimously elected a Member of the Council in the place of the late Mr. Richard Dancer Purefoy.

Disease in Belfast.

At a meeting of the City Council, held on Dec. 1st, it was announced that between Oct. 19th and Nov. 15th 1 case of typhoid, 700 of scarlet fever, 2 of puerperal fever, 18 of diphtheria, 32 of erysipelas, and 1 of cerebro-spinal fever had been notified, as well as 101 of tuberculosis. During the same period there were in Belfast 860 births and 537 deaths, making a natural increase of 323. There were from zymotic disease 63 deaths, 51 from pulmonary tuberculosis, 69 from diseases of the respiratory organs, 42 from pneumonia, making a total of 111 from chest affections. Ninety children under 1 year died in the same period. The death-rate from all causes was 17·4, from zymotic diseases 2·0, and from chest affections 5·3 per 1000 of the population. It was reported that the scarlatina epidemic was subsiding.

Typhoid Outbreak at Castlederg.

In the Spamount district of Castlederg, co. Tyrone, there is an outbreak of typhoid fever, nine cases being still in the workhouse fever hospital. It is supposed to be due to pollution of the village water-supply.

Annual Dinner of the Ulster Medical Society.

The annual dinner of the Ulster Medical Society was held in the Medical Institute, Belfast, on Dec. 3rd, when the available accommodation was made full use of. The President of the society, Mr. A. Fullerton, who occupied the chair, proposed the health of one of the special guests of the evening, Sir W. Arbuthnot Lane, referring to his Irish parentage and to his epoch-making work in surgery in the departments of cleft palate, fractures of bone, and stasis in the colon. Professor J. A. Lindsay proposed "The Dublin School of Medicine," referring to its work and its leaders, especially the late Dr. James Little, to which the President of the Royal College of Physicians (Dr. James Craig) and the President of the Royal College of Surgeons (Mr. John B. Story) replied. Sir Thomas Myles made a humorous speech. Sir W. Arbuthnot Lane proposed the toast of "The Belfast Medical School," coupled with the name of Sir John Byers, who, in replying, spoke of the early history of medicine in the north of Ireland, and of the origin and evolution of the Belfast School of Medicine. He mentioned the fact that there were this year over 600 medical students in attendance, his own class at the university numbering 108. Like other speakers, he referred in warm terms to the work done by old members of the school at the war, where Mr. Fullerton and Professor Thomas Sinclair had been consulting surgeons. Mr. R. J. Johnstone proposed "The President," who responded, and in turn gave the health of "The Secretary of the Society," to which Dr. C. G. Lowry replied. Not for many sessions has there been a more successful function.

Address by Sir W. Arbuthnot Lane.

On Dec. 4th, under the auspices of the Ulster Medical Society, the President, Mr. A. Fullerton, in the chair, Sir W. Arbuthnot Lane gave an address before a crowded audience on "The Evolution of Disease," in which he dealt with the results of intestinal stasis. In the forenoon, at the Royal Victoria Hospital, he "plated," in one of the surgical theatres, a difficult fracture of the humerus, before a large class of students.

Students at the Queen's University of Belfast.

During the session 1919–20 the number of students enrolled up to the present date in the Queen's University of Belfast amount to 1024. Arranged in faculties, the numbers are as follows: medicine, 590; science, 192; arts, 181; commercial, 43; law, 10; social service, 8. These figures demonstrate that, in the Queen's University of Belfast, there are in the medical school this session 156 students more than in all the other faculties combined.

Dec. 9th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Electrocution of a Radiographer.

Dr. Jaugeas, a medical man who had served as assistant radiologist to Dr. Beclize at the St. Antoine Hospital for the last 17 years, has been killed under peculiar circumstances. He was called one morning to the Neuilly Hospital, where an American radiographic apparatus is in use, and was fitting up a Coolidge tube, when at the moment of establishing contact with the electric current he was electrocuted. This is the first accident of this kind to happen in France. Specialists called in to inquire into the circumstances have suggested that the danger is inherent in the American form of apparatus, and have issued a word of caution.

The Grancher Foundation.

The Foundation of Grancher for the prevention of tuberculosis among children continued its good work during the war in spite of difficulties. There are at present 404 children under its care in Paris alone. The generosity of the American Red Cross in paying half the expenses of 400 children for the current year has enabled the Foundation, whose annual expenditure is 350,000 francs, to carry on for the present. The centre in Paris is being federated with the daughter foundations in the provinces, of which 18 are already in existence and others in process of formation, notably one in Strasburg.

The Water-Diviner.

Tales attributing to certain people the magic power of discovering the existence of underground springs or of sheets of water have rightly been regarded with a great amount of scepticism. Chevreul, after studying the question closely, solemnly declared that the power rested on no conceivable scientific foundation. However, certain authentic observations have been recorded, controlled by persons above suspicion. The Academy of Science has recently taken up the subject again, after a communication from Dr. Morage, of the Sorbonne, on experiments recently made in Tunis by an engineer of some standing, M. Landesque, who thought that he himself was endowed with this mysterious power. The divining rod or pendulum is set into motion by the unconscious movement of the hands of the diviner when he passes over a spring, whence the old French name of "sourcier," which has been corrupted into "sorcier" (cf. sorcerer). These slight movements of the hands are involuntary, and the problem resolves itself into that of the cause underlying them. Is it possible that they are influenced by radio-active emanations coming from the water, and perceived only by certain people? M. Landesque, following up his experiments, states that the power is not very rare, and that 50 per cent. of people selected haphazard were found to be endowed with it without knowing it. In the course of varied experiments, ingeniously contrived, during which diviners were occasionally conducted over water pipes, they were able to determine not only the presence but the approximate amount of water, its depth, and even the direction of its flow. There is a vast amount of recorded experiment where the results were negative.

Increase of Exophthalmic Goitre during the War.

Dr. Raoul Blondel has brought to the notice of the Academy of Medicine in Paris the greater frequency of exophthalmic goitre since the war; doubtless this increase has been influenced by the strain of varied and violent emotions. The disease is generally rare among men, but has been observed in many soldiers in the trenches, whereas women resident in bombarded areas have been specially liable to be attacked thereby. Dr. Blondel has emphasised specially those cases in which symptoms are limited to exophthalmia and hypertrophy of the thyroid without tachycardia or tremors. Trophic changes accompanying Basedow's syndrome and associated with hyperthyroidism are numerous and varied. One of these, peculiarly important in France at present, is uterine atrophy, leading sometimes to sterility even if menstruation does not wholly cease. Dr. Blondel advises thymic extract for these patients, sometimes combined with local treatment. Occasionally he has seen excessive fat development following this line of treatment.

Dec. 8th.

DURING the past month there have been three meetings of the Harrogate Medical Society, Dr. Bertram Watson, the President, being in the chair on each occasion. At the first meeting Dr. W. Edgecombe read a paper on the Modern Conception of Heart Disease. This paper gave a comprehensive survey of the diagnosis, treatment, and prognosis of cardiac disease by modern methods, and was largely based on the author's own experience gained as officer in charge of a section of the Northern Command Cardiac Centre. The two following meetings were devoted to a discussion on Chronic Arthritis, the subject being dealt with under six headings, each of which was introduced by a paper as follows: Ætiology, by Dr. R. J. Morris; Morbid Anatomy and Nomenclature, by Dr. Kerr Pringle; Radiography, by Dr. Claude Saberton (illustrated by lantern slides); Bacteriology, by Dr. Sinclair Miller; Surgery, by Mr. Herbert Frankling; Therapeutics, by Dr. Lionel Calthrop. An interesting discussion followed, in which many members took part.

URBAN VITAL STATISTICS.

VITAL STATISTICS OF LONDON DURING NOVEMBER, 1919.

IN the accompanying table will be found summarised statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious disease it appears that the number of persons reported to be suffering from one or other of the ten diseases notified in the table was equal to an annual rate of 11·1 per 1000 of the population, estimated at 4,026,901 persons; in the three preceding months the rates had been 4·9, 6·6, and 10·1 per 1000. Among the metropolitan boroughs the lowest rates from these diseases were recorded in Kensington, Hammersmith, Chelsea, St. Marylebone, Hampstead, and the City of London; and the highest in Finsbury, Bethnal Green, Southwark, Greenwich, and Lewisham. The prevalence of scarlet fever showed a slight increase over that recorded in the preceding month, and was considerably higher than in any other month of the present year; this disease was proportionally most prevalent in Islington, Finsbury, Southwark, Lambeth, Battersea, Deptford, Greenwich, and Lewisham. The Metropolitan Asylums Hospitals contained 2848 scarlet fever patients at the end of the month, against 1409, 1633, and 2293 at the end of the three preceding months; the weekly admissions averaged 427, against 184, 265, and 340 in the three preceding months. Diphtheria was slightly more prevalent than in the month of October, and was considerably higher than in any other month of the present year; the greatest proportional prevalence of this disease was recorded last month in Fulham, Stoke Newington, Hackney, Holborn, Shoreditch, Bethnal Green, Southwark, and Woolwich. The number of diphtheria patients under treatment in the Metropolitan Asylums Hospitals, which had been 1001, 1168, and 1405 at the end of the three preceding months, further rose to 1572 at the end of November; the weekly admissions averaged 215, against 125, 180, and 207 in the three preceding months. The prevalence of enteric fever was somewhat less than in the preceding month; the 35 cases notified last month included 5 in Southwark, 4 in Hackney, 3 in Islington, 3 in Finsbury, 3 in Woolwich, and 3 in the Port of London. There were 44 cases of enteric fever under treatment in the Metropolitan Asylums Hospitals at the end of the month, against 43, 49, and 47 at the end of the three preceding months; the weekly admissions averaged 5, against 7, 7, and 6 in the three preceding months. Erysipelas was proportionally most prevalent in Stoke Newington, Finsbury, Bethnal Green, Poplar, and Southwark. The 53 cases of puerperal fever, included 8 in Fulham, 8 in Islington, 5 in Lambeth, 4 in Stepney, and 4 in Camberwell. Of the 11 cases of cerebro-spinal meningitis, 4 belonged to Poplar, 2 to Stepney, and 2 to Battersea; while the 4 cases of poliomyelitis belonged respectively to Hammersmith, Fulham, Battersea, and Camberwell.

The mortality statistics in the table relate to the deaths of civilians actually belonging to the several boroughs, the deaths occurring in institutions having been distributed among the boroughs in which the deceased persons had previously resided. During the four weeks ended Nov. 29th the deaths of 4500 London residents were registered, equal to an annual rate of 14·6 per 1000; in the three preceding months the rates had been 9·9, 11·2, and 14·1 per 1000. The death-rates last month ranged from 11·0 in Stoke Newington, 11·3 in the City of London, 12·0 in Woolwich, 12·2 in Holborn, 12·3 in Fulham, and 12·3 in Deptford, to 16·9 in Shoreditch, 17·1 in Poplar, 17·3 in Chelsea, 17·5 in Bethnal Green, 17·6 in Greenwich, and 18·0 in Finsbury. The 4500 deaths from all causes included 238 which were referred to the principal infectious diseases; of these 34 resulted from measles, 8 from scarlet fever, 85 from diphtheria, 22 from whooping-cough, 1 from enteric fever, and 88 from diarrhœa and enteritis among children under 2 years of age. Among the metropolitan boroughs the lowest death-rates from these diseases were recorded in St. Marylebone, Hampstead, Stoke Newington, Holborn, Shoreditch, Battersea, and Wandsworth, and the highest in Finsbury, the City of London, Bethnal Green, Poplar, Bermondsey, and Deptford. The 34 deaths from measles were less than a third of the average number in the corresponding period of the five preceding years; of these deaths, 6 belonged to Deptford, 5 to Lambeth, 5 to Camberwell, 4 to Bermondsey, 3 to Poplar, and 3 to Greenwich. The 8 fatal cases of scarlet fever were 18 fewer than the average number, and included 3 in Lewisham. The 85 deaths from diphtheria exceeded the average by 4; the greatest proportional mortality from this disease occurred in Chelsea, Hackney, the City of London, Bethnal Green, and Woolwich. The 22 fatal cases of

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING NOVEMBER, 1919.

(*Specially compiled for* THE LANCET.)

CITIES AND BOROUGHS.	Estimated civil population, 1917.	Notified Cases of Infectious Disease.												Deaths from Principal Infectious Diseases.									Deaths from all causes.	Death-rate per 1000 living.
		Small-pox.	Scarlet fever.	Diphtheria.	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cerebro-spinal meningitis.	Poliomyelitis.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Enteric fever.	Diarrhœa and enteritis (under 2 years).	Total.	Annual rate per 1000 persons living.		
LONDON	**4,026,901**	—	**1874**	**1017**	—	**35**	—	**53**	**424**	**11**	**4**	**3418**	**11·1**	—	**34**	**8**	**85**	**22**	**1**	**88**	**238**	**0·8**	**4500**	**14·6**
West Districts:																								
Paddington	122,507	—	50	26	—	—	—	1	8	—	—	85	9·0	—	—	—	2	—	—	3	5	0·5	157	16·7
Kensington . .	151,535	—	41	30	—	—	—	1	9	—	—	81	7·0	—	—	—	3	—	—	4	7	0·6	149	12·8
Hammersmith ..	114,952	—	24	26	—	1	—	—	12	—	1	64	7·3	—	—	—	2	1	—	6	9	1·0	123	13·9
Fulham	145,186	—	37	51	—	2	—	8	11	—	1	110	9·9	—	—	1	4	—	—	1	6	0·5	137	12·3
Chelsea	57,368	—	22	2	—	—	—	—	5	—	—	29	6·6	—	—	1	2	1	—	—	4	0·9	76	17·3
CityofWestminst'r	122,046	—	46	16	—	2	—	—	11	—	—	75	8·0	—	1	—	3	—	—	2	6	0·6	131	14·0
North Districts:																								
St. Marylebone ...	92,796	—	29	14	—	—	—	—	2	—	—	45	6·3	—	—	—	—	—	—	1	1	0·1	105	14·7
Hampstead	75,649	—	15	9	—	2	—	1	8	—	—	35	6·0	—	—	—	—	—	—	2	2	0·3	74	12·8
St. Pancras	186,600	—	76	33	—	—	—	2	20	—	—	131	9·2	—	—	—	2	3	—	5	10	0·7	213	14·9
Islington	297,102	—	211	73	—	3	—	8	21	—	—	316	13·9	—	2	—	5	1	1	6	15	0·7	361	15·8
Stoke Newington.	47,426	—	20	20	—	—	—	—	10	—	—	50	13·7	—	—	—	—	—	—	1	1	0·3	40	11·0
Hackney	196,598	—	82	78	—	4	—	1	26	—	—	191	12·7	—	—	—	8	—	—	3	11	0·7	228	15·4
Central Districts:																								
Holborn	35,303	—	9	12	—	—	—	—	2	—	—	23	8·5	—	—	—	—	—	—	1	1	0·4	33	12·2
Finsbury	68,011	—	51	12	—	3	—	—	12	—	—	78	15·0	—	2	—	1	—	—	3	6	1·2	94	18·0
City of London .	16,138	—	2	4	—	1	—	—	—	—	—	7	5·7	—	—	—	1	—	—	1	2	1·6	14	11·3
East Districts:																								
Shoreditch . . .	89,675	—	34	29	—	—	—	2	5	—	—	70	10·2	—	1	—	1	—	—	1	3	0·4	116	16·9
Bethnal Green .	107,362	—	35	68	—	—	—	3	25	—	—	131	15·9	—	—	—	9	2	—	7	18	2·2	144	17·5
Stepney	232,010	—	91	67	—	1	—	4	35	2	—	200	11·2	—	1	—	4	2	—	7	14	0·8	257	14·4
Poplar	143,443	—	35	40	—	1	—	2	23	4	—	105	9·5	—	3	—	4	4	—	5	16	1·5	188	17·1
South Districts:																								
Southwark	167,936	—	100	54	—	5	—	3	26	—	—	188	14·6	—	1	1	1	—	—	7	10	0·8	206	16·0
Bermondsey . . .	107,635	—	44	26	—	1	—	—	8	—	—	79	9·6	—	4	—	—	2	—	3	9	1·1	127	15·4
Lambeth...	272,038	—	169	62	—	—	—	5	31	—	—	267	12·8	—	5	1	9	—	—	4	19	0·9	339	16·2
Battersea	150,023	—	95	19	—	1	—	—	19	2	1	137	11·9	—	—	—	2	—	—	2	4	0·3	151	13·4
Wandsworth... .	300,787	—	112	73	—	1	—	3	25	1	—	215	9·3	—	—	1	4	4	—	1	10	0·4	285	12·4
Camberwell ...	239,461	—	116	54	—	—	—	4	22	—	1	197	10·7	—	5	—	8	2	—	3	18	1·0	258	14·0
Deptford.	103,527	—	68	17	—	—	—	2	10	—	—	97	12·2	—	6	—	—	—	—	4	10	1·3	98	12·3
Greenwich	90,440	—	85	15	—	—	—	2	10	1	—	113	16·3	—	3	—	1	—	—	3	7	1·0	122	17·6
Lewisham	161,405	—	143	43	—	1	—	1	17	1	—	206	16·6	—	—	3	4	—	—	1	8	0·6	153	12·4
Woolwich	134,942	—	32	44	—	3	—	—	11	—	—	90	8·9	—	—	—	5	—	—	1	6	0·6	121	12·0
Port of London ...	—	—	—	—	—	3	—	—	—	—	—	3	—	—	—	—	—	—	—	—	—	—	—	—

* Including membranous croup.

whooping-cough were 18 less than the average, and included 4 in Poplar, 4 in Wandsworth, and 3 in St. Pancras. One death from enteric fever was registered during the month, against an average of 9. The 88 fatal cases of infantile diarrhœa were 47 below the average; this disease was proportionally most fatal in Hammersmith, Finsbury, the City of London, Bethnal Green, Southwark, and Deptford. In conclusion, it may be stated that the aggregate mortality in London during November from these principal infectious diseases was 40 per cent. below the average.

(Week ended Dec. 6th, 1919.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at 16,500,000 persons, the annual rate of mortality, which had been 13·9, 14·8, and 13·8 in the three preceding weeks, rose to 14·4 per 1000. In London, with a population slightly exceeding 4,000,000 persons, the annual death-rate was 14·5, or 0·2 per 1000 above that recorded in the previous week, while among the remaining towns the rates ranged from 4·8 in Blackpool and in Rotherham, 5·6 in Merthyr Tydfil, and 7·1 in Exeter, to 22·0 in Dewsbury, 22·8 in Rochdale, and 24·4 in West Hartlepool. The principal epidemic diseases caused 265 deaths, which corresponded to an annual rate of 0·8 per 1000, and comprised 82 from measles, 73 from diphtheria, 51 from infantile diarrhœa, 30 from whooping-cough, 25 from scarlet fever, and 4 from enteric fever. Measles caused a death-rate of 2·0 in Barrow-in-Furness, and 3·3 in Burnley and in Barnsley. The 77 deaths from influenza were 14 above the number recorded in the previous week, and included 16 in London, 6 in Sheffield, 5 in Liverpool, and 4 in Leeds. There were 2989 cases of scarlet fever and 1700 of diphtheria under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, against 2940 and 1603 respectively at the end of the previous week. The causes of 41 deaths in the 96 towns were uncertified, of which 12 were registered in Birmingham, 6 in London, 4 in Manchester, and 3 in Liverpool.

Scotch Towns.—In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2,500,000 persons, the annual rate of mortality, which had been 12·6, 18·6, and 15·0 in the three preceding weeks, slightly rose to 15·3 per 1000. The 334 deaths in Glasgow corresponded to an annual rate of 15·6 per 1000, and included 10 from measles, 3 from infantile diarrhœa, 2 from diphtheria, and 1 each from scarlet fever and whooping-cough. The 106 deaths in Edinburgh were equal to a rate of 16·4 per 1000, and included 1 each from measles, scarlet fever, and diphtheria.

Irish Towns.—The 137 deaths in Dublin corresponded to an annual rate of 17·6, or 2·5 per 1000 above that recorded in the previous week, and included 5 from infantile diarrhœa, 2 from whooping-cough, and 1 each from scarlet fever and diphtheria. The 169 deaths in Belfast were equal to a rate of 22·0 per 1000, and included 15 from measles, 9 from scarlet fever, and 1 each from diphtheria and infantile diarrhœa.

The Services.

THE HONOURS LIST.

THE following appointments for services rendered in Egypt and in the Sudan are announced:—

Egypt.

M.B.E.—Dr. R. G. White, Sub-Director of Laboratories, Dept. of Public Health; Dr. C. Hayward, P.M.O., Port Said Hospital.

Sudan.

C.B.E.—Dr. J. B. Christopherson, Director, Khartoum and Omdurman Civil General Hospitals.

FOREIGN DECORATIONS.

Belgian.

Croix de Guerre.—Temp. Capt. (acting Maj.) D. E. Crosbie, M.C., R.A.M.C.

Egyptian.

Order of the Nile.—3rd Class: Temp. Capt. (acting Lt.-Col.) W. Angus, R.A.M.C.; Lt.-Col. and Bt. Col. (temp. Col.) W. H. Ogilvie, C.M.G., I.M.S. *4th Class:* Capt. C. H. Allen, O.B.E., R.A.M.C. (T.F.); Maj. D. G. R. S. Baker, I.M.S.; Capt. H. H. Brown, I.M.S.; Temp. Capt. R. H. Hadfield, R.A.M.C.; Temp. Capt. W. N. Montgomery, R.A.M.C.; Maj. S. H. Seccombe, Austr. A.M.C.

French.

Légion d'Honneur.—Officier: Maj.-Gen. Sir T. Yarr, K.C.M.G., C.B., A.M.S. *Chevalier:* Capt. (acting Lt.-Col.) D. C. L. Fitzwilliam, R.A.M.C. (T.F.); Temp. Capt. A. E. Staffurth, R.A.M.C.

Hellenic.

Medal for Military Merit.—3rd Class: Capt. J. R. Hill, R.A.M.C.; Maj. (acting Lt.-Col.) O. Ievers, D.S.O., R.A.M.C.; Lt.-Col. M. M. Lowsley, D.S.O., R.A.M.C.; Lt.-Col. and Bt. Col. (temp. Col.) W. H. S. Nickerson, V.C., C.M.G., R.A.M.C.; Capt. J. Patrick, R.A.M.C. (T.F.); Temp. Capt. (acting Maj.) W. H. Welsh, R.A.M.C. *4th Class:* Temp. Capt. J. C. M. Bailey, O.B.E., R.A.M.C.

ROYAL NAVAL MEDICAL SERVICE.

Placed on the Retired List, with the rank of Surgeon-Captain: Surg.-Cmdrs. G. Ley and E. C. Cridland.

Temp. Surg.-Lieuts. J. D. Clarke, L. R. Warburton, G. E. Heath, N. B. de M. Greenstreet have been transferred to the permanent list of Surgeon-Lieutenants, R.N.

Surg. Lieut.-Cmdr. H. White transferred to Emergency List.

Lieutenants to be Lieutenant-Commanders: G. W. Hill, R. M. Stopford.

ARMY MEDICAL SERVICE.

Major-Gen. Sir H. N. Thompson and Col. N. Faichnie are placed on the Half-pay List.

Cols. A. Kennedy, G. H. Barefoot, and G. W. Tate retire on retired pay.

ROYAL ARMY MEDICAL CORPS.

Lieut.-Col. and Bt. Col. W. H. S. Nickersen, V.C., relinquishes the temporary rank of Colonel.

Lieut.-Col. J. E. Brogden (Half-pay List) retires on retired pay on account of ill-health contracted on active service.

Capt. W. Mathieson relinquishes the acting rank of Major.

Major J. A. Turnbull relinquishes the acting rank of Lieutenant-Colonel on ceasing to command a Medical Unit.

The undermentioned relinquish the acting rank of Lieutenant-Colonel: Capts. and Bt. Majors G. H. Dive, H. H. Blake, Majors G. B. Edwards, C. H. Denyer, D. de C. O'Grady, E. M. O'Neill, A. M. Rose, A. C. Elliott, J. C. G. Carmichael, B. H. V. Dunbar, C. R. Millar, L. A. A. Andrews, W. H. Forsyth, W. B. Purdon, F. A. McCammon, Capts. H. C. D. Rankin, O. W. McSheehy, T. E. Eves, R. G. Shaw, P. Carney, E. Percival, J. Rowe; Temp. Capts. G. L. Leggat, H. C. Watson, A. J. Blake, F. D. Johnson.

To be Acting Lieutenant-Colonels: Capt. (acting Major) W. D. Anderton, Temp. Capt. (acting Major) F. K. Kerr, Temp. Capt. G. L. Leggat.

The undermentioned relinquish their commissions on ceasing to serve with the British Red Cross Society in France, and retain their honorary rank: Temp. Hon. Lieut.-Col. L. N. Robinson, Temp. Hon. Majors C. G. Jarvis and E. H. Hicks.

The undermentioned relinquish the acting rank of Major: Capts. and Bt. Majors Henry F. Panton, R. Gale, S. W. Kyle, Capts. C. R. Dudgeon, G. P. Kidd, C. Kelly, J. Biggam, C. K. G. Dick, J. R. Yourell, C. H. Stringer, M. Morris, C. F. Burton, W. S. Martin, Temp. Capts. W. Martin, A. G. Howson, J. P. Jones, C. E. Meryon, A. C. Lambert, W. S. S. Berry, J. W. Simon, A. A. Wilson, R. W. P. Jackson, A. T. W. Forrester, D. G. Wishart, A. Fletcher, H. H. L. Ellison, G. Muir, T. E. Coulson, J. M. Macfie, R. Massie, G. Wilson, J. G. Duncanson, H. H. Elliot, E. Biddle, G. R. B. Purce, A. R. Esler, N. E. Kendall, W. H. Sheffield, A. G. Southcombe, W. A. Todd.

Capt. (acting Major) J. R. Yourell relinquishes the pay and allowances of his acting rank.

To be acting Majors: Capts. C. H. Stringer, C. Clarke, P. H. Wells, Temp. Capts. W. Brown, R. S. Gibson, A. W. Rattrie, R. S. Morshead, W. J. Oliver, J. S. Lloyd, J. R. Pate, J. G. M. Sloane.

Capt. E. Jamieson resigns his commission.

To be Captains: Temp. Capt. (acting Major) G. G. B. Holroyde, Capt. (acting Major) B. L. Davis (from T.F.), Capts. A. G. G. Thompson (from T.F.), O. J. O'B. O'Hanlon (from Spec. Res.), A. R. F. Clarke (from Spec. Res.), R. H. Hodges (from Spec. Res.), Temp. Capt. J. Higgins, Lieuts. (temp. Capts.) D. H. Coats, G. T. Garraway, P. G. Russell, H. J. Davidson.

Temp. Capt. H. J. Bensted to be Lieutenant and to be temporary Captain.

J. B. Morrison, late Captain, Can. A.M.C., to be temporary Captain.

F. Formosa and W. C. McKee to be temporary Lieutenants.

Officers relinquishing their commissions:—Temp. Capt. (acting Lieut.-Col.) A. G. Stewart (granted the rank of Lieutenant-Colonel). Temporary Captains granted the rank of Major: C. H. B. Bootle, D. F. O'Kelly, (acting Major) A. Abrahams. Temp. Capt. (acting Major) A. C. Keep. Temporary Captains retaining the rank of Captain: E. E. Semmence, W. J. Purdy, J. L. Graham-Jones, T. G. Brown, St. G. M. L. Homan, J. Hutchison, D. A. D. Kennedy, T. P. Herriot, J. Kirton, G. J. Bowen, G. P. Jones, C. I. Milne, G. Rickman, M. B. Reichwald, R. D. Buchanan, W. Cullen,

M. R. Lawrence, C. J. Scholtz, F. J. Kirkness, T. Fraser, H. P. Harpur, G. R. D. McGeagh, D. A. Laird, J. R. Turner, J. T. MacKenzie, F. Vanse, J. F. E. Prideaux, D. B. Pascall, T. W. Melhuish, L. E. Pimm, P. J. Verrall, W. E. Hopkins, J. R. Briscoe, A. D. Rope, J. F. Wood, A. A. Martin, F. Ritchie, A. J. McNair, L. H. Taylor, L. C. G. Bacon, J. Black, T. A. Hawkesworth, J. G. Ackland, J. B. Bnrgess, H. L. McCormick, C. G. T. Mosse, R. S. Ross, A. L. Badcock, S. G. Platts, E. Scott-White, H. A. Kisch, G. T. Loughborough, C. Rutherford, E. Baldwin, H. B. Binks, H. Fraser, D. McFarlane, D. J. Harries, K. J. Aveling, W. M. Oakden, C. D. Coyle, C. H. Seville, D. M. Smith, F. L. Nash-Wortham, C. C. Kerby, F. S. Collard, W. L. Nicholson. Temp. Lieut. R. Herley. Temporary Lieutenants retaining the rank of Lieutenant: J. Stewart, M. J. Gibson.

The undermentioned relinquish their commissions and retain their honorary rank: On ceasing to serve with No. 2 British Red Cross Hospital: Temp. Hon. Capt. R. J. C. Douty, Temp. Hon. Lieut. J. Lindsay. Temp. Hon. Major L. F. Knuthsen, on ceasing to serve with No. 5 British Red Cross (Anglo-American) Hospital.

GENERAL RESERVE OF OFFICERS.

Major J. E. Carter is granted the rank of Lieutenant-Colonel on ceasing to be re-employed.

SPECIAL RESERVE OF OFFICERS.

The undermentioned Captains relinquish the acting rank of Major: J. R. Crolius, J. A. Pridbam, O. H. Mavor, H. R. Friedlander, T. C. Storey, R. F. Fagan, A. F. L. Shields.

Capt. W. McM. Chesnev to be acting Major.

The undermentioned Captains relinquish their commissions and retain the rank of Captain: M. J. Burns, R. D. Lawrence.

TERRITORIAL FORCE.

Lieut.-Col. S. M. Sloan relinquishes his commission and retains the rank of Lieutenant-Colonel.

Capt. (acting Col.) L. D. B. Cogan reverts to the acting rank of Lieutenant-Colonel on vacating the appointment as Assistant Director of Medical Services.

Capt. W. H. Willcox, from 3rd London General Hospital, to be Colonel.

Capts. (acting Majors) J. P. Milton, A. M. Jones, W. Goldie, J. G. Morgan, and G. Davidson relinquish the acting rank of Major on ceasing to be specially employed.

Capt. Y. T. G. Moore to be Major.

Capt. (acting Major) H. W. Spaight relinquishes the acting rank of Major on vacating the appointment of Deputy Assistant Director of Medical Services.

5th London General Hospital: Capt. J. M. Wyatt is restored to the establishment.

5th Southern General Hospital: Capt. M. D. Wood is restored to the establishment.

4th Scottish General Hospital: Capt. (acting Major) J. R. Riddell relinquishes the acting rank of Major on ceasing to be specially employed.

ROYAL AIR FORCE.

Medical Branch.—Flight Lieut. (acting Sqdn. Leader) W. Darling to be acting Wing Commander whilst specially employed.

Flight. Lieut. (acting Sqdn. Leader) H. M. S. Tnrner to be acting Wing Commander whilst so employed.

The undermentioned Flying Officers to be Flight Lieutenants: P. C. Parr, M. Hyman, A. Briscoe, E. G. O'Gorman, C. McC. Jones, S. G. Seymour, W. E. Sbeil.

The undermentioned are transferred to the Unemployed List: Capts. J. A. Johnson, B. H. Swift, Lieut. M. M. Price.

Dental Branch.—Capt. H. L. Thorn is transferred to the Unemployed List.

INDIAN MEDICAL SERVICE.

Lieutenant-Colonel to be Colonel: B. Nauth.

Majors to be Lieutenant-Colonels: H. D. Peile, D. H. F. Cowin, W. H. Tucker, Manmatba Nath Chaudhuri, A. C. MacGilchrist, J. W. D. Megaw, E. O. Thurston, (Bt. Lieut.-Col. and temp. Col.) G. Browse, (Bt. Col.) C. M. Goodbody, R. Steen, F. F. Elwes, E. A. C. Matthews, L. P. Stephen, L. E. Gilbert, T. G. N. Stokes, H. M. Mackenzie, M. H. Thornely, F. V. O. Beit, W. O'S. Murpby, M. Corry, C. C. Murison, H. A. Williams.

Captains to be Majors: H. W. Acton, (Bt. Major) R. E. Wrigbt, F. A. Barker, D. Coutts, A. N. Thomas, W. J. Simpson, F. Stevenson, S. H. Middleton-West.

ENLARGEMENT OF BOLTON INFIRMARY.—The Bolton Infirmary committee propose to increase the hospital accommodation to meet the increased needs of the borough. This will involve a capital expenditure of £100,000. Mr. E. P. Potter has made a gift of a residence to the infirmary to be used as a convalescent home; it will provide accommodation for 50 beds.

Correspondence.

"Audi alteram partem."

THE TREATMENT OF MALARIA.

To the Editor of THE LANCET.

SIR,—The discussion on the Treatment of Malaria held at the Medical Society of London on Nov. 24th last and reported in your issue of Dec. 6th (p. 1034) formed a most interesting and profitable contribution to this difficult subject. After a very extensive experience of the treatment of a large number of malarial cases during the three years 1916–19 in Mesopotamia, as consulting physician to the Expeditionary Force, I formed the following conclusions:—

1. The method of administration of quinine is most important, and from experience of a great number of cases where the drug has been given in various ways I am of opinion that the intravenous method is the one in which the greatest therapeutic effect is obtained. Closely following this method is the intramuscular injection and, "longo intervallo," administration by the mouth and rectum.

2. The therapeutic values of quinine bihydrochloride when given rectally, orally, intramuscularly, or intravenously for a given dose would, in my opinion, be approximately represented by the figures 1, 2, 20, and 40—e.g., 5 gr. given intravenously would be equivalent in therapeutic value to 100 gr. given by the mouth.

3. The subcutaneous administration of quinine is liable to be followed by necrosis and suppuration, and should, I think, be avoided.

4. The choice—"intravenous" or "intramuscular" administration—would depend in many cases on the presence of easily accessible veins suitable for intravenous injections. If there is difficulty in this respect it is wiser to adopt the intramuscular method.

5. In tropical countries acute diseases such as influenza, enteric, typhus, relapsing fever, heat hyperpyrexia, sandfly fever, &c., are very commonly complicated by malaria, the clinical evidence being a markedly enlarged spleen in addition, possibly, to the history of malaria. The combination produces an acute and dangerous condition, and in such cases it is most necessary that quinine bihydrochloride should be given intravenously or intramuscularly without delay, since by this means a serious and often fatal complication is quickly abolished.

6. In cases of malignant malaria and in recurring malaria of the benign tertian or quartan type with splenic enlargement, I am strongly of opinion that courses of treatment should commence with from 3 to 6 intravenous or intramuscular injections of quinine, and afterwards oral treatment carried out—e.g., 10 gr. of quinine bihydrochloride in solution three times a day for a fortnight, and then "after-treatment" on the lines laid down in the pamphlet issued by the Ministry of Health, written by Sir Ronald Ross, K.C.B., F.R.S., and Lieutenant-Colonel S. P. James, I.M.S. Much better results are obtained by this method, and relapses are much less frequent.

7. In cases of malaria presenting acute cerebral symptoms the administration of quinine intravenously is of as much urgency as is the application of surgical measures in a case of fulminating appendicitis. A delay of a few hours may mean the death of the patient.

8. As regards dosage for intravenous injection, doses up to 10 gr. of quinine bihydrochloride dissolved in 10 c.cm. of normal saline are most suitable and sufficient. In conditions of collapse it is advisable to use larger quantities of saline—e.g., 1 pint.

9. For intramuscular injections doses of 10–15 gr. of quinine bihydrochloride in solution of strength 15 gr. of the salt in 2½ c.cm. of sterilised distilled water are best given deeply into the muscles of the buttock at a spot midway between the anterior superior iliac spine and the tip of the natal cleft. I have been much impressed by the toxic effect of quinine in certain patients showing an idiosyncracy, and have notes of one patient who developed a severe amaurosis following a dose of 10 gr.

of quinine orally on one day and 15 gr. similarly given on the next day. In such cases quinine must be discontinued entirely since there is risk of fatal blindness. The toxic effects of quinine are, in my experience, more likely to follow large doses by the mouth than those suggested for intravenous or intramuscular injection.

Before administering quinine in large doses the patient should always be questioned as to his susceptibility to toxic symptoms, and if there is any fear of this, or if the patient has not had quinine before, small doses should be commenced with.

I am, Sir, yours faithfully,
W. H. WILLCOX, M.D., F.R.C.P.
Welbeck-street, W., Dec. 8th, 1919.

THE INSTABILITY OF RED BLOOD CELLS

PRESERVED IN THE METHOD OF ROUS AND TURNER.

To the Editor of THE LANCET.

SIR,—THE LANCET of Oct. 18th contains a paper by Professor G. Dreyer and Dr. A. D. Gardner under this heading in criticism of work by Dr. J. R. Turner and myself.[1] I beg to point out that our conclusions are mis-stated, a single one of the findings is subjected to test by a method fundamentally inappropriate, and on the basis thus afforded our work is used to point a moral, together with that of two English investigators, Professor J. S. C. Douglas and Dr. J. W. Bigger, who happen to have found it useful for their purposes. Hence I would like to discuss briefly the points at issue.

According to the opening paragraph of Professor Dreyer and his associate, Rous and Turner "stated that, under the conditions prescribed, the cells underwent no noteworthy change for a considerable period of time." Neither directly nor by implication does such a statement find place in our article. On the contrary, we make special note of the fact that preserved cells break down sooner in Locke's solution than do fresh cells—probably because of greater mechanical fragility—and we advocate a protective gelatin-Locke's solution in handling such cells. This latter should be employed wherever possible. Two quotations from our paper now follow: "'Cells kept for three weeks and for a month have been used for the Wassermann reaction and compared with cells freshly obtained from the same sheep. They had the same hæmolytic titre as fresh ones, and gave identical results in the reaction'"; and, as regards human erythrocytes, "'They remain intact for about four weeks.'" I have no reason to modify these assertions. Reimann[2] has confirmed in its essentials the statement with regard to the Wassermann reaction. And our critics themselves state, with an unusual lapse in accuracy for figures, that "a week or two after our last experiment the Rous-Turner suspension was found to show very marked spontaneous hæmolysis," or, in other words, a week or two after a period of 27 days, during which the cells remained intact.

Now comes the following sentences: "It thus appeared that an important contribution has been made to practical serology. But their (our) paper contains no adequate experimental demonstration of the accuracy of this statement." Indeed it does not. For inference and statement are alike the product of our critics. Our purposes were in no way serological but exactly as expressed in the title of our paper, "The Preservation of Living Red Blood Cells In Vitro." This we accomplished for rabbit cells, as was shown by the protocols of transfusion experiments, and, it would seem, for human cells as well, since the method was put to good use by Major O. H. Robertson[3] and others at the British battle-front. The extent of our serological assertions may be judged from the fact that the only hæmolytic tests mentioned or attempted with preserved cells were incident to the Wassermann reactions; that the carrying out of the reactions, as is noted in the text, was entrusted to a highly skilled outside worker; that the results, unlike the rest of the findings, are not given *in extenso*, a point to which Professor Dreyer objects; and, finally, by the mention in our summary of two methods of cell preservation for the Wassermann test as preferable to our own.

Professor Dreyer and Dr. Gardner introduce experiments to discredit our statement, and that of Professor Douglas and Dr. Bigger as well, about the Wassermann reaction—namely, that the preserved cells react with fair constancy to a serum hæmolysin. For the experiments they employ a vegetable hæmolysin, saponin; and they construct curves which show a rapid deterioration in the cell's resistance to this agent. I shall confess to a lack of interest in these curves. For here the real question is whether results with saponin give an index to those with a serum hæmolysin. It is difficult to understand how Professor Dreyer and Dr. Gardner omitted to make tests on the point, since saponin has long been known to behave very differently from the serum hæmolysins[4] and many chemical hæmolysins.[5] Indeed, tests with saponin fail to give an index to the red cells' resistance to hypotonic salt solution.[6] Yet Professor Dreyer and Dr. Gardner do not hesitate to generalise from their saponin curves, not merely as regards our work and that of Professor Douglas and Dr. Bigger, but as concerns the sensitiveness of preserved cells to hæmolysins in general. I need not comment on the moral drawn by Professor Dreyer and his associate of the necessity of testing all assumptions made in scientific work.

I am, Sir, yours faithfully,
PEYTON ROUS.
Rockefeller Institute for Medical Research, New York,
Nov. 19th, 1919.

A SAMPLE OF THE POPULATION.

To the Editor of THE LANCET.

SIR,—It is evident that the statistics of the recruiting boards will have to be submitted to strict scrutiny before any conclusion is accepted, if Dr. J. D. Comrie's figures in THE LANCET of Nov. 29th are to lead to the conclusion that between the ages of 18 and 23 years a rapid deterioration of physique occurs.

There are two points to which I would draw your attention. First, all boys were called up for examination as they reached the age of 18; hence they form a more or less true sample at whatever period they are taken, while only some of those at the later ages are included in any batch examined. At first sight this may not seem of much moment except to a statistician, but in reality it vitiates any general conclusion. Suppose, for example, that in the normal population there are 1000 men of 23 of whom 500 have joined the army as A men. If in a sample of the residue we find two men out of four fit for service, we shall get a totally wrong conception of the general health at 23, unless we take into consideration the 500 fit men who have already passed the test; if we do this we find three men out of four fit, and the supposed deterioration after 18 vanishes.

An age curve constructed for a large number of men examined under the National Service showed that it comprised only two-fifths of the normal number corresponding to the actual number at 18 years, and that the years from 19 to 23 or so were almost blank. No comparison between the normal at 18 and the residue at 23 could therefore be of the slightest value, and though Dr. Comrie's material in 1915–16 would not show so marked a contrast between the numbers at 18 and 23, yet it is certain that it would be sufficient to destroy his conclusion.

In the second place, you speak, in your leading article in the same issue, of deterioration of physique. It is not generally recognised that the categories and grades have no relation to physical development. Men were not graded by physique, but by the presence or absence of defects. This is clearly shown by the fact that taking height as a criterion of physical development, among equal numbers taken from each grade the average height was almost the same for all grades. Deterioration of physique does exist, but it is not shown by the recruiting returns; it can, however, be shown from them by analysis of the heights of boys of 18 that the average height among factory workers is about an inch below the general average at that age. That deterioration is evidently environmental and not racial and is therefore amenable to preventive and remedial treatment by educational and social reforms.

---

[1] Peyton Rous and J. R. Turner, Journal of Experimental Medicine, 1916, xxiii., 219.

[2] S. P. Reimann: Journal of Laboratory and Clinical Medicine, 1916–17, ii., 200.

[3] O. H. Robertson: Brit. Med. Jour., 1918, No. 2999, 691; also Report No. 4 of the Special Investigation Committee on Surgical Shock of the Medical Research Committee.

[4] H. Gideon Wells: Chemical Pathology, third edition, 1918.

[5] D. Rywosch: Arch. für Physiol., 1907, cxvi., 229.

[6] D. Rywosch: Loc. cit. C. McNeil: Journ Path. and Bact., 1911, xv., 56.

We are too apt to be carried away by pithy phrases—e.g., "One cannot make an A 1 nation out of C 3 men." The 25 or 30 per cent. of Grade III. men on which this aphorism was founded was the result of the examination of some 2 million (or less) men out of a possible 10 or 12 millions; the remainder being either already in the forces in a higher category or protected at home for the performance of labour which could only be carried out by fit men. We are not a nation of C 3 men.

In conclusion, it may be noted that Dr. Comrie's classified defects are fairly typical of those generally observed, and are individual defects for the remedy of which there is required provision of more expert medical and surgical treatment than is offered by the panel system, and not only for the insured worker but for the children before they reach the age of the wage earner. More than that, it is necessary to see that such treatment is not only obtainable but obtained, and this can only be done by education, for compulsory health is even more an Utopian ideal than compulsory physical training.—I am, Sir, yours faithfully,

Carbis Bay, Dec. 3rd, 1919. D. F. SHEARER, F.R.C.S.

THE "GRIDIRON" INCISION.

To the Editor of THE LANCET.

SIR,—With reference to the article in THE LANCET of Dec. 6th by Dr. St. G. Griffiths on "The Frequency of Right Inguinal Hernia after Appendicectomy by the 'Gridiron' Incision," I would state that while at the R.N. Hospital, Plymouth, I had occasion to operate upon four cases of right inguinal hernia which had appeared after appendicectomy. In all cases Battle's method had been employed, and the herniæ appeared from one to four months later. As both conditions are specially common in the Service, it would seem impossible to draw any conclusion from the number of cases so far reported. Nevertheless, my impression was that as in these cases the incision was made at a rather lower level than usual, the weakening of the abdominal wall and the disturbance of the position of parts at the time of operation had favoured the speedy descent of a hernia into a pre-existing sac. In this respect at least a Battle's incision would appear to offer no advantage over the "gridiron."

I am, Sir, yours faithfully,

RICHARD A. BARLOW, M.B., F.R.F.P.S.

Glasgow, Dec. 8th, 1919.

COPPER ALANIN IN INOPERABLE CANCER.

To the Editor of THE LANCET.

SIR,—On Nov. 7th, in the Section of Laryngology of the Royal Society of Medicine, I showed a case of lingual cancer in which the patient has derived considerable comfort from intravenous injections of aminoproprionate (alanin) of copper. Although the advance of the disease in this case would appear to have been arrested, microscopic sections taken during the treatment showed that histologically the epithelioma was unaltered. Full particulars will be given in the published proceedings of the section, and the object of this letter is to let medical men know where copper alanin can be obtained. The substance, the credit for suggesting which, amongst other forms of treatment for inoperable cancer, is due to Dr. Shaw-Mackenzie, was not made commercially in England before the war. It can now be obtained in 0·44 per cent. solution from Messrs. Boots's Research Laboratory, Island-street, Nottingham. My experience of the injections is that its administration in doses of from 1 to 2½ c.cm. has been attended only with benefit. It may be well to add that the benefit consists in a remarkable improvement in the general condition of the patients after one or two injections. The injections appear to retard the advance of the disease, but the experience so far obtained does not allow one to regard it as more than palliative. As long as the injections are continued from once to three times a week the arrest is maintained, but if they are omitted even for a week a fresh advance can always be noted. It would appear, however, from this that the intravenous injection of this form of copper salt has a retarding influence on the growth of cancer.

I am, Sir, yours faithfully,

JAMES DONELAN, Ch.M., M.B. R.Univ.Ir.

Manchester-square, W., Dec. 1st, 1919.

THE TREATMENT OF ANTRAL SUPPURATION.

To the Editor of THE LANCET.

SIR,—I would like to say a few words on Mr. Somerville Hastings's clear exposition which I enjoyed reading in THE LANCET of Nov. 29th. Persistence of suppuration in the antrum following an acute catarrh is presumably due to persistence of irritation. The irritant is usually a well of putrefying material as well as the bacteria infecting the mucous membrane. Removal of the putrefying exudate by irrigation and prevention of reaccumulation by making an opening from the nose into the antrum near the floor is the usual method of treatment practised. Bacteria still growing on the moist internal surface of the cavity can, however, call forth an exudation of fluid and leucocytes and this secretion may continue for some time. To rapidly destroy the germs without irritating the tissues is a problem which, as far as I know, has only been solved by using zinc ionisation.

To ionise the antrum it is necessary to puncture the nasal wall with a trocar and cannula, wash away accumulated secretion, and then fill the cavity with weak sulphate of zinc solution. The cannula which conveyed the fluid can be utilised to convey the electric current, if it has been insulated on its outer surface by several coats of varnish. In an uncomplicated case—that is, one in which there is no ethmoidal or frontal sinus disease, no caries, and no polypi—complete subsidence of suppuration may be in most cases expected to occur forthwith without further treatment.

Treatment by ionisation naturally does not contraindicate an attempt being made to diminish the liability to severe colds in the patient subsequently by vaccines.

I am, Sir, yours faithfully,

Devonshire-place, W., Dec. 8th, 1919. A. R. FRIEL.

SOME USES OF DIATHERMY.

To the Editor of THE LANCET.

SIR,—Mr. Norman Patterson's excellent article in THE LANCET of Dec. 6th on the Treatment of Epithelioma of the Mouth and Pharynx by Diathermy ought to help towards remedying the "little general recognition of its value" which he mentions. A somewhat extensive experience of its use in cases of cancer of the tongue, often extending on to the floor of the mouth and the pillars of the fauces, sometimes invading the tonsil, encourages me to endorse his opinion that "in cancer of the bucco-pharyngeal cavity it ought entirely to supersede cutting operations." The diathermic method renders the actual operation less formidable and the convalescence more tolerable. So far my cases have run an almost apyrexial post-operative course, and any secondary hæmorrhage has been trifling. The functional results where the whole tongue was not removed are excellent. It is too soon to speak of the ultimate results, as I have only made use of the method for two years.

Diathermy is also to be recommended as a palliative measure in "inoperable" cases of carcinoma of the cervix uteri (either destroying as much growth as possible by means of a button electrode or carrying out a supra-vaginal amputation of the cervix by the spatula electrode), as well as in the treatment of the cervix preliminary to hysterectomy in operable cases. Its use in tumours, both benign and malignant, of the urinary bladder is more generally recognised.

In my operations I have had the advantage of the collaboration of Dr. Claude Saberton, who has taken charge of the electrical side, and has also carried out a course of prophylactic radiation in all cases as soon as possible after the operation.

I am, Sir, yours faithfully,
Harrogate, Dec. 8th, 1919. HERBERT FRANKLING.

THE PREVENTION OF VENEREAL DISEASE.

To the Editor of THE LANCET.

SIR,—If we all thought and acted with the common sense of Sir Charters Symonds's letter in your issue of Dec. 6th "most painful and unnecessary" controversies would be few and right measures would usually be taken quickly. His advice is so good that I feel sure that the National Council will ultimately adopt it. It is impossible to believe that men will continue to hold that slow disinfection is moral and quick disinfection immoral. Indeed, having regard to recent history, I have a notion that in a year or two the National Council will not only advocate immediate disinfection, but will believe that it has always advocated it. However, in large measure, the matter has passed out of its hands; in any case, it is not likely to act with sufficient speed and decision. More pressing problems demand our attention.

Results of Quick Disinfection.

Here are sets of facts well-known to the authorities concerned. They are of such a nature that they can be tested to the last item. No one has ventured to impugn them. Before the war a battalion of English troops was ordered to Delhi, a hotbed of venereal disease. The C.O., in alarm, consulted with his medical officer. The latter advised the men to carry permanganate of potash and to swab with it immediately after exposure. In four years that battalion had six instead of hundreds of cases of venereal disease, which works out at the rate of 1·5 per 1000 per annum. About the same time venereal disease was reduced to "negligible proportions" at Mhow by the same means. During the war a medical officer in charge of troops stationed in a large dockyard and seaport town employed similar measures and achieved exactly the same results as his predecessor at Delhi—a rate of 1·5 per 1000 per annum. In the same town 496 sailors in charge of Surgeon-Commander P. H. Boyden swabbed themselves with permanganate of potash. Only one man took the disease, and he swabbed himself not immediately, but six hours after exposure. In this district, which is served by a single venereal diseases hospital, the employment of quick disinfection was adopted by several medical officers in charge of soldiers. At the time of my last inquiry the records of this hospital contained the names of hundreds of men infected after slow disinfection, and the name of not a single man infected after quick disinfection.

A Contrast and the Explanation.

Now contrast the results of questioning 2193 venereal patients at Rochester Row Military Hospital from Sept. 1st, 1918, to June, 30th 1919, as to the extent to which self-applied medicants were used. These results are recorded in "Table H" of the White Paper published by the Inter-departmental Committee on Prophylaxis against Venereal Disease—that White Paper which was issued by way of testimonial to the N.C.C.V.D., and is the immediate cause of the present "most painful and unnecessary controversy." According to Table H, 110 men contracted venereal disease after immediate disinfection with permanganate of potash. Now, what is the explanation of this amazing contrast? How did it happen that quick disinfection failed so miserably in the area served by Rochester Row Hospital and succeeded so magnificently elsewhere?

The explanation is found when we examine another set of facts. In March, 1916, the Army Council wrote two letters to the general officers commanding-in-chief the various districts in Great Britain. The first, which is dated March 18th, ordered the establishment of venereal ablution rooms in which soldiers returning to quarters after exposure could practise self-disinfection. The second, which is dated August 9th, deplored the failure of the ablution rooms, and attributed it to the slackness of medical officers in charge of troops. It gave a table which showed that while one M.O. who was "keen" had a venereal rate of 58·3 per 1000 per annum, another who was "indifferent" had under precisely the same conditions a venereal rate of 104 per 1000 per annum. Unquestionably the Army Council was right. The degrees of success achieved by the two officers measured their competency. Is it possible to conceive any other explanation of the extraordinary contrast between the results achieved in the area served by Rochester Row Hospital and those achieved at Delhi and elsewhere?

"Adequate Supervision."

On p. 7 of the White Paper is the following footnote: "Prophylactic methods were introduced tentatively in 1916, but, until the middle of 1918, were largely neglected, as they were not under adequate supervision." It is time to describe this "adequate supervision." With the bottles and tubes, of which I told in the letter which appeared in THE LANCET of Nov. 22nd, arrived instructions (1) that these appliances were to be used with delay; (2) that they were to be exposed where the men could help themselves privately; and (3) that medical officers were to exercise strict supervision. I wrote at once that it was impossible to follow instructions; one could not at the same time strictly supervise and not supervise at all. I insisted besides that the bottles and tubes were of secondary importance as compared to careful instruction of the men. Hitherto every great success had been achieved without appliances and solely by careful instruction. Again, I insisted that the bottles and tubes ought not to be left exposed; the men were not shy and would ask for them readily but were liable, unless care were taken, to put them to wrong uses. My protests were unheeded. Then began the "adequate supervision" which the White Paper records. Inspecting officers were appointed. These gentlemen periodically visited the places where the bottles and tubes were kept, counted those bottles and tubes, saw that everything was clean and neat, departed, and made their reports. Any properly trained housemaid would have discharged the duty as well or better. Absolutely no care was taken as to the instruction of the men. Hence the contrast between the area served by Rochester Row and various other places.

A Personal Experience.

The foregoing is beautifully illustrated by my own experience. One unit in my charge consisted mainly of elderly, married, home-service men, a most respectable lot. I believe I never had a case of venereal disease from among them. At first their bottles and tubes were placed in charge of an N.C.O., who reported that they were asked for at the rate of one or two a week. But the inspecting officer insisted on their removal to a place whence the men could help themselves. Thereupon the bottles (not the tubes) began to disappear at the rate of 40 a week. Inquiry revealed the fact that the permanganate solution had become fashionable as a tooth-wash. The men were admonished and the practice ceased, but later some person, who, I think, must have been a sympathiser with the N.C.C.V.D., took to destroying both bottles and tubes, and we were never able to catch him. Still later I was asked, when giving evidence before the Inter-departmental Committee, what proportion of my men used the disinfectants; and I, having in mind the toothwash and the fanatic, replied that I did not know. It was accounted to me as sin.

Need for More Enlightened Control.

And now I come to the gist of what I have to say. Very plainly the army has been under incompetent management as regards venereal disease—management so incompetent that it is probably a product of fanaticism rather than of incapacity to learn. It is possible that the same incompetency will prevail at the Ministry of Health. Our present and most urgent task, then, is not to reform the N.C.C.V.D. which, in great measure, has fallen from grace, but to seek the establishment of more enlightened control at the Ministries of War and Health.

A second task should be to secure the repeal of that atrocity the Venereal Diseases Act of 1917. At the request of a customer a chemist may supply advice and medicine for the prevention or cure of catarrh, or influenza, or small-pox, or cancer; but, forbidden by the Act, he must not supply a disinfectant for the prevention of venereal disease. In the former case the chemist would perpetrate a fraud, in the latter case he would not; but such is the solicitude of the N.C.C.V.D. and its supporters for the health of the community that they had this precious Act added to the laws of Great Britain.

A third task should be the promotion of a properly accredited Board of Inquiry into the prevalence of venereal disease, of which a principal object should be the issue of a correct balance-sheet of the effects of prophylaxis in the army during the war. The balance-sheet issued in the White Paper is fraudulent.

I am, Sir, yours faithfully,

Southsea, Dec. 6th, 1919. G. ARCHDALL REID.

DYSENTERY SIMULATING TUBERCULOSIS.

To the Editor of THE LANCET.

SIR,—I find many men have been demobilised who suffered from dysentery whilst abroad. A small percentage of these men will show signs of liver abscess, and one termination of this complication is rupture into a bronchus with profuse hæmoptysis over a long period. I saw a case a few months ago that on account of the great wasting and bleeding had been notified as a case of pulmonary tuberculosis. Five weeks in hospital with emetine injections gave great improvement and an increase in weight of over 30 lb.

My chief diagnostic points were: (1) Great pain over right scapula with no physical signs in that area; (2) all physical signs at the right base only; (3) liver and splenic tenderness; (4) peculiar skin colour tinge.

I think it worth while calling attention to these cases because if the dysenteric origin is recognised early proper treatment can be efficiently given, whilst a wrong diagnosis means disaster.

I am Sir, yours faithfully,

FRANK CLIFFORD,
Tuberculosis Physician.

The King Edward VII. Welsh National Memorial
Association: Tuberculosis Institute, Swansea,
Dec. 8th, 1919.

GENERAL MEDICAL COUNCIL: IRISH ELECTION.

To the Editor of THE LANCET.

SIR,—Will you allow me, through your columns, to thank the 616 Irish doctors who voted for me at the recent election, as well as the many Service men and others whose support came too late?

I am, Sir, yours faithfully,

Dublin, Dec. 4th, 1919. J. C. MCWALTER, M.D.

THE LATE DR. NORMAN P. LAING.—Dr. Norman Preston Laing, son of Mr. J. G. Laing, medical officer of health for Lathom and Burscough, Lancashire, died recently at the early age of 30. Educated at Liverpool University, he graduated M.B., Ch.B. in 1912, and proceeded to the M.D. degree in the present year. After holding house appointments at the Royal Infirmary, Liverpool, he went to Leicester as house physician, assistant pathologist, and house surgeon at the Royal Infirmary in that city, and on the outbreak of war joined the Royal Army Medical Corps (T.F.), and was appointed medical officer at the remount depôt, Lathom Park. He afterwards served at the front, being attached to the Loyal North Lancashire Regiment, but was invalided home in 1916. Later he served on a hospital ship and again went to France. In October of last year he was discharged as medically unfit, having been gassed and a victim of trench fever. Early in the present year he entered into partnership at Southport, but was handicapped by the state of his health and subsequently broke down and died.

Obituary.

NELSON CONGREVE DOBSON, F.R.C.S. ENG., CH.M.,

CONSULTING SURGEON, BRISTOL GENERAL HOSPITAL.

MR. N. C. Dobson, in consequence of comparatively early optic atrophy, had many years of blindness, which necessitated the giving up of all surgical work, and he had lived the life of an invalid for more than 20 years. He died on Nov. 16th at his house at Clifton at the age of 74, after much waiting for the end, which he had long expected. He had outlived so many of his old friends and colleagues that his life's work is almost forgotten by the present members of his profession. Those who remember him in his days of active work will feel that they have lost one whose life was well spent and who set an excellent example of good work to those with whom he was associated.

As a frequent contributor to the *Bristol Medico-Chirurgical Journal* he wrote many notices of old friends who had departed, and he thoughtfully anticipated the time when some friend would be called upon to write an obituary notice of himself. Accordingly he spent some of the many spare moments of his later years in typing the following autobiographical notes:—

"I was born at Holbeach, in Lincolnshire, on April 11th, 1845. My school life was passed at the Holbeach Grammar School and at a private school in Cambridgeshire, but in consequence of constant ill-health my school learning was very insufficient. At the age of 16 I was apprenticed to Dr. Harper in the small town in which I was born. I remained with him three years. He was an excellent surgeon for his time, and I learned many things of him for which I was always thankful. I then entered St. Thomas's Hospital, having a fair knowledge of the bones and odds and ends of medical matters in general. I took the M.R.C.S. and L.S.A. in the spring of 1867 and in June of that year was appointed house surgeon to St. Thomas's. As a student I gained the first college prize of £30 in both the first and second year, but in the third year only succeeded in gaining the second prize, being beaten by William Anderson, afterwards surgeon to St. Thomas's and professor of anatomy to the Royal Academy, but I carried off the chief prize of my time—viz., the treasurer's gold medal.

In December, 1867, I was elected assistant house surgeon at the Bristol General Hospital, and in February, 1868 I succeeded my old friend Dr. Siddall as house surgeon, which office I held for the full period of three years, when I resigned to enter into practice in Clifton in March, 1871, and was almost immediately appointed surgeon to the Bristol Hospital for Sick Children and Women; this post I held only for a few months, having to resign on being elected December, 1871, as surgeon to the Bristol General Hospital, being then a few months over 26 years of age; this office I held until January, 1893, when I resigned in consequence of ill-health and was then appointed consulting surgeon to the hospital.

I was early attached to the Bristol Medical School, being demonstrator and afterwards lecturer on anatomy, later lecturer on surgery, and subsequently professor of surgery in the Bristol University College, and, finally, emeritus professor, being one of the first on whom that distinction was conferred.

I have held the office of President of the Bristol Medico-Chirurgical Society, and had originally taken an active part in its foundation. I was also President of the Bath and Bristol Branch of the British Medical Association and Vice-President of the Surgical Section at the Association meeting in Bristol in 1894. Among other functions I distributed the prizes and delivered an address to the students in November, 1895. I was for many years a member of the Council of the University College, and formerly a member of the Clifton Shakespeare Society."

Mr. Dobson took the F.R.C.S. in 1870, and received the honorary distinction of Ch.M. Bristol in 1912. He wrote several papers of note; he contributed to the *Medical Times and Gazette*, 1870, *St. Thomas Hospital Reports*, 1875, and on several occasions to the *Bristol Medico-Chirurgical Journal*. He was a fluent speaker, and was commonly in evidence at meetings of various medical societies. During the last 25 years his rôle of a partially or totally blind invalid had taken him from much association with his colleagues, but the large attendance at his funeral showed that his retirement had not obliterated the memory of his genial personality and comradeship. Possessed of an excellent memory, and with his previous literary training, he was always able to make apt quotations for the varying events of the time, and he followed the events of the war during the last five years with a keenness heightened by the fact that four sons were engaged therein; two of these he lost, the one a brilliant artillery officer was killed in action at Loos, the other in the unsuccessful attempt for the relief of Kut-el-Amara. His eldest son did much good work in India, Egypt, and Palestine, and the youngest cheered the heart of his invalided father at home by receiving the distinction of V.C. (in addition to his previous D.S.O.) for the brilliant and successful attack in Kronstadt Harbour last August.

ARTHUR EVERSHED, M.R.C.P. LOND., M.R.C.S. ENG.,

LATE SENIOR PHYSICIAN TO THE NORTH LONDON CONSUMPTION HOSPITAL; AND TREASURER OF THE ROYAL SOCIETY OF PAINTER ETCHERS.

THE death occurred recently at Eversfield of Dr. Arthur Evershed, formerly in a good consulting practice in London, but who was widely known in the artistic world as a landscape painter and especially as etcher.

Arthur Evershed was born at Billingshurst in 1836, the son of Dr. Peter Evershed, and the family was strongly medical, for all his brothers became medical practitioners. But his first bent was towards art, and he went when quite young to the studio of Alfred Clint, a marine painter and also an accomplished etcher, and a quick result was the appearance on the walls of the Royal Academy Exhibition of two pictures of Sussex landscape. After seven years of keen art study Evershed, yielding to the persuasion of his father, entered at Guy's Hospital and qualified in 1863 after a successful career as a student. Being anxious to settle in the country, he spent a short period as assistant to one of his brothers and settled down at Ampthill, where he remained for 10 years. Later he moved to Hampstead, and here he rapidly acquired a large practice, while devoting his spare time to art. During 20 years at Hampstead he led the double life of physician and artist, and became eventually senior physician to the Mount Vernon Hospital, while he also found time to publish two portfolios of etchings entitled "An Etcher's Rambles." Etching became now his particular pursuit; he drew with facility directly on the copper, and was a recognised master of this medium. In 1894 his health failed, and he retired from medical practice, and gave up the rest of his time to painting, etching, and nature study. He spent two years in Italy, became a regular exhibitor at public galleries, and after election to the Royal Society of Painter Etchers was appointed treasurer of the society, on retirement from which post he was elected an honorary fellow, the occasion being taken to present him with a valuable portfolio of the works of his confrères. Evershed, who died in Fishbourne, the village of his retirement, married in 1864 Marie Hester Field, a lineal descendant of Oliver Cromwell. He leaves behind him a widow, 7 children, 14 grandchildren, and 1 great-grandchild, but only one of his children has decided to follow medicine. Among his books may be mentioned "A Set of Dry Points," published in 1875, "Sketches on the Arun, in Dry Point," issued two years later, and "An Etcher's Rambles—The Thames," published in 1879, which went into a second series.

FREDERICK MARSDIN, M.B. LOND., F.R.C.S. ENG.

Mr. Frederick Marsdin, who died at Eastbourne on Nov. 28th in his eighty-sixth year, was the doyen of the medical profession in the south-coast town. Born at Stainforth, near Doncaster, he served with the British force in the Russo-Turkish War of 1853–4, and, returning to this country, turned his attention to medicine. He received his medical education at King's College, London, and the Royal Infirmary, Edinburgh, and became a Member of the Royal College of Surgeons of England as far back as the year 1859. Two years later he took the licence of the Royal College of Physicians of London, became an M.B., London, in the following year, and a Fellow of the Royal College of Surgeons of England (by examination) in 1863. After a few years at Tiverton, in Devonshire, he settled at Eastbourne in 1869, where he practised for half a century. The kindliness of nature which characterised Mr. Marsdin, and his ability in his professional sphere, gained him an extensive practice. Among numerous appointments he was medical officer of one of the districts of the Eastbourne Union, and one of the surgical staff of the Princess Alice Hospital. Although his profession made much claim upon his time he was much interested in the rearing of cattle, and at his farm at Langney produced beasts which were sought after at all the neighbouring markets. A bachelor and the last of his family, his loss is much lamented among a wide circle of friends at Eastbourne.

Medical News.

THE BELGIAN MEDICAL PROFESSION.—At the Royal Society of Medicine on Monday next, Dec. 15th, Dr. Pechère, president of the Belgian Committee for the Assistance of Doctors and Pharmacists in Belgium, who suffered so grievously during the German occupation, will give an account of the hardships underwent and of the success of the efforts made to alleviate their unhappy condition. The chair will be taken at 5 P.M. by Sir Rickman Godlee, chairman of the Belgian Doctors' and Pharmacists' Relief Committee formed in this country in November, 1914.

THE SOCIETY OF APOTHECARIES OF LONDON: LORD MAYOR'S DAY DINNER.—The first official dinner of the Society of Apothecaries of London since the commencement of hostilities was held in the banqueting-hall of the society on Dec. 9th, when the Master, Mr. Samuel Osborn, F.R.C.S., presided, and the Lord Mayor and Sheriffs of London were the guests of honour. The toast of "The King" having been received with musical honours, the Master proposed "The Health of the Lord Mayor and Sheriffs," which was also enthusiastically received. In his reply the Lord Mayor emphasised the benefits of apprenticeship, and expressed the hope that chemists would adopt that method of training. In response to "The Navy, Army, and Air Forces," proposed by Colonel B. B. Connolly, C.B., Sir John Goodwin, the Director-General of the Army Medical Service, referred to the services which members of the Apothecaries' Society and medicine generally had rendered to the country during the war, giving those services wholeheartedly and self-sacrificingly—money, time, and lives. He paid a warm tribute to the bravery and endurance of our troops, remarking that the greater the adversity to which they were subjected the better the soldier. The people of the country, too, had rendered splendid service in the war by their support of the hospitals, the Lady Mayoress being a type of the women of the nation who had given of their best. In proposing "The Guests," Sir Shirley Murphy emphasised the value of the work done by the medical services during the war, and the success which those services had attained was admirably shown in the recent address by Sir John Goodwin before the Royal Society of Medicine. If such things could be done for our armies what might be done for our civilian population? And this had been marvellously foreshadowed by Sir George Newman in recent publications. The work of the Medical Research Committee had laid foundations of paramount importance both for the army and the civil population. The alliance between the profession of medicine and the City Companies was an augury of good for research and knowledge for the betterment of mankind. Sir Norman Moore, President of the Royal College of Physicians of London, in his reply, referred to the granting of the charter of the Apothecaries' Society, which was largely due to the energies of Theodore de Mayerne and Henry Atkins. Mayerne was the first man to write what were now known as clinical notes of cases, and they would bear comparison with those which were now made every day in our hospitals. In a felicitous speech Dr. W. F. R. Burgess proposed the Society of Apothecaries, but while welcoming the day of sanitary progress he expressed the fear that the new health organisation would deprive the ordinary medical man and his patients of individuality, as it would be necessary to hand over so much work to special treatment. Sir George Makins, President of the Royal College of Surgeons of England, proposed the health of "The Master," to which Mr. Osborn replied, and in doing so took the opportunity of asking the medical profession to do all that was possible to help those ex-Service medical officers who required help and also their dependents. An excellent musical programme rendered by Miss Violet Openshaw and Mr. Ivor Walters added to the amenity of a pleasant evening.

MIDDLESEX HOSPITAL FESTIVAL DINNER.—There was a distinguished gathering on Dec. 9th at the Savoy Hotel, London, when a special appeal was made for the £200,000 required to set the Middlesex Hospital on its feet. The occasion was notable for the sympathetic understanding with which the Prince of Wales, who presided, described the aims and uses of a great general hospital; and his advocacy led to the receipt of nearly £53,000 in subscriptions and promises. A women's dinner was held at the same time, at which the Countess of Athlone presided.

COMPLIMENTARY DINNER TO SIR JOHN MACALISTER.—In view of the long and valuable services which Sir John MacAlister has rendered to the Royal Society of Medicine as its secretary, and in order to congratulate him on the honour of knighthood which he has recently received, the council of the society have decided to give him a complimentary dinner. This will be held at the Connaught Rooms on Thursday, March 18th, 1920, when it is hoped that there will be a large gathering of Fellows and members of sections.

ST. MARY'S HOSPITAL MEDICAL SOCIETY.—Sir Arthur Conan Doyle lectured on Dec. 3rd to a medical audience at a crowded meeting of the St. Mary's Hospital Medical Society, his subject being "The Material Side of the Psychic Movement." Speaking as a medical man to a medical audience, he said there was no objection which could occur to the most sceptical which had not in the past occurred to him. But he could not believe that men of honour, such as Crookes and others, could be mistaken in the evidence adduced by themselves. Spiritualism, he said, was too big a thing to be a religion: it was part of the common heritage of mankind. He declared himself to be at one with the Churches in combating materialism.

BRISTOL MEDICAL SCHOOL DINNER.—After an interval of six years the annual dinner of the Bristol Medical School was revived. On Dec. 4th, under the presidency of Dr. R. G. Poole Lansdown, about 180 students, past and present, attended, including for the first time women students. The company stood in silence for a few minutes in honour of Bristol students killed in the war, whose names were read out by the President. The health of Sir Anthony Bowlby, the guest of the evening, was proposed by Dr. J. A. Nixon, who spoke of their guest's work in France. In reply, Sir Anthony Bowlby gave some account of the work done in France by men of the Bristol School, and made various generalisations as to his experiences during the war. He dwelt specially on the value of recreations and amusements to relieve the gloom and monotony of military service, and the applicability of the same principle to the present industrial situation. Professor G. A. Buckmaster acknowledged gratefully the warm welcome he had received in Bristol, and other speeches were made by Professor F. E. Francis, the Dean (Professor E. Fawcett), Mr. E. W. Hey Groves, and Dr. J. J. S. Lucas.

ROYAL SURGICAL AID SOCIETY: AN APPEAL.—For the past 57 years the Royal Surgical Aid Society has rendered important service to the community by supplying to the poor surgical appliances of all kinds, thus in many cases enabling them to earn their living and preventing them from being a burden on society. During its existence the institution has supplied more than a million appliances to the poor, and during the war it has given special help to the relatives and dependents of our sailors and soldiers. In the years which are before us the aftermath of the war will make great calls upon the society's ministrations, and in addition to the need for an extension of premises owing to this cause, it is necessary to make good the destruction to the offices caused by a fire which occurred two years ago. Under the auspices of the Lord Mayor of London a special appeal has therefore been issued, and at the annual meeting of the Society at the Mansion House on Dec. 4th Sir Edward Cooper advocated its support. He pointed out that while the demand on the help which the Society could give was increasing, the restricted size of the present buildings, owing to the fire, greatly hampered the necessary work of the clerical staff; while, moreover, the cost of surgical instruments had increased. He earnestly pleaded for the sum of £30,000 to meet the need of an institution which was doing a splendid work, and which was undenominational, the only test of an applicant being "need." The Bishop of Kensington, the Rev. Father Bernard Vaughan, the Chief Rabbi, Sir A. Pearce Gould, Mr. Muirhead Little, and Colonel T. H. Openshaw, honorary consulting surgeon to the Society, among others, earnestly supported the Lord Mayor in his appeal, and at the close of the meeting the secretary announced that subscriptions amounting to £410 had been received during the afternoon. Contributions to the General Fund and to the Rebuilding Fund should be sent either to the Secretary, Mr. Richard C. Tresidder, at the Offices of the Society, Salisbury-square, Fleet-street, London, E.C. 4, or to Messrs. Barclay's Bank, Limited, 19, Fleet-street.

ROYAL MEDICAL BENEVOLENT FUND.—Sir Charters J. Symonds, honorary treasurer of the Royal Medical Benevolent Fund, 11, Chandos-street, Cavendish-square, W., sends the following appeal:—"This Fund has hitherto been able to send a Christmas gift of £1 to those who have received grants during the year, varying in amount from £5 to £12. There are 120 of these deserving people, and there is no cash in hand to meet the need."

SMALL-POX IN CHESHIRE.—Six cases of small-pox have been admitted to hospital in connexion with an outbreak of this disease at Bebington, Cheshire.

AT a meeting of the Worcestershire Insurance Committee, held on Dec. 6th, it was pointed out in the report of the subcommittee, which had been considering the terms of service, that it was laid down that a practitioner was required to give treatment to any applicant whether he produced a medical card or not, but that he "might" make a charge to a person who could not at the time produce evidence that he was insured. The Committee therefore recommended that representation should be made to the Minister, suggesting that it should be made clear that a doctor should be able to "demand" payment of his fee before treatment was given in the case of persons who could not produce evidence that they were insured. Mr. Willis Bund (chairman of the Worcestershire County Council) said he thought it was an underhanded attempt on the part of the Ministry to get out of the medical profession general treatment gratuitously for everyone. He quite agreed that a man who met with an accident or who was taken ill suddenly ought to have treatment, but to smuggle it in in that way seemed to him to be a dishonest proceeding. The recommendation was adopted.

DERBY MEDICAL SOCIETY.—A special clinical and pathological meeting of this society was held at the Derbyshire Royal Infirmary on Nov. 25th, Sir Richard Luce, the President, being in the chair.—The following cases and specimens were exhibited. The President: Epithelioma in Scar of Burn; the chief interest of this case was that the scar had been present since infancy, 74 years previously.—Mr. F. L. A. Greaves: A case of Laceration of the Frontal Lobe and one of Sarcoma of Clavicle.—Dr. Hugh Barber: Two cases of Renal Dwarfism, with Genu Valgum; this form of interstitial nephritis of children was illustrated with photographs and pathological specimens of other similar cases.—Major A. E. Milner: Some excellent Radiographs of Dr. Barber's cases, showing the irregular ossification of the bones.—Dr. C. D. Lochrane: Two specimens of Carcinoma of the Fundus Uteri, one quite early and the other later, and also Fibroid Uterus with large Hydrosalpinx.—Dr. A. L. Sherwood: A Heart case with musical bruit, audible one or two feet from the chest; unusual because it was early diastolic in time and due to aortic regurgitation.—Dr. H. G. W. Dawson: A case of Malignant Disease of the Superior Maxilla.—Dr. R. Douglas Laurie: An Operating Table made in a motor workshop in France from his own model, specially designed for chest and femur cases, the chief features being the arrangements for allowing the rotation of the patient and keeping continuous extension on the limb. It might be used with great advantage in civil practice for many cases.

LEEDS AND WEST RIDING MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held at the Leeds General Infirmary on Nov. 28th.—Mr. E. R. Flint read a paper on Gastric Ulcer, its Clinical and Surgical Aspects. After dealing with the symptomatology of chronic and recurring gastric ulcer and the recent experimental work which has been undertaken to determine its causation, Mr. Flint reviewed the various operative procedures which have been adopted for its treatment. He strongly advocated partial gastrectomy as the ideal procedure for chronic ulcers at the pylorus or on the lesser curvature, and the results in over 40 cases in which he had performed the operation added much weight to his contention.—Dr. H. B. Scargill exhibited a number of slides illustrating the X ray diagnosis of gastric ulcer and the specimens subsequently removed by operation, which confirmed the diagnosis. An interesting discussion followed.—Among the cases and specimens exhibited at the meeting were the following:—Sir Berkeley Moynihan: A specimen of three-quarters of the Stomach with attached portion of jejunum, including a gastro-enterostomy opening. The patient, a woman aged 36, suffered from the perforation of a gastric ulcer on May 17th, 1903, and a perforation of a second ulcer on May 30th, 1904; at the second operation a gastro-enterostomy was performed. Perforation of a third gastric ulcer occurred on Oct. 14th, 1914. Symptoms recurred, and on Nov. 2nd, 1919, a further operation was performed and a jejunal ulcer was found. The stomach with the scars of the three ulcers and the jejunum attached to it were successfully removed.—Mr. Harry Lee: A series of water-colour drawings of the Fundus Oculi showing injuries and abnormalities met with during the war.—Dr. W. H. Maxwell Telling and Professor M. J. Stewart: Specimens from a case of Endothelioma of the Dura Mater.

University of Manchester.—A public appeal is being made for £500,000, which is urgently needed by the University of Manchester. The University needs were already pressing in 1914, when an appeal was prevented by the war. A much larger number of teachers is required, and a considerable increase in equipment. Several new courses of instruction have been established, and more buildings will have to be erected. The pressure on space is most felt in the departments of chemistry and medicine, though all the departments are overflowing. The number of students in all faculties has increased by 700.

Dr. E. M. Brockbank has been elected a member of the Court of Governors of the University of Manchester, as representing members of Boards of Faculties who are not members of the Senate.

Birmingham Health Record.—The report of the medical officer of health for the third quarter of the year states that in every respect this quarter was one of the best on record. The general death-rate, 8·4 per 1000, was a record for any third quarter. The infant mortality rate was the lowest on record, being 68 per 1000 births. This is attributed to the efforts of the Public Health Committee and the better education of mothers.

General Hospital, Birmingham.—Dr. C. G. Teall, a former resident of the hospital, who has had experience of radiographic work in Salonika, has been elected to the newly created post of assistant radiographer with charge of the electro-therapeutical department. The work in this department and the X ray work of the hospital has greatly increased lately, and the need for a medical man to supervise them has become imperative. Dr. H. W. Featherstone has been elected to the post of assistant anæsthetist. There are now an honorary anæsthetist, three assistant anæsthetists, and a resident anæsthetist to cope with the very heavy surgical work of the hospital. There is a serious shortage of hospital beds in Birmingham, and it is estimated that about 1000 more beds are required to meet the needs of the district. One consequence of the lack of accommodation is that the beds are largely occupied by emergency cases and that there is great delay in admitting the ordinary surgical patients. The time of both surgeons and physicians is taken up with the treatment of acute emergencies entailing a considerable amount of operative work.

Mr. H. W. Archer-Hall, has been elected an assistant surgeon to the Birmingham and Midland Eye Hospital. Mr. Archer-Hall, who has been upon the resident staff for some time, was a member of the first medical expedition to Serbia, when he received the Cross of Mercy and the Royal Red Cross of Serbia.

Lieutenant-Colonel H. Norman Barnett, after more than five years on active service, has resumed his private work in Bath in connexion with diseases of the ear, nose, and throat.

The medical officers of health in Wales have formed a branch of the Society of Medical Officers of Health, and will hold their first meeting in Cardiff on Friday, Dec. 12th.

A Clinic in Psychiatry in Cardiff.—A representative meeting was recently held at Cardiff to consider the desirability of establishing a clinic in psychiatry. It was decided that an institute of 72 beds with gymnasium and workshops represented a minimum requirement to meet adequately the present needs. While the full scheme is under consideration, a proposal is on foot to establish a temporary clinic at the King Edward VII. Hospital, which will not only meet a public need, but will also provide opportunities for instruction in psychiatry when the reorganisation of the Welsh medical school is carried out.

Guest Hospital, Dudley.—At the annual meeting a report was submitted stating that the admissions during the year were 1195, a number considerably less than in any of the previous four years. The number of surgical out-patients was 4009 and the attendances about 20,000. These were the highest numbers recorded. The number of patients in the out-patient eye department was 2167, and attendances 7585. The income amounted to £8751 and the expenditure was £12,589. Since 1917 the adverse balance had increased from £1531 to £6461.

Mr. Charles Crossley, L.R.C.P. & S. Edin., M.R.C.S. Eng., a well-known member of the medical profession in Leicester, has recently died at the age of 63. The son of a medical man, he entered as a student at Guy's Hospital, and qualified in 1880. He was actively interested in political and municipal affairs, a prominent member of the Leicester town council, and in 1898–99 president of the Leicester Medical Society. He was a justice of the peace for the city, a Freemason, and surgeon to the Provident Dispensary.

Donations and Bequests.—Dr. John Aitken, of Falkirk, has left the residue of his estate, probably about £60,000, one-half to provide a temperance public-house or houses and the other half to the necessitous poor of Falkirk.—The Royal Infirmary, Liverpool, has received an anonymous gift of £20 000.—Guy's Hospital has received an anonymous gift of £20,000.—The Committee of the Sea Services Commemoration, in winding up the business of the Thames River Pageant, have allocated the surplus of the funds in hand, amounting to about £3000, equally to seamen's hospitals at London, Liverpool, and Marseilles.—By the will of the late Mrs. Eliza Avins, of Glenwood, Moseley, Birmingham, the testatrix bequeathed £2000 each to the Royal Orthopædic Hospital, Birmingham, and the Queen's Hospital, Birmingham, £1000 each to the Women's Hospital, the Eye Hospital, and the Ear and Throat Hospital; £500 each to Moseley Hall Convalescent Hospital. Subject to certain legacies to individuals, the testatrix also left £1000 each to the Deaf and Dumb Institution, Birmingham, and the Blind Institution, with the ultimate residue of her property to the Royal Orthopædic Hospital and the Women's Hospital, Birmingham.—By will the late Mr. J. Scott, of Wolverhampton, has left £5000 to the Wolverhampton and South Staffordshire General Hospital, for additions thereto, to be known as the "John Scott Wing," £500 each to the Wolverhampton and District Hospital for Women, the Wolverhampton and Midland Counties Eye Infirmary, and the Royal Orphanage, Wolverhampton.—Mr. George Barbour, of Bolesworth Castle, Cheshire, who died recently, has bequeathed £5000 to the Chester Royal Infirmary.—The Manchester Royal Infirmary has received an anonymous donation of £20,000. The sum is available for any or every branch of the infirmary work. The infirmary requires an increased income of £9000 a year to restore the finances to a satisfactory condition.

Parliamentary Intelligence.

HOUSE OF LORDS.

Tuesday, Dec. 2nd.

The Rats and Mice (Destruction) Bill was read a third time and passed.

HOUSE OF COMMONS.

Wednesday, Dec. 3rd.

Replacement of Older Medical Officers.

Mr. Leonard Lyle asked the Secretary for War if he would say what steps, if any, his department was taking to replace the older doctors in the Royal Army Medical Corps by younger men who had just left hospital, especially in view of the fact that most of the older men left their practices in order to serve their country for the duration of the war.—Mr. Churchill replied: The older doctors who wish to be demobilised are being released as rapidly as possible as establishments are reduced or substitution by younger men who have signed the new contract is effected. Any newly qualified medical man who desires to serve in the Royal Army Medical Corps is given a six months' commission provided he is fit for general service and under 45 years of age, but I regret that the number of those electing to serve has not up to the present been as large as was hoped.

Vitamines in Butter and Margarine.

Mr. Charles Edwards asked the Prime Minister whether he had received a communication from the Monmouth County Council enclosing a report upon the relative values of margarine and butter; and whether he would consider altering the law so as to compel the makers of margarine to ensure that it should contain the vitamines similar to those in natural butter, and to which much of its food value was due.—Dr. Addison replied: I have seen a copy of a resolution of the Monmouthshire County Council on this subject, and I should be glad to receive a copy of the report therein mentioned. The presence or absence of what are known as vitamines in various articles of food is at the present time the subject of active research. I am afraid, however, that the knowledge at present available is not at present sufficient to make the honourable Member's suggestion a practicable one.

Thursday, Dec. 4th.

Medical Institutions under the Insurance Act.

Lieutenant-Colonel Sir Alfred Warren asked the Minister of Health if he would state how many Friendly Societies' medical institutions approved under Section 15, Subsection (4), of the National Health Insurance Act were now in existence; how many of such approved medical institutions had ceased to exist since the coming into operation of the National Health Insurance Act, and what cause (other than insufficiency of income) had brought about their dissolution; whether any complaints had been made to the National Health Insurance Commission or the Ministry of Health as to the lack of efficiency of the medical service to insured persons rendered by such approved institutions; if so, whether such complaints had been investigated and established by any impartial or competent authority under the Insurance Act; and if he would say why the Ministry of Health was not prepared to pay approved medical institutions for services rendered to insured persons such amounts pro rata in fees and additional bonuses granted by the Treasury towards increased expenses upon the same recognised basis as the Ministry had been and were now paying the panel doctors engaged in private practice and rendering similar services under the Insurance Act.—Dr. Addison replied: I would refer my honourable friend to the correspondence which I am sending him showing that every one of the approved medical institutions referred to in his question is being afforded the opportunity of submitting a claim for grants analogous to those which have been made to insurance practitioners. It would take some little time to furnish the whole of the information asked for in the early part of the question as it is not readily available; but I shall be pleased to have particulars sent to my honourable friend if, after consideration of the correspondence which I am sending him, he considers that any useful purpose would be thereby served.

Amendment of National Health Insurance Act.

Mr. Kiley asked the Prime Minister whether he could state when the Bill would be introduced to amend the law of health insurance under the National Insurance Act.—The Prime Minister replied: This question is at present under consideration by the Government, and I cannot therefore make any statement at present.

Vaccination in Ireland.

Mr. Waterson asked Mr. Attorney-General for Ireland whether he was aware that hundreds of defaulters under the Vaccination Acts were being prosecuted or threatened with prosecution in county Wexford; that during the past few months large numbers of men from the town of Wexford had suffered imprisonment in default of paying fines under the Vaccination Acts; and that at the present time large numbers at New Ross and Gorey were liable to imprisonment in default of payment; and what was the reason for the differential treatment meted out to Irish disbelievers in vaccination as compared with the state of the law in England, Wales, and Scotland.—Mr. Henry (Attorney-General for Ireland) replied: The guardians of the Wexford, New Ross, and Gorey Unions are enforcing the Vaccination Acts and, where necessary, institute legal proceedings at petty sessions. Vaccination is compulsory in Ireland, and the King's Bench Division have enforced the application of the Acts by mandamus. The punishment inflicted is a matter for the court before which the case comes.

International Opium Convention, 1912.

Sir J. Agg-Gardner asked the Home Secretary when he proposed to introduce the Bill which had been drafted to give effect to the terms of the International Opium Convention, 1912, in order that pharmacy legislation might be in accord with the Convention and the requirements of Article 295 of the Treaty of Peace.—Mr. Shortt replied: I hope a Bill for the purpose mentioned may be introduced early next session.

Nurses' Registration (Scotland) Bill.

Mr. Munro (Secretary for Scotland) presented a Bill "to provide for the registration in Scotland of nurses for the sick." The Bill was read a first time.

FRIDAY, DEC. 5TH.

The Mental Deficiency and Lunacy Amendment Bill was read a third time.

MONDAY, DEC. 8TH.

Success of the Panel System.

Lieutenant-Colonel Claude Lowther asked the Minister of Health whether evidence could be produced to show that the panel service had improved the health of the nation.—Dr. Addison replied: The working of the medical benefit under the Insurance Act had been scarcely 18 months in existence when war broke out, and the disturbing effects of war conditions which have prevailed over the greater part of the period during which it has been in operation make it impossible to produce concrete evidence which would measure the improvement in the health of the nation due to the insurance medical service.

Cost of a State Medical Service.

Lieutenant-Colonel Claude Lowther asked the Minister of Health whether he would indicate what amount of money was required to give the whole community an efficient medical service.—Dr. Addison: If my honourable friend means a complete system of medical services of the different kinds needed for the varied requirements of the whole community I cannot at the present moment hazard an estimate of the cost.

Phthisis Before and After the War.

Lord Robert Cecil asked the Minister of Health what was the mortality rate due to phthisis during the year before the Insurance Act was passed, the year before the war, and last year.—Dr. Addison replied: The mortality rate for pulmonary tuberculosis in England and Wales in the years in question was as follows: In 1910, 1·015; in 1913, 1·004; and in 1918, 1·343. The figure for 1918 is based upon figures of the civilian deaths and civilian population only, and regard must be had to various considerations before drawing an inference from it as compared with the figures given for 1913 and 1910.

TUESDAY, DEC. 9TH.

Vaccination in Ireland.

Mr. Hayday asked the Chief Secretary to the Lord Lieutenant of Ireland whether, in view of the position of opponents to vaccination in Ireland, hundreds of objectors to the operation being liable to prosecution, he could see his way at once to introduce an Act exempting from the provisions of the compulsory law those who honestly objected to vaccination, and thus bring the law into line with that prevailing in Great Britain.—Mr. Macpherson replied: It is not proposed to alter the existing vaccination law in Ireland.

Divorce and Insanity and Inebriety.

Lieutenant-Colonel Raw asked the Secretary for the Home Department if he would state what was the number of married persons certified as insane in England and Wales and the average number of cases which recovered annually after five years' confinement; and whether the Government would introduce legislation to enable sane parties to obtain divorce in cases of insanity declared incurable after such period of confinement.

Lieutenant-Colonel Raw asked the Secretary for the Home Department if he would state what was the number of married persons annually committed by courts to inebriate reformatories and the percentage of such cases that recovered after three years' confinement; and whether the Government would introduce legislation to enable the innocent spouse to obtain divorce in cases of inebriety declared incurable?—Major Baird (Under Secretary for Home Affairs) replied: I will answer these questions together. My right honourable friend the Home Secretary has made inquiry and finds that there are no recent figures available. It is very difficult to say when an insane person or an inebriate is cured, and it would be almost impossible to collect statistics on the lines suggested in the questions. The Royal Commission on Divorce in the report which they issued in 1912 discussed fully the question of incurable insanity and inebriety in relation to divorce, and gave such figures as could be obtained. Until there is some measure of agreement on this very controversial question legislation is difficult, and I fear that I can add nothing to the reply given by the Leader of the House on August 6th last.

Ministry of Pensions Vote.

On a Supplementary Vote for the Ministry of Pensions,

Sir L. Worthington-Evans (Minister of Pensions) stated that there was an increase of £10,000,000 due to recommendations of the Select Committee on pensions and allowances. There was an increased cost of £5,700,000, due to the larger number of men coming forward for pensions this year than was expected, owing to the rapid demobilisation of the forces. Referring to the advances and improvements made in the treatment of disabled men, Sir L. Worthington-Evans remarked that there had been an increase in the cost of treatment amounting to the large sum of £10,000,000.

Sanatoriums for Tuberculous Service Men.

On a vote of £10,000 for Ministry of Labour (Unemployment Exchanges),

Mr. S. Baldwin (Financial Secretary to the Treasury) said that great anxiety had been felt by the Ministry of Health and the Ministry of Pensions regarding the treatment of discharged men suffering from tuberculosis. He understood that the accommodation in the country was insufficient for the needs of these men. This sum of £10,000 was the amount which it was estimated that the Office of Works would have to spend in erecting additional sanatoriums for the Ministry of Health between now and the end of the current financial year. The whole scheme would involve for buildings something like £250,000, and it would enable the Department to treat 1000 additional patients. The work would be executed with the utmost regard for economy, and army huts would be utilised as far as possible. Arrangements were being made with the local sanitary authorities, giving them the option of taking over the buildings and equipment at the end of a period of five years on terms very favourable to themselves.

The vote was agreed to.

Nurses' Registration.

The Nurses Registration (Ireland) Bill passed through Committee and was read a third time.

The Nurses Registration (Scotland) Bill was passed through all its stages.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

Tuesday, Dec. 16th.

GENERAL MEETING OF FELLOWS: at 5 p.m.
Ballot for Election to the Fellowship. (Names already circulated.)

MEETINGS OF SECTIONS.

Wednesday, Dec. 17th.

HISTORY OF MEDICINE (Hon. Secretaries—Arnold Chaplin, F. G. Crookshank): at 5 p.m.
Papers:
Professor F. J. Cole: The History of Anatomical Injections.
Professor Clifford Dobell: The Discovery of the Intestinal Protozoa of Man.
N.B.—Visitors are cordially welcome.

Thursday, Dec. 18th.

DERMATOLOGY (Hon. Secretary—Henry MacCormac): at 5 p.m.
Cases and Specimens (4.30 p.m.):
Mr. F. Cuthbert: Picture of Granuloma Venereum.
Dr. Sibley: Mycosis Fungoides.
Dr. Graham Little: (1) Calcinosis with Pigmentary Skin Lesions; (2) Generalised Rodent; (3) Mycosis Fungoides (?)
Dr. Haldin Davis: Extensive Scaly Eruption, following Prolonged Administration of Organic Arsenic.

Friday, Dec. 19th.

ELECTRO-THERAPEUTICS (Hon. Secretaries—Walter J. Turrell, Stanley Melville): at 8.30 p.m.
Paper:
Dr. J. C. Mottram: The Leucocytic Content in Radium Workers.
Adjourned Discussion—
On Major Cooper's paper: The Artificial Stimulation of Muscle, with Demonstration of a New Form of Faradic Coil.
This paper is printed in the current issue of The Lancet.

ROYAL SOCIETY OF ARTS, John-street, Adelphi, W.C.
Monday, Dec. 15th.—8 p.m., Cantor Lecture: Dr. J. T. Hewitt: Synthetic Drugs. (Lecture III.)

ROYAL MICROSCOPICAL SOCIETY, at the Northampton Polytechnic Institute, St. John-street, Clerkenwell, E.C.
Wednesday, Dec. 17th.—7.30-10.30 p.m., Conversazione.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL INSTITUTE OF PUBLIC HEALTH, in the Lecture Hall of the Institute, 37, Russell-square, W.C.
Course of Lectures on Housing Problems and Town Planning in Relation to Public Health.
Wednesday, Dec. 17th.—4 p.m., Lecture VIII.:—Dr. I. G. Gibbon, C.B.E.: Housing and the Slum Problem.
Course of Instruction for Candidates as Tuberculosis Officers, General Practitioners, and others. Bacteriological Demonstrations will be given in the Laboratories of the Institute, and visits arranged to Sanatoriums, Tuberculosis Dispensaries, &c.
Thursday, Dec. 18th.—5 p.m., Lecture XI.:—Dr. J. D. Grant: Tuberculosis of the Larynx—Treatment, especially in the Home.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.
Wednesday, Dec. 17th.—4.30 p.m., Lecture:—Dr. A. H. Gosse: Auricular Fibrillation.

NATIONAL HOSPITAL FOR DISEASES OF THE HEART POST-GRADUATE COURSE, Westmoreland-street, W.
Monday, Dec. 15th.—11 a.m., Out-patients: Dr. Goodall. 2 p.m., In-patients: Dr. Moon.
Tuesday.—2 p.m., Out-patients: Dr. R. Wells. 2.30 p.m., In-patients: Dr. Gibbes.
Wednesday.—2 p.m., Out-patients: Dr. Moon. 5.30 p.m., Lecture:—Dr. Moon: Cardio-Vascular Neuroses.
Thursday.—10 a.m., In-patients: Dr. Hamill: 2 p.m., Out-patients: Dr. Price.
Friday.—2 p.m., Out-patients: Dr. Gibbes. 2.30 p.m., In-patients: Dr. Wells.
Saturday.—10 a.m., In-patients: Dr. Hamill.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE CLINIC.
Tuesday, Dec. 16th.—4.30 p.m., Lecture:—Mr. J. H. Ray: Tumours of the Thyroid.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to The Lancet *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

Apperly, F. L., M.B., B.Ch. Oxon., M.R.C.S., L.R.C.P., has been appointed Lecturer in Pathology at the University of Melbourne.

Archer-Hall, H. W., D.O. Oxon., M.R.C.S., Assistant Surgeon, Birmingham and Midland Eye Hospital.

Davidson, M., M.D. Oxon., M.R.C.P. Lond., Physician in charge of Out-patients, Royal Waterloo Hospital for Children and Women.

Edmunds, A., C.B., M.B., M.S., B.Sc., Surgeon to King's College Hospital.

Franklin, P. J., F.R.C.S., Surgeon in Charge of the Throat and Ear Department of the East London Hospital for Children.

Haines, R. L., M.R.C.S., L.R.C.P. Lond., Assistant Surgeon to the Gloucestershire Royal Infirmary and Eye Institution.

Reynolds, A. E., M.R.C.S., Assistant Ophthalmic Surgeon to the Miller General Hospital, Greenwich.

Certifying Surgeons under the Factory and Workshop Acts: Colgan, J., M.B., Ch.B. Dub. (Lancs); Fitzgerald, J., (Ballinrobe No. 2 District); Williams, G., M.B., Ch.B. Edin. (Gatehouse); Cooper, F. W., L.R.C.P. & S. Edin., L.F.P.S. Glasg. (Princes Risborough); Crosbie, K. C. (Grassington); McKenna, J. A., L.A.H. Dub. (Monasterevan); Lee, M. P., L.R.C.P. & S. Irel. (Newport, Mayo); Robertson, H. (Cleator); Jamison, A., M.B., B.Ch. R.U.I. (Ballylesson).

Vacancies.

For further information refer to the advertisement columns.

Aberdeen Royal Hospital for Sick Children.—Hon. S. for Diseases of Ear, Nose, and Throat, and Hon. Asst. S.
Beckenham Education Committee.—Sch. Dent. £450.
Birmingham City Education Committee. Asst. Sch. M.O.'s £450.
Birmingham General Hospital.—H.S. and H.P. £100. Res. Anæsth. £100.
Birmingham, Queen's Hospital.—Two H.P.'s, Two H.S.'s, and Cas. H.S. £90.
Bolingbroke Hospital, Wandsworth Common, S.W.—Secretary. £300. Hon. Radiographer and Medical Electrician.
Bradford City Infant Clinic.—Female Asst. M.O. £400.
Bristol General Hospital.—Cas. H.S. £175.
British Honduras.—Asst. M.O. $1900.
Burnley County Borough.—Tuber. O. and Director of Municipal Laboratory. £600. Asst. Sch. M.O. £500.
Buxton, Derbyshire, Devonshire Hospital. Asst. H.P. £120.
Chelmsford, Essex County Council.—Asst. County M.O.H. £600.
Chelmsford, Essex Education Committee.—Sch. Med. Inspec. £400.
Chesterfield and North Derbyshire Royal Hospital.—Sen. H.S. £300.
Chester Royal Infirmary.—H.P. £150.
City of London Hospital for Diseases of the Chest, Victoria Park, E.—H.P. £100.
Cockermouth Board of Guardians.—M.O.'s. £80 and £50. M.O.H.'s. £70 and £450.
Colchester, Essex County Hospital.—H.P. £200.
Darlington County Borough.—Asst. M.O.H. and Asst. Sch. M.O. £450.
Darlington General Hospital.—H.S. £250.
Derby, Derbyshire Royal Infirmary.—H.S. £200. Two Anæsth. and S. for X ray, &c., Dept.
Dorchester, Dorset County Council Education Committee.—School Dentists. £400.
Dumfries, Crichton Royal.—Asst. P. £350.
Dumfries and Galloway Royal Infirmary.—Res. H.S. £150.
Durham County and Sunderland Eye Infirmary.—H.S. £450.
Durham County Council.—Dis. Tuberc. M.O. £600.
East African Protectorates.—M.O.'s. £400-£20-£500.
Edinburgh Corporation.—Asst. Clin. M.O. £500.
Gloucestershire Joint Committee for Tuberculosis.—Asst. Tuberc. M.O. £500.
Gloucestershire Royal Infirmary and Eye Institution.—Ophthal. S.
Great Northern Central Hospital, Holloway, London, N.—Cas. O. £200. Two Anæsth. £10 10*s.*
Guildford, Royal Surrey County Hospital.—Third H.S. £150.
Guy's Hospital.—Hon. Asst. P.
Huddersfield County Borough.—Female Asst. M.O.H. £400.
Hull Royal Infirmary.—Asst. H.S. £150.
Kensington Royal Borough.—M.O.H. £800.
Leamington Spa, Warneford, Leamington, and South Warwickshire General Hospital.—Res. H.P. £200.
Leeds Public Dispensary.—Res. M.O. £200.
Liverpool, Stanley Hospital.—M.O. for Venereal Clinic. £150.
London Homœopathic Hospital, Great Ormond-street, Bloomsbury, W.C.—S. for Diseases of Throat, Nose, and Ear. S. to Hospital.
Macclesfield, Cheshire County Asylum.—Jun. Asst. M.O. £300.
Manchester Royal Infirmary.—H.S. to Aural, Gynæc., and Ophth. Depts. £100.
Manchester, St. Mary's Hospitals for Women and Children.—H.S. £100.
Middlesex Hospital.—P. in Charge of Physical Medicine Dept. and S. to Orthopædic Dept.
National Hospital for the Paralysed and Epileptic, Queen-square, W.C.—H.P. £150.
Newcastle-upon-Tyne, Hospital for Sick Children.—Junior Res. M.O. £200.
Nottingham City Asylum.—Second Asst. M.O. £300.
Nottingham General Hospital.—Cas. H.S. £150.
Oldham Royal Infirmary.—Third H.S. £200.
Peterborough Infirmary.—H.S. £150.
Portsmouth Borough.—Asst. M.O.H. and Chief Tuberc. O. £600.
Reading, Royal Berkshire Hospital.—Senior Res. M.O. £350. Also Hon. S. to the Aural Dept.
Richmond, Surrey, Borough.—M.O.H. £800.
Royal College of Physicians, Pall Mall East.—Milroy Lecturer.
Royal Free Hospital, Gray's Inn-road, W.C.—First H.P., Second H.P., and Anæsth. £50.
Royal Waterloo Hospital for Children and Women, S.E.—Hon. Oph. S. Sen. and Jun. Res. M.O. £150 and £100 each.
St. George's Hospital, S.W.—Dent. S. and Asst. Dent. S.
Salford Royal Hospital.—Cas. H.S. £150.
Sheffield Royal Infirmary.—Asst. H.P. and H.S. £150.
Singapore, Straits Settlements.—Med. Supt. Infectious Diseases Hospital. $7200 (£840).
South London Hospital for Women, South Side, Clapham Common, S.W.—Female Asst. Path.
Stafford, Staffordshire County Council.—Dep. County M.O.H. £700.
Stafford, Staffordshire Education Committee.—Asst. Sch. Med. Inspectors. £450.
Stepney Tuberculosis Dispensary.—Asst. Tuberc. O. £350.
Swansea County Borough.—Asst. M.O. £450.
Tiverton Hospital, Devon.—H.S. and Disp. £100.
University of London, South Kensington, S.W.—University Chair of Pathology. £800.
Ventnor, Isle of Wight, Royal National Hospital for Consumption and Diseases of the Chest.—Asst. Res. M.O. £200.

Wakefield, West Riding Asylum.—Jun. Asst. M.O. £400.
Wakefield, West Riding County Council.—School Oculist. £550.
West-End Hospital for Nervous Diseases, 73, Welbeck-street, W.—P.
West Ham Union Infirmary, Whipps Cross-road, Leytonstone, E.—Radiographer.
Whittingham, Preston, Lancs, County Asylum.—Asst. M.O. £300.
Wolverhampton and Staffordshire General Hospital.—H.S. £200.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Derby, Gosport, Limerick, Southend, Lostwithiel, and at Rotherham.

Births, Marriages, and Deaths.

BIRTHS.

ALLEN.—On Nov. 23rd, at Ebor House, Blackheath, the wife of T. S. Allen, Captain, R.A.M.C., of a daughter.

FRANKAU.—On Dec. 5th, at Tenby-mansions, Nottingham-street, W., the wife of Claude Frankau, C.B.E., D.S.O., F.R.C.S., of a daughter.

MADGE.—On Dec. 2nd, at Brookside, Ashbourne, Derbyshire, the wife of Quintus Madge, O.B.E., M.R.C.S., L.R.C.P., of a daughter.

MARSHALL.—On Dec. 1st, at Coates-crescent, Edinburgh, the wife of Herbert F. Marshall, F.R.C.S.E., of a daughter.

NEIL.—At 77, Ullet-road, Liverpool, on Dec. 7th, to Dr. and Mrs. J. Campbell Neil, of Spring Vale House, Middleton, Lancs—a daughter.

NEVE.—On Dec. 5th, at Addiscombe-road, Croydon, Elsie, the wife of Clement Treves Neve, F.R.C.S., of a daughter.

MARRIAGES.

JONES—NORTH.—On Dec. 3rd, at St. Mary's, Kensington, Cecil Meredith Jones, M.B., B.S. Lond., elder son of the late J. Evans-Jones, M.D., Cathedral-road, Cardiff, and Mrs. Jones, Rosetta, Porthcawl, to Muriel, elder daughter of T. North, M.D., F.R.C.S.I., and Mrs. North, 55A, Welbeck-street, W.1, and New Southgate, N.11.

LAKE—DRYSDALE.—On Dec. 3rd, at the Parish Church, Beaminster, Herbert Arnold Lake, M.B., &c. (late Major, R.A.M.C.), to Stella Helen Drysdale, younger daughter of the late John Drysdale, of Castellaw House, Dunbar, and of Mrs. Drysdale, of Knowle Cottage, Beaminster.

THOMSON—DOBRÉE.—At the Church of Transfiguration, Hull, William Thomson, F.R.C.S., to Doris, elder daughter of Mr. and Mrs. N. P. Dobrée.

DEATHS.

RUTHERFORD.—On Nov. 20th, at Davenant-road, Oxford, Robert Leonard Rutherford, M.D., late Medical Superintendent Exeter Mental Hospital, aged 62 years.

SLOGGETT.—Suddenly, at Bournemouth, Colonel Henry Maxwell Sloggett, A.M.S., Ret.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Communications, Letters, &c., to the Editor have been received from—

A.—*American Journal of Electro-therapeutics and Radiology*, New York, Editor of.

B.—Board of Education, Lond.; Dr. H. N. Barnett, Bath; British Hospitals Association, Lond.; Dr. H. S. Banks, Motherwell; Dr. G. S. Buchanan, C.B., Lond.; Dr. G. Blacker, Lond.; Prof. J. M. Beattie, Liverpool; Mrs. A. Berkeley-Hill, Lond.

C.—Dr. S. D. Clippingdale, Lond.; Dr. H. P. Cholmeley, Forest Row: Capt. H. N. Collier, R.A.M.C.(T.); Dr. E. L. Collis, Swansea; Dr. F. Clifford, Swansea; Dr. H. C. Cameron, Lond.

D.—Decimal Association, Lond.; Dr. J. Donelan, Lond.

E.—Dr. A. M. Elliot, Lond.

F.—Dr. H. Frankling, C.B.E., Harrogate.

G.—Dr. A. M. H. Gray, C.B.E., Lond.; Dr. T. Godfrey, Lond.; Sir John Goodwin, K.C.B., C.M.G., D.S.O.; Capt. R. L. Gamlen, R.A.M.C.; Sir James Galloway, K.B.E., Lond.

H.—Dr. J. W. Harrison, Lond.; Dr. J. B. Hunt, Vienna.

I.—Imperial War Museum, Lond.

K.—Dr. A. Kidd, Gravesend; Mr. G. L. Keynes, Lond.; Dr. W. H. Kesteven, Lond.

L.—Mrs. H. Lewis, Lond.; Dr. C. E. Lakin, Lond.; Dr. D. Logan, Newmains; Dr. J. L. London, Hamilton.

M.—Mr. G. Mayall, Bolton; Dr. J. Macdonald, Huelva; Mental After-Care Association, Lond., Sec. of; Ministry of Health, Lond.; Mission to Lepers, Lond., Sec. of; Dr. R. L. Newell, Manchester; Dr. T. H. Morse, Deal; Dr. P. Manson-Bahr, D.S.O., Lond.; Capt. G. Maclean, R.A.M.C.

N.—Marquis of Northampton, Lond.

O.—Mr. E. Owen, Holyhead.

P.—Capt. J. Pickering, Portsmouth; Dr. R. H. A. Plimmer, Aberdeen; Dr. A. S. Percival, Newcastle-on-Tyne; Dr. E. Prideaux, Cambridge; Mr. F. Pamphilon, Gloucester.

R.—Dr. J. D. Rolleston, Lond.; Dr. W. H. Rowell, O.B.E., Stockport; Royal Institute of Public Health, Lond., Sec. of; Royal Sanitary Institute, Lond.

S.—Dr. H. B. Shaw, Lond.; Dr. C. Slater, Lond.; Dr. F. St. J. Steadman, Lond.; Dr. W. C. Sullivan, Lond.; Prof. Dr. N. Saroaja, Bologna.

T.—Transvaal Education Dept., Pretoria; Capt. J. W. T. Thomas, R.A.M.C.

V.—Dr. S. Voronoff, Paris; Mrs. M. R. Verden, Lond.; Mr. R. M. Vick, Lond.

W.—Dr. J. T. Wilson, Lond.; Mr. H. B. Whitehouse, Birmingham; Dr. G. A. Watson, Leeds; Dr. F. J. Waldo, Lond.; Dr. R. McN. Wilson, Lond.; Dr. C. M. Wenyon, Lond.

Communications relating to editorial business should be addressed exclusively to the Editor of THE LANCET, 423, Strand, W.C. 2.

Notes, Short Comments, and Answers to Correspondents.

PUBLIC HEALTH IN EGYPT, 1917.

THE report for 1917 is a summary only of the work carried out during that year, owing to the severe strain on the department caused by war conditions. It is, on the whole, satisfactory. The population of the country by Census (1917) was 12,566,000, of whom 221,130 were foreigners, chiefly of Turkish, Greek, Italian, British, and French nationality. Of the 20 principal towns, Cairo had 753,800 inhabitants, including 75,000 foreigners (approximately), Alexandria 442,500 (with 79,000 foreigners), Port Said 76,100, and Tantah 58,523. The birth-rate for the whole country was 40·5, and the death-rate 29·7; in the province of the Fayum the birth-rate was 48·3, in Aswân it was only 32·1, the death-rates in these two provinces being 34·1 and 24·1 respectively. No considerable epidemic occurred in 1917, except one of relapsing fever (11,162 cases and 1043 deaths, of which 8156 cases and 728 deaths were in the Canal governorate), and a prevalence, though with diminished intensity, of typhus (18,569 cases and 4174 deaths, compared with 30,507 cases and 7096 deaths in 1916). An attempt was made to test the relative values of measures based on the theory of louse infection, and of those based on infection by inhalation; isolation of cases and observation of contacts were carried out in all instances; steam disinfection of the clothing of patients and contacts and of dwellings took place in one set of observations, and no disinfection whatever in the other. Measures based on the louse infection theory gave considerably better results, and have since been applied universally. There were 732 cases of plague, compared with 1702 in 1916; the case-mortality was 54·5 per cent. Suez had 318 cases with 195 deaths, and in the Fayum there were 148 cases with 77 deaths. Only two cases occurred in Cairo. There had been no plague in Suez since 1907. The overcrowding by casual labourers in recent years (due to the war) was, no doubt, the cause of the epidemic spread. Additional legal powers for dealing with cholera were granted by Statute, and owing to the unceasing and extreme care taken in the inspection of vessels and passengers, &c., Europe was saved from the danger of an invasion on several occasions. It would be impossible to over-estimate the importance of this administrative achievement. There were 1567 cases of small-pox, with 409 deaths, the prevalence being the lowest during the last nine years. The Anti-rabic Institute continued its good work; 971 persons were treated in all, from which number are to be deducted 327, either for non-attendance, or because the biting animal was proved to be healthy; 644 cases were fully treated, with 6 deaths (0·9 per cent.); 6 other deaths occurred either during treatment, or less than 15 days after its completion.

PUBLIC HEALTH AT HONG-KONG IN 1918.

THE total civil population of the island of Hong-Kong (1918) is estimated at 561,500, of whom 13,500 are "non-Chinese," chiefly of British, Portuguese, and Indian nationality; the actual number of the Chinese is probably much larger than the residue. The death-rate among Europeans was 13·0 per 1000 (excluding naval and military forces), for Indians 11·8, and for Chinese 24·5 per 1000. The chief causes of death among the non-Chinese were pneumonia (32), phthisis (30), typhoid fever (15), influenza (14), heart disease (13), and cerebro-spinal fever (11); only 6 deaths were due to malaria. Among the Chinese pneumonia caused 2219 deaths, phthisis 1035, cerebro-spinal fever 957, enteritis 819, beri-beri 800, general tuberculosis 469, malaria 392, and influenza 391. Out of 1913 notifications of infectious disease during the year, 1235 were cases of cerebro-spinal fever; there were 968 deaths, 19 cases and 11 deaths being among Europeans. There was also an influenza prevalence, especially in June, when 269 cases were admitted to the Civil Hospital, but the disease was not of a severe type. At Kowloon (on the mainland) there was an outbreak of cerebro-spinal fever, lasting from February until December. 329 cases were recorded, with 265 deaths, but Dr. J. T. Smalley, the medical officer in charge, states that "the number of cases was undoubtedly much larger." It is very satisfactory to learn that the Chinese are coming in greatly increased numbers to the Government dispensary for medical and surgical treatment; the number of patients was 13,378 compared with 9406 in 1917. "The increase from a little over 3000 in 1913 to 13,000 in 1918 illustrates plainly the gradual disappearance of the aversion of the Chinese race to our medical and surgical treatment." Similar appreciation of European care and skill is evidenced by the increased attendances at and admissions to other hospitals in the colony. It is strong testimony to the skill and kindness of those who in these far-away stations pursue the healing art amid what must often be depressing surroundings. The mean temperature in January was 54° F., in July it was 81·8°. From May to October the monthly mean was above 70°. The rainfall was 101·6 inches, being 20 inches more than in 1917. The relative humidity exceeded 80 from March to September, inclusive (monthly means); 84 inches of rain were recorded during the four months, June to September. The principal civil medical officer, Dr. C. W. McKenny, and the medical officer of health, Dr. A. D. Hickling, report on the health of the colony generally, and the various civil hospitals and asylums are reported on by the physicians and surgeons in charge.

"THE CAUSES OF INFANT MORTALITY."

AT the last Chadwick public lecture of the autumn programme, delivered at the Hampstead Town Hall on Dec. 4th, Dr. H. J. Cates stated that insanitation was probably the most potent influence in the destruction of child life. Unhealthy homes lowered the vitality of parents and endangered child life at the most susceptible period, the first five years of life. The survey of housing recently carried out through the country had, he said, revealed an appalling condition of affairs. Since 1914 little work had been done in remedying defects, and as a result cottage property had fallen into disrepair. The cessation of building had led to overcrowding—in one industrial area alone it was estimated that 24 per cent. of the houses were overcrowded. Little or nothing could be done to remove the present insanitary conditions and to check the waste of life until there was an adequate supply of new houses.

Dr. Cates then went on to speak of an increase in venereal disease as one of the expected results of the war. Ophthalmia in the new-born, bringing with it the risk of life-long blindness, was increasing. In one district, with a population of 100,000 persons, there had been 70 per cent. more ophthalmia this year than in 1918. Ophthalmia could be prevented by cleanliness, and by the skilful use of appropriate lotions at the time of birth, but unfortunately the supply of trained midwives was not sufficient for the purpose.

MORE HINTS FOR CRIPPLES.

IN the *Badminton Magazine* for October Mr. G. M. Townsend, Deputy Conservator of the Indian Forest Service, continues the useful hints to cripples which first appeared in the March issue. Mr. Townsend speaks of what he knows, for he lost his leg above the knee-joint 13 years ago, and has been devoting his leave to a practical study of the ways of training war cripples in the use of their artificial limbs. He has visited the Queen Mary's School for Disabled Soldiers in Bombay, the École Joffre and the École Foch at Lyons, and the training centres at Roehampton and St. Thomas's Hospital. He warmly recommends the system of training adopted at the last-named, but fears that comparatively few of the men will persevere with the exercises when the stimulus of competition and supervision is removed. In order to meet this drawback and provide an abiding stimulus to complete recovery of working efficiency he wishes to organise a small club for disabled officers interested in games and athletic pastimes, so that they can exchange experiences and learn the easiest and best ways of carrying on. Among the special points on which Mr. Townsend lays stress are the fundamental importance of swimming as a preliminary to other forms of exercise and the need of a special riding saddle for use with an artificial leg. A practical form is here described. Mr. Townsend's keen interest in his fellow cripples is certainly being directed into fruitful channels.

THE METROPOLITAN WATER-SUPPLY DURING JULY, AUGUST, AND SEPTEMBER, 1919.

THE comparatively dry weather of July resulted in an improved condition as regards chemical quality of the raw river waters (Thames, Lee, and the New River), the rainfall being 2·36 inches, which is 0·04 of an inch below the average mean rainfall for this month during the previous 36 years (Thames Basin). There was in some instances, however, a deterioration in the chemical quality of the filtered waters, though bacteriologically they were satisfactory. The results were better all round compared with the averages for the year 1918. The returns for August showed an increased rainfall (2·80 inches) by 0·19 of an inch above the average mean rainfall for that month during the previous 36 years. In spite of this the results of chemical examination showed that, generally speaking, all three raw waters improved in quality, and the same appeared to be the case with the filtered waters. Compared with the averages for the year 1918 all three raw waters yielded better results chemically, as did the filtered waters, and contained fewer bacteria. In September the rainfall was comparatively low, 1·77 inches, being 0·29 of an inch below the average mean rainfall for that month during the previous 36 years. This corresponded with a deterioration as regards chemical quality in both raw and filtered waters. On the other hand, all three raw waters contained fewer bacteria compared with the averages for the year 1918, and the filtered waters gave satisfactory results. The purifying effect of storage is again brought out in the general results, nearly the whole of the supply being now stored antecedent to filtration.

A COMPETITION IN INGENUITY.

FROM a recent Memorandum issued by the Housing Department of the Ministry of Health we learn that a number of private firms are being formed for the purpose of constructing patent houses of various kinds. In other cases firms already in existence are prepared to modify their plant so as to produce building materials. The plans submitted are chiefly for houses of concrete or concrete and steel, and vary in cost between £600 and £800, though one firm is hopeful of producing a "monolithic" reinforced concrete house to satisfy the Ministry's requirements at a cost of only £350. A point in all these schemes is the rapidity with which the houses can be put together, a not uncommon estimate being four weeks per house. One firm hopes to be able to erect houses at the rate of ten in ten weeks. *A qui mieux mieux* is the motto for the present day, and may the spirit of it prove contagious.

MATERNAL IMPRESSIONS IN NEW MEXICO.

IN the November number of *Man* Elsie Clews Parsons gives an account of the customs relating to childbirth as practised in the Indian town of Zuñi, New Mexico. If a child has a rash it is due to the fact that before its birth the mother tested the heat of her oven by sprinkling bran in it. To cure the rash the mother soaks some bran in water and rubs it over the baby. If the baby has sores, which look like the spots of paint on a mask which the mother has seen worn by the father during her pregnancy, the rash is said to be cured by putting spots of paint on the baby and, at the same time, on the mask, like curing like being a characteristic of Zuñi thought. Masks seen by the mother in her pregnancy may also cause disfigurement in the baby, in which case the father puts on the mask, dances till he sweats, and with his sweat the baby is anointed. If a baby cries a great deal it is because its father sang a great deal before it was born, and for such crying there is no remedy. Other curious beliefs are the changing of the unborn girl into a boy should a man be present in the lying-in chamber; movement of the fœtus on the right side the sign of a girl, and on the left side the sign of a boy; and the swallowing of a bean to produce easy delivery. The idea in the latter case is that just as the bean slips down with ease so the delivery will be easy.

Demobilised, who has been asked to give a popular lecture on "Diseases connected with the War," would be glad of references to some of the literature on the subject, and to know where appropriate lantern slides can be obtained.

K. R.—No information is available as to the therapeutic value of "kola red oil." Kola red itself is obtained, along with caffeine and glucose, by decomposition of kolanin, a glucoside contained in fresh kola-nuts. The formula of kola red is $C_{14}H_{13}(OH)_5$.

BOOKS, ETC., RECEIVED.

HOEBER, PAUL B., New York.
Thoughts of a Psychiatrist on the War and After. By W. A. White, M.D. Pp. 137. $1.75.

METHUEN AND CO., London.
Text-book of Hygiene for Training Schools. By Margaret Avery, B.Sc. Pp. 324. 7*s*. 6*d*.

MILFORD, HUMPHREY, London. YALE UNIVERSITY PRESS, New Haven and New York.
Radio-Diagnosis of Pleuro-Pulmonary Affections. By F. Barjon. Translated by James Albert Honeij, M.D., Assistant Professor of Medicine, in Charge of Radiology, Yale School of Medicine. 1918. Pp 183. 10*s*. 6*d*.

STOCKWELL, A. H., London.
Poems. By Dr. W. O. Greenwood. Pp. 32. 2*s*.

URBAN AND SCHWARZENBERG, Berlin and Vienna.
Urologisches Praktikun. By Dr. I. Cohn. Pp. 391. M.16.
Die Lumbalpunktion. Von Dr. K. Eskuchen. Pp. 188. M.8.
Die Indikationen zur künstlichen Unterbrechung der Schwangerschaft. Von Prof. Dr. G. Winter. Pp. 317. M.15.
Feststellung und Behandlung der Tuberkulösen Infektion mittels Antitoxischer Heilkösper. Von Dr. Emanuel Wein. I. Teil. Pp. 160. M 8. II. u. III. Teil. Pp. 161–603. M.17.

WELLS, GARDNER, DARTON AND CO., London.
Truth of Christianity. By Lieutenant-Colonel W. H. Turton, D.S.O. 9th ed. Pp. 515. 2*s*.

WILLIAMS AND NORGATE, London.
Dental Caries in Relation to Oral Osmosis. By R. Eckermann, Ph.D., L.D.S. Pp. 264. 22*s*.

WRIGHT, JOHN, Bristol. SIMPKIN, MARSHALL, London.
Pye's Elementary Bandaging and Surgical Dressing. 14th ed. By V. Z. Cope, M.D. Pp. 232. 3*s*. 6*d*.

Reflections
ON
THE EVOLUTION OF DISEASE.[1]

By Sir W. ARBUTHNOT LANE, Bart., M.S., F.R.C.S.,
CONSULTING SURGEON, GUY'S HOSPITAL, ETC.

GENTLEMEN,—Progress in medicine can only be made by acquiring the knowledge of the causation of disease, and the object of this communication is to demonstrate the extreme importance of studying at their commencement, and not at their finish, the changes in the human body which, when fully developed, we call diseases. It is only by recognising the factors underlying these abnormal conditions that we can hope to avoid trouble in the future or to deal with it should it arise on definite scientific principles.

It is now nearly 20 years since I realised that a large proportion of the evils flesh is heir to, which we call diseases, is due, directly or indirectly, to an abnormal delay in the passage of food materials through the gastro-intestinal tract and to the changes that result from this stagnation. In my earlier writings on this subject I employed as a title the term "Chronic Constipation," since it appealed to all ranks of the profession, and particularly because it indicates the primary causal factor in the whole sequence of stasis and its results. At a later date I replaced the title "Chronic Constipation" by "Chronic Intestinal Stasis," as it comprises not only the initial constipation, but also all the changes in the gastro-intestinal tract which follow on it. This term "Chronic Intestinal Stasis" has been accepted by the profession, and the term would appear to comprehend the various changes.

The reception which my views received in the first instance was hostile in the extreme. This was largely due to the fact that medicine has to a great extent been regarded a compilation of conditions or symptoms classified as diseases, and any attempt to regard many of them as interdependent or capable of being produced by a common cause was regarded as heresy of the worst type. My explanation of the causation of a large number of diseases was regarded as being so simple and obvious as to be absurd. Still, in obedience to the general law that action and reaction are equal and opposite, the pendulum of public opinion has steadily swung in the reverse direction in the intervening years and the intense opposition which my views originally evoked has been replaced by the interest and appreciation of the best minds in our profession. The pendulum still continues to swing in the same direction, and medical men generally are obtaining a more thorough grasp of the principles involved and are being influenced by them more and more in their practice.

Before considering chronic intestinal stasis in detail I would point out how I came to be familiar with the condition and to realise how great a part it played in the production of disease. Having succeeded in impressing on the profession the importance of dealing scientifically with fractures of the bony skeleton I turned my attention to the mechanics of the abdomen and of the contained viscera, with the view to applying to them the same principles that I had employed in the case of the skeleton, its ligaments and muscles. With the knowledge of these mechanical principles and of the structure of the gastro-intestinal tract it was quite easy to deduce the changes that ensue when the mechanical relationship of the viscera to their surrounding is altered.

Deviations from the normal in the mechanical relationship of the viscera depend on two factors. The first is a stagnation of the contents which commences in the end of the large bowel and which gradually extends up along its length. The second is the strain exerted upon the supports of the loaded viscera by the prolonged assumption of the erect position of the trunk during the waking hours.

The Gastro-intestinal Tract as a Drainage Scheme.

Let us regard the gastro-intestinal tract as a drainage scheme and observe its arrangement, its variations, and its points of weakness. At the lower end of the œsophagus, at the pylorus, and at the junction of the pelvic colon and rectum there are sphincters which vary considerably in development. There are others in the second part of the duodenum, in the end of the ileum, and in the transverse colon which are not less important. These have been fully described by Arthur Keith. The duodenum varies in form in different subjects. In a considerable proportion it ends vertically, while in another group the terminal limb is shorter and crosses the column transversely. It is at once obvious that, while the former arrangement is exposed to the disadvantage that any pull exerted upon the jejunum tends to angulate the duodeno-jejunal junction and consequently to obstruct its lumen, this disability is avoided in the latter variety. Again, it is clear that the angulation referred to as occurring in the first variety varies directly with the degree of intra-abdominal tension, so that the greater the tension the more readily is the duodenal effluent controlled by any drag upon the jejunum. It is at this point of the intestinal tract that obstruction most readily ensues.

The influence of tension on the hollow viscera is demonstrated in a most striking manner in the immediate relief to the obstruction of the intestines, the cause of death in acute suppurative peritonitis, which follows the relief of that tension by allowing the muscle edges along the longest possible median incision to gape as widely as possible, the skin edges alone being sutured together. By these means the area of the abdominal wall is greatly increased and a large number of lives are saved which would inevitably have been lost if the muscle edges had been approximated. The intra-abdominal tension is more variable in women than in men because of the relaxation of the abdominal walls which follows on pregnancy. The duodenum is so placed that, while the first portion is surrounded by peritoneum, in the rest of its length it receives only a very partial serous covering, and is sheltered and supported by other viscera and attachments. Consequently any abnormal increase in the tension of the duodenal contents throws an excessive strain upon the wall of its first and least supported portion. Any obstruction at the duodeno-jejunal junction would necessarily cause a distension of the duodenum, since the sphincter action of the pylorus resists the backward flow of the chyme into the stomach, while it permits of the continued passage of the gastric contents into it

---

[1] Substance of addresses delivered before the Ulster Medical Society and the West Kent Medico-Chirurgical Society.

Long-standing obstruction of the duodeno-jejunal junction results in a spastic condition of the pylorus. This involves two consequences. One is that the forcible impact of the food in its endeavour to pass through the obstructed orifice tends to produce changes in the mucous membrane about this aperture. The other is the consequent accumulation of material in the stomach resulting in its dilatation and in the hypertrophy of its walls. The stomach is supported at two fixed points, on the left by the œsophagus, and on the right by the margin of the gastro-hepatic omentum. As material accumulates in the stomach, so an increasing strain is exerted upon the mucous membrane covering the centre of its lesser curvature.

In proportion as the stomach dilates so does its capacity to drive its contents into the duodenum diminish. Consequent on this loss of thrust such changes as result from forcible distension of the duodenum tend to subside or disappear. Any interference with the free evacuation of the contents of the stomach tends in certain cases to set up a spasm of the muscle controlling the lower end of the œsophagus producing a condition to which the term "cardiospasm" has been applied. The vertical portions of the large bowel depend for support chiefly on the layer of peritoneum which extends from their outer surface to the adjacent abdominal wall. The cæcum possesses also an internal ligament, formed by the end of the mesentery and the terminal coil of the ileum. The transverse colon is retained in position by its mesentery, the support afforded by the great omentum being but slight. Any prolapse of the transverse colon of necessity angulates the hepatic and splenic flexures, and tends to obstruct their lumen.

Abnormal strain exerted on the layer of mesentery which is chiefly responsible for the support of any portion of the intestine results in a crystallisation of lines of force exactly as it does in the case of the skeleton. As the result of abnormal strain upon a peritoneal band such crystallisation is represented in the first instance by the formation of white streaks upon its surface running in the direction the lines of resistance. They gradually become thicker and more extensive in area, and later form a distinct membrane, which in its fully developed condition is attached by one extremity to the base of the mesentery or to the abdominal wall in its immediate vicinity, and by the other to the surface of the bowel. The attachment to the bowel extends progressively around its wall till it finally reaches the part opposite to its mesenteric attachment. As this membrane develops it contracts and shortens. While its attachment is confined to the mesentery it anchors and angulates the bowel, especially when the erect posture is assumed. As it encroaches on the circumference of the bowel, besides angulating it it also rotates the gut to which it is secured around its long axis, and still further reduces its lumen.

Early and Late Effects of Acquired Bands on the Lumen of the Intestine.

From a study of the attachments of the acquired bands which develop in the peritoneum where excessive strain is experienced it is seen that these evolutionary structures tend at first to support the weight of the bowel, and in so doing serve a beneficent purpose. Later they obstruct the lumen of the intestine first by angulating it and then by twisting it, and in so doing they exert a very prejudicial effect on it and on the welfare of the individual.

From an examination of the gastro-intestinal tract it is obvious that any stagnation of the intestinal contents produces an accumulation of solid material in the pelvic colon. It distends this segment and exerts a strain on the under surface of the mesentery, which secures the termination of the iliac colon to the iliac fossa in a degree proportionate to the distension of the progressively elongated pelvic colon. The strain results in the crystallisation of the lines of force in this situation and an acquired membrane is developed. This at first shortens the mesentery and angulates the bowel. Later as it continues to become attached to the circumference of the bowel it twists it on its long axis, and reduces its lumen still further, so obstructing the passage of material through it. It also not infrequently grips the ovary and Fallopian tube, dragging them out of their normal position, and interfering with their functions. Later it may completely surround the ovary which becomes cystic. The ovary as it increases in size forms for itself a peritoneal covering, and escapes from its enclosing capsule, leaving a cavity in the acquired membrane which rapidly diminishes in size. To this evolutionary structure I gave the name of the "First and last kink," "the first" because it is the earliest to develop and "the last" because it is the lowest in the drainage scheme.

At first this very important band appears to serve a useful purpose by preventing the extension of solid material into the iliac colon. When it develops sufficiently it obstructs the passage of material from the iliac into the pelvic colon, and causes fæcal matter to accumulate in the whole of the large bowel. The stagnation of the colonic contents determines the crystallisation of lines of force or resistance along the whole length of the overloaded large bowel, and these are especially developed at the points of greatest strain. The iliac and descending segments are fixed by bands which appear on the layer of peritoneum which extends from the bowel to the adjacent abdominal wall. At the splenic flexure this acquired structure is very highly developed, and by its contraction it drags up and angulates the flexure. Besides kinking the bowel a considerable twist may be exerted on the bowel in the manner already described, forming an obstacle to the passage of material through the splenic flexure, so still further damming back and delaying the contents of the proximal colon. The loaded transverse colon drops in the erect posture, its extremities approximating to the ascending and descending portions of the large bowel. Evolutionary bands form between the adjacent surfaces of the transverse colon and the vertical portions of the big bowel, and by these much of the weight of the transverse colon is transmitted to the abdominal wall through the ascending and descending segments of the colon and through their original and acquired attachments.

An additional evolutionary support for the transverse colon is formed by a band which extends from the lesser omentum and the under surface of the liver and gall-bladder, and is attached below to the transverse colon. It is also secured to the first part of the duodenum and pylorus, and helps to support the stomach. It produces a definite kink in the colon at its point of attachment, especially when the erect posture is assumed, and this angulation may develop later into a definite obstruction. The acquired bands which secure and raise the hepatic flexure are much less developed than those about the splenic flexure; consequently, they exert but little influence on the calibre of the bowel at this point. The acquired membrane which helps to support the ascending colon is similar to that on the left side, but it is liable to be more irregularly developed, so that an especially firm band occasionally constricts the ascending colon about the level of the iliac crest. Delay of the accumulated stagnating contents in the cæcum produces important and far-reaching results.

The cæcum is supported externally by the reflection of peritoneum, which extends from its outer surface to the abdominal wall, while internally it is held up by the termination of the ileum with its mesentery. As the cæcum distends it tends to descend into and occupy the true pelvis. The tension of the accumulated stagnating cæcal contents affords an obstacle to the passage of material from the ileum into the cæcum, and if the ileo-cæcal sphincter is inefficient it may even permit of the regurgitation of its germ-laden contents into the ileum.

Again, as Dr. Jordan has so clearly demonstrated, the prolapse of the distended cæcum not infrequently results in its axial rotation, with angulation of the terminal small intestine and in obstruction to the ileal effluent. Therefore it is of great importance that the cæcum should not be allowed to descend from its normal position. What are the efforts which the organism makes to obviate or control this prolapse? On the outer side as through the whole large intestine the lines of resistance are crystallised to form bands which progressively grip the surface of the cæcum. Later, when fully developed, they form a very distinct membrane. The strain thrown upon its internal support is experienced by the inferior surface of the mesentery, and in precisely the same way as the bands already described a new and very important membrane originates in this situation. At first it involves the surface of the mesentery, shortening it as it develops and contracts, and so angulates the ileum, especially when the erect posture is assumed. Later it becomes progressively attached to the surface of the bowel, till it finally reaches that portion which is opposite to its mesenteric attachment, and by its gradual contraction it twists the ileum on its long axis and still further reduces its lumen.

Rôle of the Appendix.

The mechanics of this portion of the large bowel are seriously complicated by the presence of the appendix, which may play a very important rôle. Since it is a structure of considerable strength, it is liable to be secured by one of the bands or crystallisations of lines of resistance in the same manner that they grip the surface of the bowel. If one of the acquired outer ligaments of the cæcum seizes it the appendix forms an additional external ligament which helps to hold up the cæcum. As a ligament it is very efficient, but being hollow and lined by a secreting mucous membrane any obstruction of its lumen consequent on its being anchored in the manner described may result in the accumulation of its secretions and in the development of inflammatory changes varying in severity.

Much depends on the mode of attachment of the appendix, as to whether it is secured by its extremity or whether it has been abruptly angulated by being anchored at some point in its length. Or the obstruction which results from the strain exerted on it may be felt at its junction with the cæcum. On the other hand, the appendix may be secured so that it forms an additional support to the internal lateral ligament of the cæcum. In this position besides being liable to the several inflammatory changes consequent on its fixation, it is always attached to the posterior surface of the mesentery, where it may be blended with the membrane which produces the ileal kink.

When the appendix forms a portion of the internal ligament of the cæcum it sooner or later exerts a controlling influence on the ileal effluent, since lying behind the end of the ileum and becoming progressively more tense owing to the contraction of the acquired bands which secure it, it forms a hook on which the ileum hangs and is obstructed especially in the erect posture. I gave the name of "controlling appendix" to this mechanical relationship of the appendix to the ileum. It is difficult to exaggerate the harm that may be done by the fixation of the appendix in this situation or the importance of recognising it. Fortunately as the anchored appendix often becomes inflamed, the disability which it produces does not escape the attention of the surgeon with the same frequency that the ileal kink does, though he often fails to realise the harm it has done, being unaware of the deleterious influence it exerts upon the lumen of the bowel.

Inflammation of the appendix from infection of its contents and obstruction of its lumen may take place, but with much less frequency, without any anchoring, since infection may extend to it from the cæcum.

Mechanical Effects of Stagnation at Points of Obstruction.

The following are the mechanical effects which are exerted by the accumulated stagnating contents of the bowel at the points of obstruction produced by muscular spasm or by the development of controlling membranes.

1. The impact of hard fæcal matter on the mucous membrane covering the sphincter muscle which controls the end of the pelvic colon is liable to produce ulceration or cancer in this situation.

2. Excessive elongation of the pelvic colon may result in a torsion of the loop and the formation of a chronic volvulus. This arrangement permits of the entrance of material into the loop, but opposes its passage from it. The twist may at any time become so complete as to produce acute obstruction.

3. The obstruction to the passage of hard fæces, which is brought about by the last kink, may determine the development of cancer in this situation. Or the habitual over-distension of the bowel infiltrated with fat proximal to the obstruction may result in the development of diverticula, which may later become infected by inflammatory organisms or by cancer.

4. Similarly the obstruction at the splenic flexure may result in the formation of infective or cancerous ulcers.

5. The obstruction afforded by the acquired ligament which develops between the under surface of the liver, the gall-bladder, the pylorus, duodenum, and transverse colon may produce ulceration at the seat of obstruction. As one would expect, this is not an uncommon site of cancer.

6. The same may occur from the control exerted by an acquired band on the ascending colon.

7. The obstruction at the duodeno-jejunal junction may produce an elongation and dilatation of the duodenum, most marked in its first portion, with congestion, abrasion, ulceration, and, later, perforation of the mucous membrane lining this part of the bowel.

8. Spasm of the pylorus, which is associated with the duodenal distension, forms an obstacle to the passage of material through the pylorus, which may produce changes in the mucous membrane about it, varying in degree between congestion and cancer.

9. In consequence of the obstruction to the gastric effluent by the spasmodic action of the pylorus material

accumulates in the stomach and exerts on the mucous membrane of the lesser curvature a tearing strain which produces changes in it varying between congestion and carcinoma. It would appear that as long as the secretion of the stomach continues to be normally acid the organisms or other materials which produce cancer are unable to obtain a secure foothold. This, however, may take place when the acidity becomes distinctly subnormal in amount.

10. Any interference with the gastric effluent may cause an irregular spasmodic contraction of the œsophageal sphincter, commonly called cardiospasm. This obstruction to the free passage of material through the œsophagus is liable to produce changes in the mucous membrane, which may later become cancerous.

The Infection of the Chyme by Organisms.

Having dealt with the mechanical aspect of chronic intestinal stasis. we will pass on to study the changes that result from the infection of the stagnating contents of the small intestine with organisms. I need not remind you that Carrel has demonstrated that the several tissues of the body can grow and live indefinitely, provided they receive nutriment and are efficiently drained. Any interference with the drainage of their effete products causes the death of the tissue.

The excessive stagnation of material in the large intestine appears to exert only a mechanical effect. At a later period virulent infective organisms may thrive in the contents of the large bowel and inflammatory changes of varying severity may ensue. These infections usually occur at an advanced stage of intestinal stasis and are secondary processes similar to secondary infections in other parts of the body.

The bacterial infection of the chyme which takes place in stasis alters the relationship of every tissue in the body to its food-supply as well as to the elimination of the products of tissue change: In static cases Dr. Mutch has demonstrated from specimens obtained from the contents at different levels of the small intestine during operations for colectomy, &c., that streptococci and *B. coli*, as well as other organisms, abound in the chyme, varying in degree and level with the extent of the stasis. He shows very clearly that while local delay is the primary factor in favouring the growth of organisms in the intestine, deficient assimilation of food, and especially of carbohydrates, in the upper part of the gastro-intestinal tract is the second essential factor.

Changes in the Liver and Pancreas.

In stasis the liver cells are exposed to attack from three distinct sources. They have to deal with material, either toxins or organisms, carried to them through the radicals of the portal vein, having been absorbed from a tract which has ceased to be sterile and whose contents may contain a large number of very virulent organisms. They are also surrounded by a fine network of ducts whose contents are liable to become infected by the extension of organisms along the common bile-duct. Again, the liver cells are nourished through the portal artery by blood laden with toxic material which the liver cells have failed to eliminate or convert. In the earlier stages of stasis the liver appears to be abnormally large, while later it is distinctly smaller than it should be. Just as every change, which the skeleton of the labourer undergoes in order to accommodate itself to its surroundings, tends to shorten the life of the individual, so do all the changes in association with and dependent on those in the gastro-intestinal tract tend to shorten life. Such changes in the organs are classified as diseases. It is obvious that the liver must develop many and various conditions in consequence of its changed relationship to the food-supply of the body. The extension of organisms to the gall-bladder may result in the formation of gall-stones and in the development of the several complications which they produce, or it may cause inflammation of the gall-bladder of varying degrees of intensity.

The pancreas undergoes very definite changes in advanced cases of stasis. It becomes hard and nobbly in parts or throughout. These changes are probably chiefly inflammatory in origin and due to extension of infection from the duodenum along the pancreatic duct. Later carcinoma may develop in the damaged structure of this organ. The same infective process may set up an acute inflammation of the pancreas. The invading organisms may also serve as a nidus for the formation of calculi which may bring about serious complications by their presence. Dr. Mutch and Dr. Jordan have both demonstrated that advanced conditions of chronic intestinal stasis are often present in diabetes mellitus. The liver and pancreas have, beside sharing in the general depreciation due to being supplied with impure blood, the disadvantage of being directly in communication through their ducts with the infected small intestine.

Changes in the Kidneys.

The eliminating organ on which, after the liver, most stress appears to be thrown is the kidney. Upon it devolves the strain of getting rid of abnormal toxins and organisms, together with an excessive amount of by-products. The changes which the kidney may undergo are most variable, some being slow and almost imperceptible in their progress, while others are very acute. They include the types of Bright's disease, which probably vary with the nature of the organisms infecting the chyme. The kidney eliminates organisms into the urinary tract, through which they may be discharged painlessly and without affording any evidence of their presence. This is frequently the case with *B. coli.* In other cases the elimination of these organisms through the kidney sets up symptoms of great severity, rigor following upon rigor with rapid loss of flesh and extreme prostration. In very acute cases the surface of the kidney may be studded with small abscesses. On one occasion I exposed such a kidney, opened up a large number of small abscesses, packed the kidney in gauze, and stopped an infective process which threatened the life of the patient. As with all other organs and tissues, the improvement that takes place in the kidneys after such treatment as is sufficient to sterilise the contents of the small intestine is rapid and remarkable.

Changes in the Organs of Generation and the Ductless Glands.

In advanced stasis the ovaries are always wasted and shrunken unless they are involved in acquired adhesions. when they become progressively cystic. The uterus is also very small and in the late stages of stasis may be infantile in character, although the woman may have borne children. Perhaps one of the most remarkable evidences of auto-intoxication in the toxic woman is the complete loss of sexual desire, it being in many cases replaced by a feeling of disgust for the normal relation of the sexes. The same applies to the male, but to a less degree. The testes become small and soft. and the normal testicular sensation is much impaired.

The complications which arise from these marked degenerative changes are chiefly responsible for the existence of the Divorce Court. The thyroid is the organ which is most closely associated with the sexual function, especially in the female, in whom its variations in size afford clear confirmation of the preponderating influence of sex in the woman as compared to man. In stasis the thyroid becomes enlarged at the onset but soon wastes, and later may shrink so much that its presence cannot be detected by the finger.

It would seem reasonable to argue by analogy from the effect of stasis on the thyroid that the pituitary and adrenal glands behave in a similar manner in their attempt to meet the damage to structure and the drain upon their function that must result from the supply to their tissues of blood heavily contaminated with toxic products. In the case of the adrenal this is suggested by the remarkable pigmentation of the skin which develops in stasis, especially in those of the brunette type. In advanced stasis the symptoms are definitely those of Addison's disease, but their disappearance after colectomy proves that the damage done to the suprarenals has not been irreparable. Unfortunately, our knowledge of the functions of the adrenal and the pituitary body are too incomplete to allow of much dogmatism on the changes which result in their structure and functions as the result of stasis.

Changes in the Breasts and in the Mouth.

The breast undergoes very typical changes in stasis. It becomes hard and nobbly, and after a time a large number of cysts develop in its substance, some of which may assume a considerable size. This change commences usually in the upper and outer zone of the left breast, then it appears in the corresponding portion of the right breast, and later may involve the entire substance of both breasts. These degenerated breasts are very liable to be affected by cancer.

The tongue is almost always unhealthy in appearance. It is often abnormally large and marked by the teeth, which may decay early in life. The fauces and pharynx appear unhealthy. The sense of smell and of taste are often impaired; the breath is not infrequently offensive, and the patient experiences a bad taste in the mouth.

Changes in the Nervous System and in the Eyes.

The effect of auto-intoxication upon the brain and nervous system is very striking and calls for much sympathy. Headache, varying in intensity, is a common symptom. I have known it so severe, and accompanied with such violent attacks of vomiting as to lead a very distinguished neurologist to diagnose a cerebral tumour and to urge operative interference. Neuralgias are frequent and may involve a great variety of nerves. They may be very intense. Rheumatic pains are constantly complained of. The patient, while sleeping badly, may find it difficult to keep awake during the day. Bad dreams are frequent. On awakening in the morning the feeling experienced may be that of extreme prostration, no apparent benefit having been derived from the night's rest. The most distressing symptom of intestinal auto-intoxication is the depression which so frequently accompanies it. It varies in severity from a feeling of mental incapacity to one which not infrequently leads the sufferer to attempt to terminate an existence which has been become intolerable. All efforts at mental concentration are futile, while any physical exertion is followed by a period of complete exhaustion. These patients become introspective, and women especially are liable to become intensely religious.

The term "neurasthenia" is very often applied to this condition of the nervous system. In some degree it is an almost invariable symptom of stasis. The patient loses control and fits of irritability or of violent passion are not infrequent. Such a person is difficult to live with. Many are supposed to be stupid, dull, inattentive or even imbecile. This feature is more marked in the growing child, who is often at the bottom of the class and may be severely criticised or punished in consequence.

The eyes are always affected. They afford an excellent and very delicate indication of the degree of auto-intoxication and the changes they undergo are of great value to the observer. They are due chiefly to degenerative processes in the lens and to loss of power in the ciliary muscle. Mr. Ernest Clarke has described these conditions with his characteristic clearness.

Changes in the Skin.

The skin varies in character in different parts of the body. The most marked feature is a staining or pigmentation over the abdomen, chest, and neck. This is particularly noticeable in the neck, axilla, and groin. and over any area which has been exposed to pressure. The staining is usually uniform, but it may be blotchy in character. Like all the other manifestations of auto-intoxication this symptom varies with the colour of the hair. While it is very marked in dark-haired people it is very slight or absent in those whose hair is red or towy coloured. The skin of the abdomen is thin. When dragged on at any point it presents innumerable fine ridges or wrinkles. The skin of the back of the trunk feels thick. Over the extensor surface of the upper arm this thickening is very conspicuous, and suggests to one's fingers that the subcutaneous tissues are permeated with a gelatinous material. The colour of the skin in this area is often blotchy and livid, even in quite mild weather. It is frequently covered with papules, and may be so disfiguring as to render it impossible to expose the arms in evening dress. The hair becomes grey, thin, and tends to fall out. At the same time a fine down grows on the cheeks, the chin, and upper lip. The margin of the hair-line on the forehead and eyebrows is ill-defined, and hair covers the adjacent skin beyond the normal limit. Hair also grows on the back of the forearms. The perspiration is often profuse and offensive. The temperature of the body is invariably subnormal, any rise indicating the presence of some superadded infection. The ears are cold and livid. The temperature of the surface of the body changes abruptly at the level of the deltoid, the skin becoming progressively colder as the fingers are approached. In consequence of this defective circulation the forearm and hand become livid with any depression in the temperature. This may be so marked a feature as to make it difficult to draw any sharp line between stasis and Raynaud's disease.

In some cases the skin may be quite blue, and this colour may vary. To it the term "microbic cyanosis" has been applied. The same low temperature is observed in the legs, the patient occasionally complaining of loss of sensation up to the level of the knees.

Loss of Fat and Wasting of Muscle.

The disappearance of fat plays, perhaps, a most disastrous part in the sequence of chronic intestinal stasis. Though it is usually an early and progressive feature it is not universal, as some patients may have acquired a condition of considerable obesity before stasis becomes a marked feature. The loss of fat gives to the patient an appearance of senility. The graceful curves of the breasts, abdomen, and buttocks are replaced by pendulous wasted breasts, by a flaccid abdomen, and by wasted soft buttocks. The removal of fat results in the prolapse of the viscera, and especially of those that are largely dependent on it for support. The kidneys drop and their functions are impaired in consequence. The outflow of urine is obstructed by the angulation of the ureter at its junction with the pelvis or over a vessel and hydronephrotic conditions result. The venous flow from the kidney is similarly obstructed, and in consequence the organ becomes gorged with blood and very sensitive. As it lies upon the hard floor formed by the iliac fossa its sensitiveness is increased by every movement, and the pain and distress which ensue are considerable. The puddling of urine in the pelvis increases the risk of infection by *Bacillus coli* or other organism expelled by the kidneys. The loss of fat also permits of the further dropping of the intestines and increases the angulation and obstruction at difficult points. The uterus and bladder miss the support afforded by fat, and their consequent prolapse produces many inconvenient symptoms.

The wasting of the muscles which occurs early in stasis is responsible for a great variety of symptoms. It affects both the voluntary and the involuntary muscles. Perhaps the earliest evidence of loss of power in the voluntary muscles is afforded by the loss of thoracic respiration, the patient depending for the oxygenation of the blood upon the more reflex and less exacting action of the diaphragm and abdominal muscles. The attitude which is assumed in consequence is very disfiguring. It is interesting to note that this condition of abdominal respiration precedes, and is responsible for, the development of all those deformities which I regard as due to the fixation and later the exaggeration of "resting postures," which are all thus indirectly due to the auto-intoxication of chronic intestinal stasis. They are "dorsal excurvation," "flat-foot," "lateral curvature," and "knock-knee."

As regards the involuntary muscles, the passage of material through the bowel is influenced by wasting of the muscle and nerve fibre of the intestine, and a veritable vicious circle is thereby developed. The flaccidity of the muscle fibre of the uterus is responsible for the several versions and flexions which this organ develops, and they are exaggerated by the absence of the fat which plays such an important part in supporting this organ in position. Mr. Chapple has demonstrated the very close dependence of uterine disease on intestinal stasis. The changes in the heart substance and in the walls of the vessels produced by intestinal stasis have been rendered perfectly familiar to us by Mackenzie's elaborate researches, and we now realise the degenerative changes that are produced in the cardio-vascular system by stasis.

Importance of Intestinal Auto-intoxication in the Ætiology of Other Diseases.

Having considered the very serious depreciation in the vitality of every tissue in the body consequent on intestinal auto-intoxication, we will now pass on to study the danger to which the individual is exposed through their lowered resisting power to the inroad of organisms or their toxins. While in the large proportion of cases the infection of the chyme by organisms and their toxins is secondary to chronic intestinal stasis, it is possible to produce such an infection in a normal drainage scheme by flooding the intestine with decomposing material by the mouth. This is well illustrated by McCarrison's observations and experiments on the production of pathological changes in the thyroid. He showed that in an apparently healthy gastro-intestinal tract he was able to produce goitrous changes by feeding the individual on toxic material, and that on this supply being cut off the normally functioning intestine was able to free itself rapidly from infection, when the enlargement of the thyroid disappeared.

The infection of the chyme by organisms in the static subject leads, as I have shown, first to an enlargement of the thyroid gland and later to its atrophy. In such a subject the superadded infection of the chyme results in the development of any of the several varieties of goitrous change. The evidence in favour of this is that in every variety except that of malignant disease complete recovery or very definite improvement follows on colectomy or such operative or other measures as restore the ileal effluent to its normal state. In many of the cases on which I have operated Dr. Mutch has shown that it is necessary or advisable to employ vaccines obtained from cultures from the contents of the small intestine of the sufferer at the time of operation in order to free the mucous membrane from any organisms that have obtained a foothold in its substance. Obviously such a culture can be best obtained at the time of operation. This shows that while the material that is responsible for the development of pathological changes in the thyroid gland cannot survive for any length of time in a normal gastro-intestinal tract, it readily establishes itself in the static small intestine from which it is difficult to expel it. In other words, changes in the thyroid will not develop in normal hygienic conditions unless the sufferer is the victim of chronic intestinal stasis. This I believe to be true of a large number of diseases to which I will allude briefly in order to illustrate my views on the subject.

I do not propose to indicate in detail the several organisms that are apparently responsible for these infections of the thyroid gland, &c., as Dr. Mutch is dealing with the matter in a book which will be published shortly. Perhaps the diseases that show in the most startling and dramatic manner the disappearance of their most obvious symptoms after colectomy are rheumatoid arthritis and Still's disease. In either case, previous to the operation, the sufferer may have been in great pain with joints swollen and fixed, complicated in Still's disease by the presence of rigors and changes in the heart. Within a few days of the operation all pain disappears, long-standing fixation of the articulations is replaced by rapidly increasing mobility, while the swelling and thickening of joints subside in a remarkable manner. In both these conditions, as in that of the thyroid, it is well to continue the use of vaccines for some time in order to eliminate any residual infection of the walls of the small intestine, of the ducts of the liver and pancreas, &c. In tubercle, while the resulting improvement is very manifest, more time elapses before a definite result is observed.

The first manifestation of the invasion of the tissues by organisms occurs at an earlier period of life. In the young subject the area that is most exposed to invasion is the naso-pharynx. In the toxic child the resistance of the mucous membrane of the lymphatic tissues of the naso-pharynx is materially lowered, with the result that organisms obtain a foothold in the mucous membrane, pharyngeal and faucial tonsils, and in the sinuses communicating with this cavity. Later infections of the lymph glands in the neck ensue. I do not believe that these tissues can become chronically infected, unless their vitality has been reduced by auto-intoxication. This view is supported by the rapid improvement that results from the administration of paraffin in sufficient quantity, and also by the presence in most of these cases of the clinical manifestations of intestinal stasis.

The next most common result of the depreciation in the vitality of the tissues brought about by intestinal auto-intoxication is the invasion of the gums by organisms in pyorrhœa. Organisms secure a foothold in the interval between the gums and teeth, and manifest their presence as an infective or inflammatory process. This extends into the socket, and results finally in the loss of the affected teeth. The absorption of the septic products into the circulation, while their passage into the gastro-intestinal tract increases the infection of the chyme by organisms. exaggerates the symptoms of auto-intoxication. This increase in the depreciation due to the absorption of toxic material from the gums may be so considerable, and the benefit obtained by the cure of the pyorrhœa so great, that many observers have been led to regard pyorrhœa as the primary factor in the causation of intestinal auto-intoxication. Against this view are the facts that patients with most advanced stasis may have perfectly healthy gums, while the extraction of the teeth, which is so frequently performed for this condition, has exerted no influence on the conditions of stasis calling for a colectomy.

Dr. Mutch is of opinion that the septic organisms in the gums can produce secondary infection of the intestinal mucosa and form a starting-point for diseased conditions in all parts of the body.

Dental surgeons like Mr. Harry Forsyth, who have immense experience in the treatment of pyorrhœa, are convinced of the dependence of this condition on intestinal auto-intoxication produced by chronic intestinal stasis.

I have very clear evidence of the fact that those who develop such diseases as are mentioned in the following list have suffered for some time from chronic intestinal stasis: non-specific arteritis obliterans, angina pectoris, rheumatoid arthritis, Still's disease, tubercle, exophthalmic goitre, adenoma of the thyroid, Addison's disease, Raynaud's disease, diabetes, ulcerative colitis, microbic cyanosis, dementia præcox, pernicious anæmia, disseminated sclerosis, paralysis agitans, infective endocarditis, and in many instances alcoholism and the drug habit, and numerous forms of skin disease. One might add largely to this list of diseases, but it is sufficient to illustrate my view that they are due to the infection of the tissues of a toxic subject by organisms which could not have obtained a foothold in one whose drainage system was sufficiently perfect, and that the freeing of the wall and contents of the small intestine from infection may so improve the vitality of the tissues as to enable them to destroy the invading organisms and so free or relieve the sufferer from the symptoms they produce by their presence.

The problem before us is, "How can we in any particular case remove the contamination of the food-supply of the individual in the simplest and most efficient manner?" It is obvious that in time the elimination of the infection will be effected more and more by medical means, and it will become less often necessary to resort to surgical measures. These conditions must be dealt with as early in life as possible. Too much stress cannot be laid on the fact that cancer, which is shown by the elaborate statistics[2] of Dr. Hoffman to be largely on the increase (2·5 per cent. per annum), is dependent for its development on three factors. two of which are necessary to its production—namely, stasis, syphilis, and traumatism. Apart from the action of these three causes I do not believe that cancer can arise, and by far the most common combination in determining its presence are stasis and traumatism. By traumatism is meant any mechanical condition that damages the vitality of the tissues. In the vast majority of cases the injury to the cells is produced by auto-intoxication or by the direct extension of infection to them from the intestine.

In view of the much greater frequency of stasis in the female than in the male, it is not surprising to learn that cancer occurs twice as often in women as in men. The rarity of cancer amongst native races living in the savage state and its frequency in those who have been civilised for some time help to support the view that stasis plays the chief part in the causation of this disease.

PSYCHO-THERAPY IN ORDINARY PRACTICE.[1]

BY W. A. POTTS, M.A. CANTAB., M.D. EDIN.,
MEDICAL OFFICER TO THE BIRMINGHAM COMMITTEE FOR THE CARE OF THE MENTALLY DEFECTIVE; PSYCHOLOGICAL EXPERT TO THE BIRMINGHAM JUSTICES.

IN general practice cases suitable for psycho-therapy, many of which cannot be treated in any other way, frequently occur. The general practitioner has a great advantage in that he is able to pick both the case and the patient; he is not confronted with the difficulty of the patient being disheartened by the failure of other treatment. He also knows in advance the patient's previous history, habits, and temperament, and so can quickly pass on to treatment. On the other hand, the quickest and best results of psycho-therapy are usually obtained with patients one has never seen before, especially if treatment is started at the first interview; the ordinary practitioner may not have sufficient reputation in this kind of practice to produce the impression on a patient that a specialist can; he suffers from an additional handicap in that often he has not time either for a prolonged interview, which may have to be extended to four hours, or for a sufficient number of consecutive treatments. The cases I will describe never required long treatment; many of them were cured at one sitting. Before referring to them I wish to insist on the necessity for careful diagnosis; with psycho-therapy we require the greatest refinement in diagnosis; we want not merely a general idea of whether the condition is in the main functional or organic, but a decision often in

---

[2] The Mortality from Cancer throughout the World, by F. L Hoffman, Prudential Press, 1915.

[1] A paper read at the meeting of the Birmingham Branch of the British Medical Association on Nov. 20th, 1919.

regard to the nature of each symptom, because experience has shown that it is absurd to limit the use of this important branch of therapeutics to the so-called neuroses only; certainly it is valuable in them, but it is even more valuable in dealing with many of the symptoms of psychic origin associated with organic disease, such as continued vomiting in phthisis, and insomnia and chronic pain in many illnesses. This point has been emphasised by Colonel A. F. Hurst, of Seale Hayne fame. In these cases the objects and limitations of psycho-therapy must be clearly defined.

Psycho-therapy for Neuroses.

The first case I will refer to was one of neurosis.

A young married woman complained of severe pruritis ani of ten years' duration; she had never sought nor had any treatment. She had one child 3 years old, had always been healthy, and had no idea how the trouble developed, but said it had been there at least 10 years and seemed as if it had been there always. There were no piles or fistulæ or any other abnormality except a slightly ragged appearance of the mucous membrane round the anus. The urine did not contain sugar and no disease could be detected. I had never seen the patient before, so, as she seemed a suitable case for psycho-therapy, I told her that while ordinary treatment might be disappointing and take a long time, special treatment would quickly deal with the case. Mental analysis showed that the root of the neurosis was an ischio-rectal abscess from which she had suffered 10 years previously and which burst one day when she, a girl of 17, was at a picnic, where she suffered intensely. It was explained to her that after this unfortunate experience she must have dreaded a recurrence possibly under even more awkward circumstances, and that while what she dreaded had never happened, focussing her attention on this region had led to other trouble there. It was also suggested to her that the area of discomfort would feel cool and that all irritation would disappear in a short time. When the treatment was concluded she announced that she felt much more comfortable. She said I seemed to have placed a cool pad over the affected area and that she was easier than she had been for years. No further treatment was required; when I met her a few weeks later she told me that she had continued to improve and was almost well.

The next case also illustrates the importance of beginning treatment at once.

A young man who had been in the Royal Air Force and discharged as disabled, complained of frontal neuralgia and persistent headache. His history was that he had crashed in the North Sea, falling face downwards, through the bottom of his plane, and being subsequently found by his observer in the sea clinging to one end of the plane and practically unconscious. This happened during cold, stormy weather at midnight. His observer managed to take him on his back and swam with him to shore, taking nearly an hour in doing so. He then deposited him, as he thought, dead, but later moved him to a neighbouring V.A.D. hospital on the chance that he was still alive. The patient stayed at the hospital for some weeks and recovered, except for persistent headaches and frontal neuralgia, in consequence of which he was discharged from the army as permanently disabled. The accident had occurred 18 months before I saw him. He told me that the pain had somewhat diminished, but that he was never free from a considerable degree of headache, and at intervals suffered from agonising pain lasting for hours. A severe attack had been the cause of his visit to me. As I thought it might be a difficult case I decided to make the most of the circumstance that I had never seen him before, and started treatment at the first interview, although I had not had time to make a thorough examination. I treated him by "waking suggestion"; when he came back on the following day I finished the examination and continued the treatment. Examination showed there was nothing wrong with the eyes, and no disturbance of vision, while his organs were sound and healthy. When he came back on the evening of the third day he said an extraordinary thing had happened; he had felt much better than he had done for years and free from headache and pain. I told him that was not surprising, as it was the result to be expected from the treatment, though I had been unable to tell him how soon it would come. He added that he did not think he required any further treatment; I confirmed him in this idea, and he has remained perfectly well.

In such a case the original pain is due to the severe injury to the nerves and other tissues of the face and forehead. Later on the pain continues as a habit. Once the habit is broken it does not return.

A somewhat similar case shows the importance of analysis in cases where the original cause is not permanently removed.

A young married woman with two children had suffered for some years from severe headaches and neuralgia of the side of the face and neck, and also of the back of the neck. The pains were aggravated by reading, sewing, and also by work of any kind. She was not robust, but there was no eye trouble, no disease, and nothing wrong with the teeth on X ray examination; no medical treatment was effective except rest in bed for days at a time. Analysis showed that the condition was a defence mechanism, dating from the time of her marriage, and having its origin in a difficult mother-in-law, who was critical and unpleasant to visit. Matters became worse when the mother-in-law came to live in an adjoining road. A few suggestion treatments relieved the pain and stopped its recurrence, the suggestion being made among others that unpleasant duties would cease to be a strain and would not be dreaded beforehand, while the capacity for work of all kinds and for using the eyes would increase.

In such cases the result of proper treatment is not to leave the patient weak and dependent on the practitioner, but stronger and far more independent.

One of my patients, a young unmarried woman, had suffered from tinnitus aurium for over four years; as ordinary treatment had failed to give relief I decided to treat her by psycho-therapy.

The trouble dated from an accident, when her cheek was cut open by the golf-club of another girl with whom she was playing. This caused a nasty wound and scar. Mental analysis showed that, in addition, she had been greatly upset when 16 years of age by her father, who detected her in a lie and violently boxed her ears. The father was a hard, unsympathetic man, who frequently broke out into violent abuse of her conduct when it was displeasing to him. Treatment by "waking suggestion" soon caused a diminution of the noise, which resembled a factory blower and had been very loud and disturbing. After she had greatly improved a cold and cough temporarily increased the noise, but further treatment soon cured it.

In this case there was much benefit from making the patient see mental pictures—a form of treatment to which I shall refer later.

The next case, also a functional one, was a married woman who had had great anxieties about her husband and children.

Shortly before one of her little boys had been attacked and injured by a group of school-boys. She had an attack of earache and otorrhœa. This caused the greatest distress, as she imagined she was going to lose both her hearing and her reason. She could not sleep, and was in a state of great nervous excitement when she came to consult me at 8 o'clock in the morning, but there were no real mental symptoms. Psycho-therapy was urgently called for, so I calmed her for the moment and said I would give her special treatment in the evening. After it she was easier in her mind and slept well. Two subsequent treatments completely relieved her distress.

Improvement in a Case of Paralysis Agitans.

An old lady who had suffered from paralysis agitans for six years had been under my treatment for the last four years, during which time she suffered continuously from severe pains in the soles of the feet and in the knees. She had some heart weakness, and the legs were œdematous. She was treated with hyoscine, heroin, and many other drugs, including organic extracts, but, as often happens in paralysis agitans, nothing was of any use; as she was constantly in pain and miserable I suggested to her daughter, who was worn out with attending to her, that the proper treatment would be by suggestion, as it was the only means of relieving her pain. The daughter was delighted with the idea, but feared her mother was too strong-willed for it to be a success. I told her this was really an advantage. The old lady who was not enthusiastic at first, was very nervous at the beginning of the first treatment, but after the second she announced she had slept better the night before than she had done for a long time. At the fourth interview she stated that during the third treatment the pains had disappeared and never returned. As treatment was so successful I determined to see if anything could be done for the tremors, which were very marked. The next four treatments had an extraordinary effect on the tremors, which stopped during the treatment and never came back to the same extent afterwards. Treatment was then discontinued because the patient did not think it worth while to go any further, as her pain had been relieved. She remained free from pain for three months, when there was a slight recurrence, gradually getting worse. After this had gone on for a week she was given one treatment, which gave complete relief, and illustrates how much more rapidly treatment is effective on a second occasion. This time treatment again diminished the tremors. Both the old lady and her daughter are thoroughly satisfied with the treatment.

There are many records of cases of organic nervous disease which have improved with psycho-therapy, because much of the trouble is functional; in some instances the organic disease has been kept more or less in abeyance for years.

Psycho-therapy in Pregnancy and Lactation.

The following is another instance of a patient suffering from advanced organic disease, who was completely relieved of all her discomfort.

A woman at the maternity hospital was under my care at the seventh month of pregnancy suffering from hyperemesis gravidarum. On admission she was moribund, vomiting every 35 minutes, with intense epigastric pain and complete insomnia; she was said not to have slept for many weeks. When examining her I noticed that the tongue when protruded was deviated to the right; on asking her to puff out her cheeks the left cheek remained flat, but some little time later filled out too. When told to close her eyes tightly the left was firmly closed, but the right could not be shut properly. The right patellar reflex was exaggerated, the left almost absent, but the plantar reflexes were flexor. There were many areas of anæsthesia in the right leg, but none in the left. It was noticed, however, that every time an anæsthetic area was touched her reply was delayed, as if she were uncertain whether to say "Yes" or "No." Obviously she was rapidly developing a functional hemiplegia. It looked therefore as if psycho-therapy might relieve some of her symptoms. The general ward of a maternity hospital is hardly the place one would choose for practising psycho-therapy; however, the house surgeon prepared the patient so well that a single treatment produced an extraordinary effect. "Waking suggestion" was carried out for 15 minutes only, as she was dangerously ill. She was told that her pain would go, that she would not be sick again, and that she would sleep that night. She did sleep for four hours, never had any return of her pain, and never vomited again except on two occasions, on one of which her food was too rapidly increased, while on the other barley-water was given by a nurse in spite of instructions to the contrary. The patient improved daily, and food was rapidly increased. Instead of being restless and difficult to manage she was placid, sleeping at night and dozing during the day. Unfortunately on the fifth day premature labour commenced, but small doses of morphine and scopolamine were sufficient to prevent her suffering any pain. She was greatly exhausted by labour, and succumbed a few hours later. The child was stillborn. Post-mortem examination of the patient showed fatty degeneration of the liver and kidney, while a tumour in the recto-vaginal septum which had been first noticed during labour and diagnosed as a gumma was proved to be so. In addition there was an old healed perforation in the posterior vaginal fornix, specific in origin, but no peritonitis. The pathologist's verdict was "Death from toxæmia."

I do not claim that the treatment produced any effect on the course of the disease, but it is not impossible that if it had been begun several weeks previously it might have done so. Treatment, however, relieved all the painful symptoms. The husband, who was at the time in the army of occupation in Germany, came to the hospital afterwards to express his gratitude for the way in which his wife had been treated, and said it was a great relief to know that she had been so easy and comfortable during her time in the hospital.

During pregnancy there are frequent opportunities of using psycho-therapy with benefit. My attention to this possibility was first aroused by a case in which I believe its use might have prevented unfortunate results.

The patient was a young married woman who was satisfactorily delivered of her first baby under "twilight sleep." On the third day there was some indication of the milk-supply being established, but it soon became clear that in spite of all ordinary treatment it was impossible for the patient to nurse her baby. The patient was one of a family of 12, all of whom had been nursed by their mother, while the three married sisters had been able to nurse their children. The patient herself was a healthy young woman and the nurses in the home were much puzzled as to the reason of failure, and declared they had never seen such a healthy young woman totally unable to nurse. Conversation with the patient later on elicited the following history. Twice during pregnancy she had had severe frights which had preyed upon her mind; during the fourth month she and her husband were wakened one night by loud noises which they thought were due to burglars. The husband got up and found the noise was due to snow falling off the roof. The patient became hysterical for an hour and subsequently was very anxious about herself and her baby. Two months later she was attacked and much frightened by a dog. After this accident a friend told her the baby would have hair on it like a dog. This also made her anxious, as she was afraid the baby would be deformed.

It was too late to try psycho-therapy, but I immediately adopted the course of asking all my pregnant patients when they come into a nursing home whether they have had any particular worry or anxiety. Of course what such patients dread—namely, death or deformity of the baby—practically never happens, but instead, an intimately associated condition—namely, the milk-supply often goes wrong. The filling of the breasts with milk on the third day is usually painful, sometimes exquisitely painful, especially in a primipara. Directly this happens the patient jumps to the conclusion that all the horrors she anticipated are going to overwhelm her after all, and her subconscious mind revolts against nursing. The benefit of psycho-therapy in such cases is illustrated by the following.

The patient was a healthy young woman who seemed to have a good supply of milk on the third day, while on the next it began to fail. Asked if she had had any worry or anxiety during pregnancy she said she had been dreading the pains of labour all the time. When asked why she should do so when she was going to have "twilight sleep" she said that in spite of that she had been afraid; all her life she had been a coward and unable to face physical pain. She was told this was nothing to be ashamed of, as it must be due to some unfortunate experience she had had in early life. She denied this, but on careful examination it was found that when two years old she had been seized one morning, after her mother had given her a little ham, with intense abdominal pain: some hours elapsed before a doctor could be found, the little girl being in agony all the time. She had often heard her sufferings described, and also the delay in finding a doctor, all that being a family tradition. As soon as she realised the importance of this she related an incident which had happened five years previously. When motoring with a girl friend her dress caught as she was getting out of the car; she fell and severely injured her arm. The pain was agonising. They motored to the nearest doctor, but had to go to many places before they found a doctor at home. The condition was not diagnosed at once, but a radiograph taken on the third day showed a fracture into the elbow-joint. The patient was a healthy young woman, and these two instances were the only occasions on which she had ever seen a doctor till the time of her pregnancy. At the beginning of the war she became a nurse at a V.A.D. hospital, but had to leave in less than a week because she could not stand the suffering she saw. During suggestion treatment it was explained to her that many medical and surgical conditions are not accompanied by pain; that I had seen women have children and suffer no pain, and had attended cases of such serious disease as cancer in which no pain was felt right up to the end. During her pregnancy she had had occasion to consult two medical men whom I know well to be exceptionally prompt and efficient; it was therefore pointed out to her that there were many sympathetic doctors, who could be summoned quickly by telephone if necessary and would at once relieve any real suffering. The suggestion was made that her anxieties about suffering were groundless, that she would have no subsequent pain or discomfort, while she would be able to nurse her baby, and that if any illness or accident happened to the baby at any time she would be able to carry out herself methods of relieving pain which were described to her, while, in addition, she could send for a doctor whom she knew to be kind. Only one treatment was necessary. The milk returned, and both mother and baby did well. She wrote some weeks later to say she often thought of the ideas that had been put before her, and they had been of the greatest help; indeed, they had completely altered her outlook.

This patient gave me an excellent example of the psychic origin of many of the neuralgias; she said that on one occasion she had to stay in bed for two days unable to move owing to an agonising attack of sciatica. When asked what was the cause of that she laughed and said, "Oh, that was another love affair." Her father had forbidden her engagement to a man who was then in France in the trenches. On the evening of the second day her father came up to her room and said, "Look here, little girl, if this engagement means so much to you I will give my consent." She went to sleep almost at once, and woke the next morning absolutely free from pain and never had a recurrence.

Another patient who came into the nursing home ten days before her confinement said that she had been worried because she did not think she would be able to nurse her baby. She had this fear because her sister had been unable to nurse her baby, and when she looked at her nipples she thought they were too small. As she was not robust I thought it possible she might not be able to nurse, especially as her sister had failed, so I did not give her treatment myself for fear of discrediting psycho-therapy. I examined the breasts carefully and told her the nipples were not so small as she thought, and that if she had a week's massage of the breasts everything would come right. A nurse was specially selected to carry out the massage, and, acting under instructions, when she was leaving off one day she said, "Well, there is no doubt that your baby will not have any difficulty, as your breasts and nipples are so well developed." This kind of indirect treatment is often effective. The patient was able to nurse her baby all through.

Another patient who came into Birmingham to have her baby was nervous about getting an attack of asthma, to which she was liable. She had had much treatment from practitioners of all kinds without any benefit, and had been told that no cause could be found. As a matter of fact, the cause was repeatedly seeing her grandfather suffer the agonies of asthma while she was a child. A few days after the baby was born I treated her by psycho-therapy. Shortly afterwards she had a threatened attack, but it did not come to anything. In order to induce quiet rhythmic breathing when an attack was threatened I made her see a mental picture of her little boy and girl on a seesaw, the little boy going very carefully and steadily so as not to jolt his baby sister, who was held on by the nurse. This method of mental pictures, which I have introduced into my practice, is often valuable. This patient said she found it a great help. She said the only thing she did not understand about the treatment was how I managed to know so much about her early life.

Treatment for Neurasthenia.

So far I have dealt mainly with cases of hysteria and psychasthenia, and have not referred to cases of neurasthenia, as they are more difficult, require prolonged treatment, and so are less suitable for treatment by ordinary practitioners. Many cases of neurasthenia are obviously suffering from some physical disorder, and one cannot but think that in some of them medical treatment, especially some glandular extract, should take the first place, and may be all that is necessary. A properly conducted analysis will reveal a cause in some cases, but I cannot help thinking that prolonged analysis and repeated treatment involve great strain on the practitioner, and are sometimes not worth the time and trouble involved or the expense incurred by the patient. Psycho-therapy in itself is insufficient in many of these cases, and must be combined with rest and a simple regulated life, which can often only be obtained in the country or in a properly arranged institution; often the latter is all that is required. In every case the question should be asked, "Is psycho-therapy really worth while in this case?" I believe psycho-therapy is a help in neurasthenia, but it is seldom all that is necessary; curiously enough, it is often less valuable in mental cases than in cases never mental at all. One of my patients developed a severe attack of neurasthenia; he had no energy, was easily fatigued, and greatly depressed. One special treatment did him much good, and was a great help to me as, during the course of it, I suggested that he should not constantly ring me up on the telephone, asking me to call, but that in future I would call as often as I thought necessary. Although the treatment had a marked benefit it became obvious that if such treatment was to cure him, it must be continued for a long time. As he lived some distance away I decided it would be better to get a companion for him and send him to the seaside. This was arranged with difficulty, but in the course of a few months the patient got well. I know that there are many incidents in his past life that might have been of great interest to some psycho-therapeutists, who might have thought over and over again they had ferreted out the root of the neurosis. I am doubtful whether analysis in his case would not have done more harm than good, especially as I believe the patient would have revelled in recalling his experiences. My opinion is that while analysis is indispensable in some cases and is of great value in many others, yet sometimes it is not worth the time, trouble, and expense involved. No doubt when this treatment was first introduced and before we had the knowledge we now have of psycho-pathology, long examinations were necessary. I cannot help thinking, however, that anyone who has studied the subject and qualified himself to carry out such treatment should be able to get at the root of the trouble quickly. Most of my patients soon told me the cause, even though it was one which the conscious and subconscious mind both wished to conceal. Not long ago a young man came to see me, and remarked that he was subject to asthma which had been cured by his work being transferred to Birmingham from London. While he was in London his asthma was dealt with by analysis, which went on for nine months. I asked him what treatment he had had and he said they had not got up to the stage of treatment. As this case could be cured straight off by change of climate, psycho-therapy for nine months as a start was not indicated; indeed, I believe it was actually injurious, especially as the young man had been given a number of books to read on the subject which he said had greatly interested him. It ought not to be difficult to find the root of the neurosis in a young unmarried man, 24 years of age. Certainly it ought not to take nine months. I told the patient that if he developed any asthma while he was here I could cure him by psychic methods, but that treatment would not take even nine days, nine minutes being nearer the mark. Many cases of asthma can be put right by proper treatment.

Some years ago a young woman came to ask me to continue the mental analysis she had been undergoing on the continent on the ground that not enough had been discovered. Her examination had been continued for 18 months. The trouble was that she had a horror of wasps; she would rush out of the room screaming if she saw a wasp. All that could be found out was that as a child she had had an unfortunate experience on the same day on which she was stung by a wasp. Knowing what we do about children's habits and accidents I should have thought this fact could have been found out earlier. I at once told her that the best thing she could do was to go back to her work again. I met her accidentally in another town some years later, when she said she was much better and was satisfied that the advice to take up work again was the best advice she had had.

In all cases of neurasthenia it is necessary to consider whether there is any congenital mental defect. As medical officer to the Birmingham Mental Deficiency Committee I know that some mentally defective men who were never really fit to be enlisted in the army are now suffering from shell shock. In some of these cases where psycho-therapy is being carried out the only result will be disappointment. It is important to find out first what was the patient's original mental capacity. All suitable cases show some repose at once, and I have always accepted Sir Frederick Mott's dictum in psycho-therapy that there should be an improvement in some direction the first day of treatment, treatment being, of course, distinguished from investigation.

The next case illustrates the importance of rest and relaxation, a form of psycho-therapy which is sometimes sufficient in itself.

A head mistress complained of a rheumatoid infection of the hand. I decided to treat her by a course of vaccines; *B. coli* were found in the urine and corresponding autogenous vaccines prepared. Just as she was leaving at the end of the first interview she said, "I wish you could give me some fresh pluck, but I am afraid that is a hopeless thing to ask a doctor for." I told her that such treatment was easier than the treatment for her arthritis. She said she had lost confidence in herself and thought she was not equal to her work. Saying that I could give her a more comfortable frame of mind quickly, I told her to lie down on the couch in an easy position, just as she would do on her own sofa at home. She lay down, but it was evident she was not in a restful position, her whole frame being tense. She then said that during term she never was able to rest properly, and always felt in a state of tension and nerves. When asked to take deep breaths her mode of respiration was faulty and ineffective. I explained how to relax and how to breathe properly, and advised her to have a course in voice production. This she did and derived considerable benefit. As she was returning to her work immediately she was not able to come back for further treatment, so I wrote and reiterated the instructions I had given about breathing, and the importance of resting in the early part of every afternoon. She replied that I evidently did not understand the nature of her work or I would not suggest resting during the middle of the day. In reply, I said that rest every day was essential, and that as she was headmistress the matter was in her own hands; that it was a matter of organisation; and that her deputy must be responsible at 2 o'clock every day while she rested in the manner prescribed. She replied that she realised the importance of the advice and was carrying it out, and already felt better. A few months later, as her breathing and power of relaxation had improved, I gave her three treatments, using "waking suggestion." It then transpired that one of the original causes of her anxiety was that as a girl she had one day had an unfortunate experience in the road, and was always afraid that some of her pupils might meet with the same trouble. I never heard the details, but explained to her that as long as she looked after her pupils well while they were under her care she was not responsible for their protection after they had left the school; that rested with their parents and the police. A few weeks later she told me the treatment had been beneficial, and that she had applied for the head mistress-ship of a larger school.

Investigation of Criminal Cases.

Before concluding I should like to refer to some cases of a different type. Early in the present year I was appointed psychological expert to the Birmingham magistrates, and so have had opportunities of examining unusual cases convicted of crime. This work is a whole department in itself. Mental analysis is of great value, because in many cases the crime for which the prisoner is convicted is not the cause of his going wrong and is not the condition which requires treatment. For instance, women convicted of theft are often inebriates and only steal to get money for drink. In the case of a young girl convicted of stealing, analysis showed that the reason she had taken to theft was that she was in an uncongenial occupation. She wanted to be a pupil-teacher and ultimately become a school-mistress, but her mother insisted on work in a factory. As the work was distasteful to her she stayed away from it. As she required money and did not earn it, she stole from her parents, against whom she had a grudge. Imprisonment in such cases would be disastrous; the only chance is a properly regulated life with change of occupation and possibly some psycho-therapy as well.

Anyone who has to deal with these young criminals cannot help being struck by their extraordinary suggestibility; they are just as open to good suggestions as to bad, and if only they can be placed in proper surroundings their character can be greatly influenced by suggestive treatment of one kind or another.

I can give you no better illustration of the importance of thorough medical investigation in these criminal cases than a boy I saw since this paper was written.

A gentleman brought for my advice his son, as he had been stealing, and no cause for this abnormality could be discovered. He was an intelligent well-set-up boy of 16, very keen on his training in farming, which he had just started. I found that for three years he had been the victim of self-abuse, and in addition was a hystero-epileptic, and I suspected that true epilepsy was developing. He gave a clear account of momentary forgetfulness, when he seemed to lose himself; he often talked and even shouted in his sleep, had been a sleep-walker, and on one occasion recently fell out of bed during the night. I have put him on bromides and arsenic for a month, as I want to see the effect of medicinal treatment first; if that is no use I expect psycho-therapy will help him; it has great possibilities in hystero-epilepsy and even in incipient adolescent epilepsy. As the boy is leading a healthy life and has a good family record, the prognosis is fair. The self-abuse is an infantile complex which should be dealt with as such, proper occupations being provided, and ideals of development, manhood, and family life being built up.

Conclusion.

In conclusion, I should like to say I believe psycho-therapy will furnish the explanation of many illnesses and diseases, and is a powerful agent in relieving chronic pain, distress, and anxiety; it is also an important factor in promoting efficiency and in strengthening character.

V.A.D., SUSSEX 53.—Some interesting figures were given at a gathering at Brighton on Dec. 3rd to celebrate the end of the arduous war work of the Sussex 53 Voluntary Aid Detachment, and the detachment's settling down to peace conditions. During the war period no fewer than 250 convoys arrived at Brighton containing just over 38,000 sick and wounded, occupying the detachment 729 hours, or 91 eight-hour days. Service was entirely voluntary, and Commandant C. G. Yates was absent on three occasions only. On orderly duty at the Lady George Nevill, Larnach, and Red Cross hospitals, members put in over 26,000 hours' duty; and the detachment turned out at the emergency stations fully equipped at all air-raid calls, but, fortunately, were not needed. Tribute was paid to Mr. J. A. A. Orlebar, C.B., the medical officer of the detachment, for his lectures, which were given gratuitously. Convoys of men broken in the war still arrive at Brighton at intervals of about a month, and are conveyed by the detachment to the Kitchener Hospital, Elm Grove, while the members still give attention to civilian cases when called upon.

HYSTERICAL SLEEPING ATTACKS:

TREATMENT BY GROSS SUGGESTION, REINFORCED BY THE OPERATION OF TREPHINING, WITH NOTES ON BEHAVIOUR IN HYPNOTIC SLEEP.

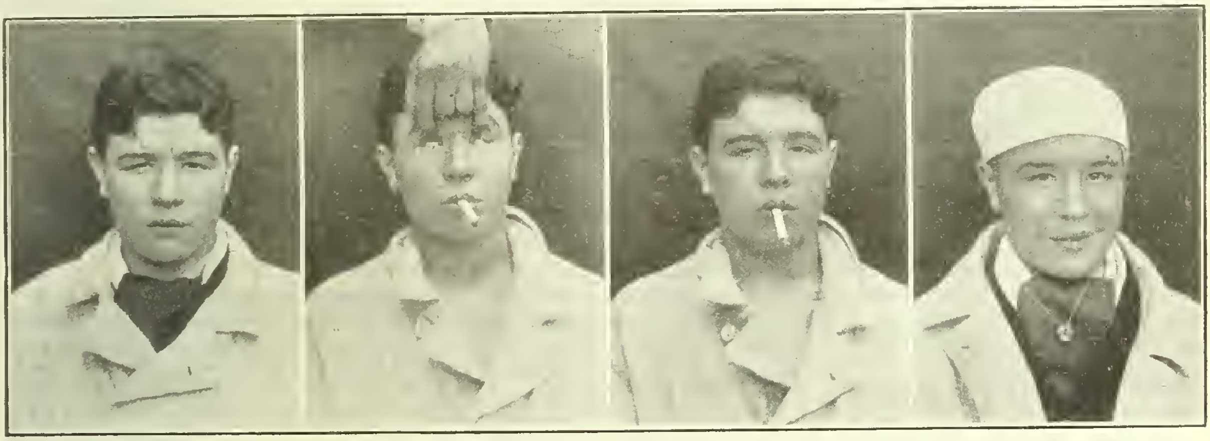
By HILDRED CARLILL, M.A., M.D. CANTAB., M.R.C.P. LOND.,

SENIOR PHYSICIAN, WITH CHARGE OF OUT-PATIENTS, WESTMINSTER HOSPITAL; ASSISTANT PHYSICIAN, WEST END HOSPITAL FOR NERVOUS DISEASES; PHYSICIAN, SEAMEN'S HOSPITAL, GREENWICH, ETC.

History of the case.—The patient, aged 19, was admitted to hospital in June, 1918, with a diagnosis of mental disease. He is a boy of average intelligence, and his home is in Lambeth. He is the eldest child of English parents, and he has five brothers and two sisters, all of whom are well. His mother is well. His father was killed in the war. His story was that since early childhood, for as long as he could remember, he had been liable to go off to sleep at any time and without any feeling of fatigue. He had never been a week free from this. There is no history of fits in the patient, or in his family. He does not walk in his sleep, and he is never incontinent. Except for the sleeping attacks, which he is quite unable to resist, the boy feels perfectly well in every way, and he has always been in good health. He has only once suffered injury by reason of the attacks. He joined up in December, 1915, and since February, 1917, he has been at sea. On several occasions he has been punished for going to sleep on duty. He was very anxious to be cured. As soon as he was seen, and his history obtained. he was sent to the neurological ward.

A more detailed account of his attacks prior to his admission is as follows. He says that he has frequently fallen out of bed at night and been put back, but has known nothing about it until told of it the next morning. When he was 15 he went to sleep on the tail-board of a moving cart, and, being thrown off, injured his knee slightly. On another occasion he was on the top of a van and went to sleep just before the van reached a railway arch. The road was well known to him, he saw the archway, and knew that he would be struck if he did not move, but in spite of all this he was unable to resist going to sleep. He was caught by the archway and thrown from the van, but escaped, fortunately, with a few bruises. He says that his parents have always had great difficulty in rousing him in the morning.

Account of the sleeping attacks observed in hospital.—The first attack was on the day following his admission. As dinners were being served in the ward he walked to the chair by his bed, sat down, and immediately went to sleep. I found him sitting with his back to the ward, his head dropped over to one side. He held on to the bedclothes with his hand, and when I removed it he fell heavily to the floor and would have hurt himself had his fall not been checked. For a few moments he remained where he fell, then his eyes opened, and he got up, appearing to be very surprised at finding himself on the floor. He had no recollection of falling and could not explain the incident. Directly after dinner he lay on his bed, and during a sleep which was apparently normal he fell off and was lifted back. He did not wake for some time after, and he had no recollection of falling. Many similar attacks occurred both by day and night. Once he went to sleep sitting on the stairs. On another occasion he went off while sitting on a bench cleaning knives, and the following day he had an attack while he was scrubbing the floor, and remained motionless for ten minutes with his arm immersed up to the elbow in a bucket of water. I failed entirely to waken him in these or in any of his attacks; neither did anyone else have the slightest influence over him when he put himself to sleep. He made no sound and he did not reply to questions. His lids were closed. When he was lifted on to his feet he collapsed on to the floor, and as a rule in five or ten minutes he woke quietly of his own accord. On no occasion did he struggle or show any of the manifestations of a fit. In all his own attacks, as also when he was under the influence of hypnotic suggestion, his eyes rotated upwards at the moment the lids were raised. (See Fig. B.) He was observed only on one occasion to go to sleep while he was walking about, but he told us that this had happened fairly frequently in the past. The attacks had no relation to the company he was in or to the existing circumstances. He would go off to sleep when he was by himself as readily as in a crowded ward.


A, Awake. B, Hypnotised. C, Hypnotised. D, After operation.

Night attacks.—Often it was reported that while the patient was sleeping quietly he would suddenly snore or breathe deeply and would then attempt to fall out of bed. More than once he did fall, and then he rolled under the next bed. On no occasion did he wake during this performance. Sometimes he persisted in falling out of bed several times in succession. As a rule he was very difficult to rouse in the morning.

The total number of sleeping attacks which were observed during four weeks was 33. The longest interval of freedom was six days.

Diagnosis.—Except for enlargement of one of the turbinate bones examination revealed no evidence of organic disease in any system. The boy's physical health was good, but his expression was rather bad-tempered and he looked worried (see Fig. A). He was not addicted to bad habits. The Wassermann reaction was negative in serum and cerebro-spinal fluid, and the fluid was in all other respects also perfectly normal.

The only two possibilities as regards diagnosis were hysteria and epilepsy. I was confident that the attacks were hysterical, due to his own suggestion; in other words, I thought that he hypnotised himself. Many attempts were made, both when he was himself and in hypnosis, to discover any underlying cause for the condition, but all proved fruitless. This failure to find a basis for the attacks prompted a diagnosis of epilepsy from several colleagues of experience. The patient, however, was never seen to hurt himself in his repeated falls, never had any loss of sphincter control, never altered in colour, and never showed an extensor plantar response during or after an attack. On the other hand, he had no manifest hysterical symptoms between his sleeping bouts or on waking from them.

Notes on the Behaviour of the Patient in Hypnosis.

On the assumption that he hypnotised himself it was probable that he would be an easy subject to hypnotise, and this proved to be the case. He had not been hypnotised before. On the first occasion he reacted to my suggestion in about a minute, and after this I had merely to tell him to look at me and go to sleep and immediately he would be sound asleep. Several other medical men at different times attempted to hypnotise him, but without success. This was not due to any counter-suggestion of mine; in fact, I told the patient that I wished him to go to sleep at their bidding. He made no conscious effort to resist them, but said that he did not feel sleepy.

When he was hypnotised he obeyed all my instructions promptly, and ate, danced, smoked, and sang songs to order, but he accepted commissions from no one but myself unless directed to do so by me. He said that it was idle for me to tell another in his hearing that orders from him would be obeyed, nor would he respond to my written orders unless they were presented directly by myself. When told to fall off the bed he rolled over and fell very heavily on to the floor, making no attempt to save himself, and narrowly escaping injury. The fall did not waken him. Before he was hypnotised he was shown a form of will made out so that his possessions were left in a certain direction, and he was asked to put his signature to it. He not only refused but he wrote across the paper "I refuse to sign this." A moment later he was hypnotised and signed without protest a precisely duplicate form. He said that he would shoot me or himself at my command, that he would jump from an upper window or remain in a burning room, and he left no one in any doubt that he would be as good as his word. He was told to strike an officer of high standing (a court-martial offence), and did so. Similar instructions when he was awake made him very indignant. It is unnecessary to give further illustrations of the absolute power over his behaviour and actions which I was able so easily to exert when he was hypnotised, but there was an abundance of evidence to controvert the statement made by Dr. J. A. Hadfield in "Immortality" that "the hypnotised person will refuse to do anything that is strongly repugnant to him ...... and is therefore not the automaton some people would have us suppose." All my investigations were conducted in the presence of medical witnesses.

When the eyelids were passively raised it was observed that the globes were rotated upwards (see Fig. B). Later it was noticed that this rotation occurred at the moment the lids were raised. The same thing happened when he put himself to sleep. When he was told to do so he opened his eyes normally and all ocular movements were correctly performed (see Fig. C). Awake, he was quite unable to rotate the eyeballs more than the normal amount. On one occasion cutaneous analgesia was found in the absence of any suggestion. With this exception sensation was absolutely normal, but the most extensive and profound analgesia and hyperæsthesia could be produced and removed at a word, although I did not succeed in suggesting complete absence of pain when he was touched with a hot iron. Pin-pricks caused the normal amount of hæmorrhage. I was unable to demonstrate hyperacuity of vision or of hearing, but Dr. Craig Dunlop found that in hypnosis the bone conduction was increased. Reflex blinking to the stimulus of bright light was present until its abolition was suggested. The patient did not rouse when water was thrown over him or when he was stimulated in other ways. He was oblivious to very loud noises close to his ears, such as that made by banging a poker on a shovel, although no suggestion had been made that he would not hear it.

He was unable to make his respiratory movements quite imperceptible, when told to simulate a man dead. Marked rigidity of the limbs was suggested with ease, but the suggestion of extreme continued rigidity of the trunk as a whole was not successful. Attempts to produce thought transference were unavailing. He said that he obeyed me merely because he heard my voice, even when I whispered. He would not admit any other reason. No one of many observers succeeded in waking him. When he was awake he had no recollection of any of the incidents which had occurred, but most of the details were recalled in subsequent hypnosis. He did not remember in hypnosis occurrences during the periods when he put himself to sleep.

On one occasion I hypnotised the patient at 11 A.M. and told him to remain asleep until I wakened him at 4 P.M. I found on my return that he had wakened himself at 1.30 P.M. Another time I told him, when he was hypnotised, that he was to telephone to me two hours later when he was awake. I then woke him up and he had his dinner. At the exact hour appointed he telephoned to me and carried on a conversation. I imagined that he was awake, but when I saw him later he had no recollection of telephoning to me. I then found out that he had laid down after dinner and presumably passed into one of his own sleeping affairs, for he was certainly asleep when he got up and asked where the telephone was and rung me up. Further suggestions under hypnosis that he would do certain things at a later hour when awake failed.

The following incident was of interest. Dr. E. A. Cockayne attempted to hypnotise the boy in my absence and was unsuccessful. I then told the patient that it was my wish that Dr. Cockayne should be successful and I went out of the room. The second attempt was also without success and Dr. Cockayne came to tell me so. After a moment we went into the room together and found the boy fast asleep and about to fall from the bed. The question arose whether he was under the influence of Dr. Cockayne or of myself, but neither of us was able to make the slightest impression upon him. Soon afterwards he woke up and sat on the side of the bed and spoke to us, and a moment later, in our presence but without a word of any sort from either of us, he leant forwards fast asleep and fell heavily, head first, on the floor. We were unable to waken him. Without speaking, I plunged pins into him and found him completely analgesic. Water thrown over him failed to rouse him, but when it was dropped from a height on to his face it was obvious that he appreciated it and shortly after he woke up. He was astonished, equally obviously, to find himself wet through and he told us that he had not felt the water at all. On another day very careful experiments, controlled by Dr. Cockayne, were made by me to produce blistering of the skin by suggestion. Dr. Hadfield described a series of successful tests of this nature in THE LANCET of Nov. 3rd, 1917. I failed completely to produce the slightest objective lesion by suggestion.

Treatment.

On July 2nd I told the boy that he was to resist my suggestions of sleep. For a time he was successful, finally passing into a sleep in which I had no influence over him. When he woke I told him that soon I should be quite unable to send him to sleep and I explained very carefully to him that as soon as he was able to resist my efforts he would also be able to resist his own suggestion to go to sleep. I told him that his own attacks had no relation to natural sleep and that although he did not recognise the fact it was obvious that his own attacks were the very rapid effect of a suggestion to sleep which had its origin in his own brain. On July 8th he was hypnotised, but not very readily, and strong suggestion was made that in the future he would always be able easily to resist my influence and also that he would have no difficulty in preventing his own attacks. The next day I failed entirely to hypnotise him, but a few hours later he went to sleep while leaning against the wall in another ward. When the attendant, who did not know him, went to rouse him the boy fell heavily on to the floor, still sound asleep. Thus the first part of my suggestion had proved successful, but not the second part, and I was now deprived of a useful means of communicating with him.

On July 10th he had a small operation on his nose for obstruction. The sleeping attacks recurred with some frequency. I made many further attempts to hypnotise him, but always without success, although I told him that for a special purpose I wished to be successful, and that I had reasons for retracting my previous statements. I was not able to get him even drowsy. He used to take pleasure in pretending that he was asleep, merely in order that he might watch my dismay. On July 25th he went to sleep during a game of cards, sliding off the chair and rolling under a bed. He retained his cards in their proper position between his fingers. For some weeks he took 90 gr. of bromide a day in deference to the opinions of those who thought that he might be epileptic, but the attacks continued without abatement, reaching a climax when he went to sleep in the barber's chair and resisted every attempt to waken him made by a frightened crowd. This attack occurred on the day prior to the operation on his skull. On August 2nd he volunteered to assist an illusionist on a stage, and did so without mishap.

Operation.—On August 9th, after some preliminary stage management, his head was X rayed and he was told that at last the real cause of his illness had been discovered, and that an operation for the removal of a piece of thickened bone was necessary in order to effect a complete and permanent cure. At a demonstration of neurological cases I read out to the audience in his presence the notes of a similar but purely imaginary case, in which operation on the skull had proved successful. He agreed readily to my proposals and wrote home at once to say that a cure had been discovered, and to obtain consent to undergo the operation. On August 11th Dr. L. Horsley gave him some open ether and with Dr. G. H. C. Griffith's assistance I trephined the skull in the right parietal region and removed the disc of bone. The dura mater was healthy and was left alone. The bone was normal. Directly the patient came round he was shown the piece of bone and given it to feel, and he was told how successful the operation had been. The bone was drilled and suspended round his neck, where it remained for many months. He wrote his initials on it and also the date of the operation. An attempt to suggest anæsthesia by substituting scent for the ether was unsuccessful.

Subsequent History.

From the date of the operation his sleeping attacks ceased entirely and to all and sundry he admitted with great pride that he was absolutely cured. He did not relapse when I went on leave. On Sept. 12th the patient went on leave. He remained perfectly well at home. He was late in returning to duty on Oct. 2nd and he says that while sitting in the guard-room he dropped off to sleep and required some shaking before he was roused. There is some reason to think that this was not a recurrence but was assumed in order to lessen his punishment. In April, 1919, he was seen and examined in London. He was very pleased with himself and looked well and happy. He said that in December, 1919, he had gone to sleep at his work, but that it was natural sleep. He signed a paper saying that he was completely cured. Without any preamble I tried to hypnotise him and failed. In June, 1919, he was seen again. He remained perfectly well and had no headache. He said that he was still difficult to rouse in the morning and had lost a job through being late. Unfortunately counter-suggestion to this particular phase of his illness had been omitted.

With the two exceptions mentioned above, neither of which was a proved recurrence, the patient has remained perfectly well since his operation 18 months ago, and this in spite of the fact that his future was imperilled by a diagnosis of hysteria on his discharge papers, and in spite of the fact also that in March, 1919, he lost his trophy. Reports while he remained in the hospital and since his discharge agree that in his behaviour he has changed markedly for the better. He is now polite and thoughtful of others, whereas prior to his operation he was inclined to be selfish and bad-tempered. His expression reflects this change in his personality (see Figs. A and D). In July, 1919, the patient was shown before the Association of Physicians.

Frequently I have been asked why I actually removed a piece of bone, and my answer is that, having committed myself to the statement of the thickened bone, and having told the patient that its removal was necessary it was much in my mind that I must leave him with a definite, tangible depression in his skull to which he could point. It must be remembered that when these conversations took place the boy's future was at stake and a cure problematical. In the few cases in which it is necessary to be unscientific in order to cure hysterical symptoms it is necessary to be consistent.

For the same reason the boy was shown the piece of bone at the earliest moment of his recovery to full consciousness, and it was then that I realised that probably the cure would be made more certain if he could be persuaded to regard the bone as a precious possession. My reason to the patient for wishing him to wear it round his neck was that it would serve to remind himself and others that his skull had been operated on, but it is clear that the mental effect of constantly handling and showing off his treasure was likely to be the strongest possible suggestion against relapse.

The only other patient I have seen who at all resembled the above was a boy of 16 who went into trances, lasting as long as 24 hours. These all terminated in typical hysterical fits, in which opisthotonos was a constant feature.

Harley-street, W.

NOTES ON SOME
OCCASIONAL MANIFESTATIONS OF MALARIA.

BY D. W. CARMALT JONES, M.D. OXON., F.R.C.P. LOND.,
PHYSICIAN TO WESTMINSTER HOSPITAL; LATE CONSULTING PHYSICIAN, EGYPTIAN EXPEDITIONARY FORCE.

MALARIA was the greatest of all causes of admission to hospital in Egypt during the recent campaign, and probably also in Salonika and Mesopotamia. The troops at Gallipoli were also heavily infected, and the Indian garrisons have suffered exposure to the same risk. There must therefore be in this country great numbers of men who have had malaria, and of these a proportion are certain to suffer from relapses. Probably every large hospital in the kingdom contains such cases, and recurrent ague is a complaint constantly heard at Pensions Boards.

The common phenomena of malaria are familiar enough, but there are other manifestations of the disease of rare occurrence, and although recorded in the text-books, they may not be referred to their proper cause unless their relationship to malaria is borne in mind. Such errors are to be regretted, because the symptoms are often alarming in character, but yield readily to proper treatment with quinine.

The following notes were made upon cases of this kind, which occurred in patients to whom attention was drawn by medical officers in charge of divisions and wards during routine visits to hospitals in Egypt. The majority of the symptoms are referable to the effect of the disease upon blood-vessels, generally with the production of hæmorrhage from mucous membranes and into solid organs; thrombosis is also to be met with, though less frequently than hæmorrhage.

Unusual Symptoms of Malaria in the Circulatory, Respiratory, Excretory, and Alimentary Systems.

Apart from vascular symptoms, disorders also arise in the circulatory, respiratory, and excretory systems, which appear to be due to parenchymatous change, so far as it is permissible to draw pathological inferences from clinical observations. These, which form the smaller group, will be taken first.

Circulatory system.—Malaria is one of the many contributory causes of disordered action of the heart, and is liable to produce greater evidence of myocardial change than most of the others, definite increase in the area of cardiac dullness and valvular murmurs being more frequently found in malarial subjects than in those whose disability is due to uncomplicated physical strain, to neurasthenia, gas poisoning, or trench fever. The following are instances:—

CASE 1.—Private S. Well for three years on active service. One recent severe attack of malaria, T. 106° F. Well-marked dilatation of the heart.

CASE 2.—Private M. Two years' active service. Palpitations, præcordial pain. Poor exercise tolerance. Systolic murmur at the apex, pulmonary second sound increased.

CASE 3.—Private McC. Ill for four weeks with "clinical malaria." Systolic murmur at the apex and marked irregularity of the beat.

A group of 13 German prisoners of war was examined; all of them had received routine treatment with quinine for many months while with their units, but they had all suffered to some extent from malaria; four of them were found to be much wasted; four had definite physical signs of heart disease, and two others had disordered action alone.

Patients suffering from disordered action of the heart who have been exposed to infection should therefore be examined for major or minor relapses of malaria.

Respiratory system.—These observations were made while the influenza epidemic was prevalent in Egypt, and there were many cases in which differential diagnosis between influenza and malaria was impracticable. There is, however, no doubt that the latter was a very grave complication of the epidemic, and will require consideration in the event of any recurrence of influenza or during attacks of ordinary bronchitis in the winter. But, influenza apart, respiratory symptoms are by no means infrequent in malaria.

CASE 4.—Private B. Broncho-pneumonia and "clinical malaria." Areas of consolidation at left base and left apex. The fever was immediately reduced by quinine.

CASE 5.—Private Br. Three attacks of fever on alternate days. Fairly extensive general bronchitis. The fever subsided in three days under quinine.

There are records of congested lung bases in three cases of malignant tertian malaria seen within a few days of one another.

Excretory system.—The following notes are on four patients who were all in hospital under treatment for malaria, one benign, two malignant, and one not specified. As febrile cases, all were kept in bed and protected against risk of chill. None of them gave any previous history of nephritis, but all developed typical symptoms thereof without apparent cause.

CASE 6.—Private A. Malignant tertian malaria. Complained of headache and pain in the back, with albuminuria. The symptoms rapidly subsided under diuretics.

CASE 7.—Private P. Admitted ten days previously with diagnosis of influenza. Malignant tertian parasites were found in the blood. Symptoms of nephritis were observed, with albuminuria, but no casts.

CASE 8.—T. (P.o.W.). Admitted with benign tertian malaria. Responded well to treatment, but nephritis followed, with albumin and casts in the urine.

CASE 9.—Private W. Admitted with malaria. Profound pallor, œdema of the back and feet, oliguria with a trace of albumin.

Alimentary system.—In Egypt, intestinal disturbance, with diarrhœa, was extremely prevalent from many causes, so that one hesitates to ascribe such cases to malaria, but gastric trouble as a definite part of the febrile attack was very common. Anorexia with dry coated tongue is the rule, and vomiting is frequent. The following is an extreme case:—

CASE 10.—Private H. Three attacks of benign tertian malaria said always to have begun with vomiting. There was an uncontrollable attack of vomiting of two hours' duration while under observation, ending in grave collapse.

Cases of these kinds are examples of the protean character of malaria and of its capacity on occasion to attack any one of the great physiological systems, so that when unexplained symptoms arise in patients who have been exposed to this infection the possibility of relapse is worth consideration.

Vascular Lesions.

The following cases have a pathology more easily understood if it be granted that malaria has a definite effect upon blood-vessels. All the symptoms to be described are traceable to a vascular lesion of some kind.

CASE 11.—Private U., a malarial subject, had three hæmorrhages from the lungs in three days, losing a total of two pints of blood. No physical signs could be found in the chest, and the hæmorrhages ceased at once under treatment with quinine.

CASE 12.—Private W. Frequent attacks of malignant tertian malaria. Digestive system much out of order; tongue coated on dorsum, raw at the edges; pain after food, vomiting, and constipation. This patient had a record of profuse hæmatemesis of about a pint, followed by melæna.

CASE 13.—Private Y. Infected with malignant tertian malaria. Severe hæmorrhage occurred from the bowel, followed by discharge of pus. A diagnosis of infarct was made. The condition rapidly cleared up under quinine.

CASE 14.—Major J. S. Double infection with malignant and benign tertian parasites; suffered from a profuse hæmorrhage from the bowel. This patient had hæmorrhoids, one of which was probably the source of the bleeding; but, if malaria produces a liability to hæmorrhage, it is not remarkable that it should occur from a weakened site. The bleeding subsided rapidly with quinine.

CASE 14.—Private T. Twenty recurrences of malaria. In an observed attack the patient was ill for 12 days, with fever to 104·2°. He was intensely jaundiced for four days, and later was very pallid; he vomited blood and passed blood in the stools and urine.

CASE 16.—G. (P.o.W.). Admitted with malaria. Temperature became normal in three days and remained so for a week; it then rose again, swinging between 96° and 103°, the spleen became much enlarged, reaching the umbilicus, with a fluctuant spot near the sternal edge; this was punctured and grumous blood withdrawn.

CASE 17.—Private O. In this patient Dr. Margaret B. Dobson, ophthalmic specialist, demonstrated a subhyaloid hæmorrhage in the right macular region. She stated that though the condition was rare she had found several instances in malarial patients.

CASE 18.—Private G. Malignant tertian malaria followed by broncho-pneumonia. After subsidence of the fever thrombosis of (apparently) the left popliteal vein occurred, with œdema of the leg; the symptoms rapidly disappeared.

Cerebral Malaria.

The foregoing are clear instances of the occurrence of vascular lesions in malaria, and the most interesting and important of such lesions are those which produce "cerebral malaria," which is a condition clearly vascular in origin. The following are specimens:—

CASE 19.—Major W. Had had "fever" in Damascus a short time before admission to hospital, and had had some treatment with quinine for three weeks. Came into Egypt on leave, and was admitted to hospital in an anæmic condition and with slight evening fever; given gr. xxx. of quinine daily for ten days, and discharged on Nov. 22nd to a convalescent institution. Nov. 24th, an attack, transient left hemiplegia, which cleared up in two hours; readmitted to hospital. Nov. 25th, a "faint." Nov. 27th, a Jacksonian fit, patient recovered at once; a similar attack later, patient unconscious the rest of the day, but complete left hemiplegia and hemianæsthesia could be demonstrated. Given quinine, gr. xx., intramuscularly. Nov. 28th, still unconscious, but power had returned on the left side; no reflex change. Quinine repeated. Nov. 29th, irrational. Nov. 30th, fairly rational. Dec. 1st, quite clear, but a little "childish." Had seven doses of quinine into muscle in six days.

CASE 20.—Private C. Malignant tertian malaria. Nov. 15th, sudden left hemiplegia. Nov. 17th, violent, restrained with difficulty. Nov. 29th, queer in manner, unresponsive; the left face was weak, but the arm and leg could be moved normally. The left abdominal reflex was absent, and the left plantar variable. The deep reflexes were increased on the left. Improvement was maintained till evacuation.

CASE 21.—Ac. (P.o.W.) Malarial subject. Cerebral attack of three days' duration; unconscious, violent, incontinent; symptoms subsided under quinine. There is no record of paralysis.

CASE 22.—I. R. (Turkish P.o.W.). Cerebral malaria. Stuporose, roused with difficulty. No intelligence shown. Analgesia and partial hemiplegia on the right. Recovered completely with intramuscular quinine.

Another case, of which notes have not been preserved, was seen in France. The patient was admitted from another hospital on account of maniacal symptoms; after admission he was in a state of typical cerebral irritation, lying curled up and resenting any handling; a partial hemianalgesia and hemiplegia were found on the following day. Recovery was rapid and complete.

It will be observed that four out of five of the cases quoted were hemiplegic. Violence and irrational behaviour was more frequently noticeable in these patients than they are in cases of hemiplegia of the usual hæmorrhagic or thrombotic origins, and the recoveries are exceptionally complete. In view of the rapid recovery made by so many cases of patients with cerebral malaria it is improbable that they are as a rule caused by gross hæmorrhage, and post-mortem specimens are described in which small emboli of parasites are found in the cerebral vessels. But with hæmorrhage so readily demonstrated in such a variety of sites in many cases of malaria it is likely enough that cerebral hæmorrhages may occur.

It should again be emphasised that the cases described in this paper are exceptional, and form a small group among a very great mass of clinical material, but they demonstrate that malaria has a place, though a small one, among the hæmorrhagic diseases. Instances are given of bleeding from the mucous membranes of the alimentary, respiratory, and urinary tracts, into a solid organ like the spleen, and into the eye. It is not likely that this exhausts the list of possible sites, and no doubt many other observers could add to it.[1] Two cases of arthritis were observed in this series, one with effusion into a knee-joint; blood was not demonstrated in it, but its presence would not be remarkable, and it may well be that instances of bleeding into joints, or skin, or other solid organs has been observed. At any rate, hæmorrhage of any kind occurring in a malarial subject should be regarded as an indication for treatment with quinine.

When any of the grave complications of malaria occur the need for immediate and intensive treatment with quinine becomes urgent, and when a rapid action is required the choice lies between intramuscular and intravenous injection. Careful inquiries were made in Egypt among officers of long experience and sound judgment as to the best method. The great majority of them preferred the intramuscular method as being quicker and easier of administration, attended with less risk, and giving quite satisfactory results, like those in Cases 19 and 22. Major P. H. Manson-Bahr, D.S.O., R.A.M.C., advised against the intravenous method in field units, where many men arrive much exhausted and cardiac conditions are likely to be at their worst. Some officers at base hospitals, however, preferred intravenous injection. Major James Kerr, R.A.M.C. (T.), at Cairo, after 18 months' experience and having treated over 200 patients, strongly advocated this method as giving immediate satisfactory results. He used doses of 20 gr. in about 15 oz. of saline solution; this may be repeated once in the day, or even twice if the temperature does not fall, and is followed by oral administration. Intravenous injections are unsuitable in cases with cardiac and respiratory symptoms. The writer has a preference for this method in urgent cases, but it requires, of course, some degree of technical skill in administration.

In the general management of the problem of malaria, the prophylactic use of quinine was almost universally condemned in Egypt in spite of the pre-war experience of medical officers in India, the West Coast of Africa, and other malarial districts where prophylaxis is universal. Malarial subjects should be advised to take a calomel purge followed by quinine by the mouth *immediately* on feeling the slightest headache or malaise; by this method it appears that recurrences can frequently be aborted.

To assist clinical diagnosis of the infection, the presence of areas of hyperalgesia over the distribution of the 8th cervical and 1st dorsal, the 7th dorsal and the lumbar segments, or some of these, may be taken as a good rough indication that the patient is suffering from malaria, provided that trench fever infection can be excluded.

---

[1] See "On Hæmorrhage from the Bowel in Malarial Disease," S. F. Clark, R.A.M.C. Journal, 1904; "The Purpuric and Hæmorrhagic Type of Malaria," Castellani, Proc. Roy. Soc. Med. (Med. Sect.), July, 1917.

Surgeon Rear-Admiral Sir Robert Hill has been appointed a Knight of Grace of the Order of the Hospital of St. John of Jerusalem in England.

LIVINGSTONE COLLEGE.—The work of this institution, which trains missionaries in elementary medicine, surgery, and hygiene for stations situated abroad and far from medical aid, was interrupted during the war, the buildings having been used as an auxiliary hospital. In April last, however, the work was resumed. The report for 1918-19 states that during the 40 months that the College was requisitioned by the War Office more than 2000 patients were received. The College, the registered offices of which are at Leyton, E., is not self-supporting and an earnest plea is made for subscriptions. Dr. Loftus E. Wigram is the principal and secretary of the College.

A NOTE ON THE

TREATMENT OF RECURRENT MALARIA

AND MALARIAL RELAPSES.

BY HENRY FRASER, M.D. ABERD.,

LATE DIRECTOR, INSTITUTE FOR MEDICAL RESEARCH, FEDERATED MALAY STATES.

RECENT publications in THE LANCET have shown wide divergence of opinion on the treatment of malaria, so that medical men who are not familiar with the disease would find it difficult to determine the line of treatment which should be adopted. I have seen cases where heroic doses of quinine have been given in the belief that a cure would be effected. The subsequent history has shown that this is not so. In other cases quinine has been given in such minute doses as to be valueless; and cases of tertian malaria have been seen with three and four relapses, quinine having been withheld, it was stated, until the temperature should become normal.

During the period January, 1918, to July, 1919, observations and investigations have been carried out on 8000 soldiers who have been sent back to England on account of malaria contracted in one or other of the theatres of war. The majority of cases were studied in the Southern Command concentration camp for cases of malaria, the minority in the 3rd Southern General Hospital, Oxford, and the Kitchener Hospital, Brighton.

On arrival in England men infected with malaria parasites are not in most instances really ill unless they are suffering from a disease additional to their malarial infection. Many are debilitated and in poor condition, but it is surprising how rapidly they improve with the change of climate, change of diet, and adequate treatment. Men who have been some time in England, and whose condition is not complicated by other disease, do not present a debilitated appearance unless they are the victims of inadequate treatment and inadequate or improper diet. The disheartening thing to all of them is the occurrence of relapses. All of them have had quinine, many of them have had it in large amounts. Practically all of them dislike it, more especially in solution; any faith they have ever had in the value of quinine as a cure for malaria has been severely shaken. Yet quinine is undoubtedly the remedy for malaria. Observations have been made with various other drugs, including the ring compounds of arsenic. The results were not satisfactory. None of them is of the same value as quinine.

The primary attack of malaria is often severe, more especially when the disease is contracted under the conditions which so frequently occur on active service. The patients may then be unable to absorb quinine, and it is necessary to have recourse to intramuscular or intravenous injections, but in England when dealing with relapses these methods of medication are unnecessary.

When the tongue, as an indicator of the condition of the gastro-intestinal tract, is kept clean intolerance to quinine is not observed. Men have stated that they either could not take quinine or could not take it in solution. In no instance have their statements been verified. Time and again I have proved to the men the inaccuracy of their observations and that they can take quinine in solution with beneficial results. Tablets of quinine are not a satisfactory form of medication. Tablets are more pleasant to take than quinine in solution, but with them evasion is so much easier and is so commonly practised that they should not be employed in hospital treatment. No man can relapse during the period that he swallows 15 gr. of quinine sulphate in solution once daily. Smaller doses are not sufficient, and it is better to give the amount in one dose rather than in divided doses. Fifteen grains of quinine taken daily can do no harm to any man infected with malaria parasites. If the case does relapse the man is either not swallowing or not absorbing the quinine.

It has not been determined how long the continuation of treatment is necessary. It was not found practicable to continue the treatment beyond 28 days in hospitals or concentration camps for malaria. All that was accomplished was to demonstrate to the men that they were not invalids, and that with proper treatment they could be kept in health. It is advisable to continue the treatment for as long as possible, pointing out to the men that failure to do so will be followed by a relapse. The interval between the completion of 28 days' treatment and the occurrence of a relapse varies from several days to several weeks.

The ordinary hospital diet is excellent, and all that is required for uncomplicated cases of malaria. Indeed, if an adequate dietary could be ensured and arrangements made for the routine administration of quinine under supervision the vast majority of the men would be better out of hospital and engaged in work. Nothing conduces more to hospitalism than the admission of a man to hospital every time that he has a relapse, or his retention in bed after his temperature has become normal.

In the absence of treatment or in cases inadequately treated relapses are observed. In these cases 15 gr. of quinine sulphate in solution should be given twice daily for five days and thereafter 15 gr. once daily. A rigor cannot be aborted, and if the first dose be given when the temperature is rising vomiting may occur. The first dose should be given when the temperature is falling—that is, in the sweating stage. No patient suffering from a relapse without complications, who is treated in this way, will show a rise of temperature subsequently to the fourth day.

No importance is attached to the use of tonics, such as iron and arsenic. Where they have been given it has been in deference to the wishes of the men.

An alarming complication is the occurrence of blackwater fever. Fortunately the incidence of this condition is not high. Seven cases were observed. All of them recovered. In these cases quinine was withheld while the urine was abnormal. In all of them the temperature rose after the blackwater had disappeared. Quinine was then given and continued for as long as the patients were in hospital.

ROYAL PORTSMOUTH HOSPITAL.—The financial resources of the Royal Portsmouth Hospital are considerably strained, the expenditure being nearly £100 a week more than the income, due to the great advance in the cost of every-day necessities. To place the institution in a better position an appeal is being made for a contribution of 1*d.* a week from those engaged in the various business establishments in the town. It is hoped by this means to increase the income by over £10,000 a year.

CONGENITAL DISLOCATION OF THE HIP:

NOTE ON A METHOD OF DEALING WITH REFRACTORY CASES.

BY A. H. TUBBY, C.B., C.M.G., M.S.LOND.,
CONSULTING SURGEON TO THE WESTMINSTER, ROYAL NATIONAL ORTHOPÆDIC, AND EVELINA HOSPITALS.

WE are now well acquainted with the anatomy of congenital dislocation of the hip, and we are cognisant of the relative importance of the various structures affected. As the patients grow older we realise that some of them tend to perpetuate the dislocation and are definite obstacles to reduction. Therefore, we overcome the resistance of the pelvi-crural group of muscles by section of the pelvic attachments of the adductors and the hamstrings, or by rupturing their tendons just below the symphysis pubis. The pelvi-trochanteric or the gluteal and ilio-psoas group of muscles are of less importance, because it has been shown that in early life they do not undergo much shortening and contraction. In adolescence, however, the shortening of the limb and the elevation of the points of insertion of these muscles into the femur or the fascia lata cause so much contraction of them, that they become distinct obstacles to successful reduction of the dislocation, and require stretching before it can be accomplished.

Very important is the ilio-psoas in the pelvi-trochanteric group. We may disregard the short muscles, such as the obturator internus, the pyriformis, and the quadratus femoris; and our attention should be concentrated on the ilio-psoas muscle, a powerful structure, and so placed that it exerts a great influence on the shape of the capsular ligament. In congenital dislocation of the hip the ilio-psoas muscles and tendons undergo important changes in direction. As the combined muscle-tendon crosses the brim of the pelvis it is displaced outwards, and it passes closely beneath the anterior inferior spine. It then winds outwards and backwards to its insertion, compressing the capsule about its middle, and is responsible for the hour-glass shape of that structure, so often seen in cases of congenital dislocation in children of over 4 years of age (see Fig. 1). In effect, it stretches from its vertebral origin to the trochanter minor like a sling and on it the pelvis rests, so that it becomes a suspensory ligament for the body-weight. As age advances, the ilio-psoas muscle and tendon become more hypertrophied and thick; they compress the capsule of the hip-joint more closely about its middle, and the latter becomes not only hour-glass shaped, but its anterior wall is so folded inwards and backwards as to obscure the entrance to the acetabulum like a curtain (see Fig. 2). This constriction of the middle of the capsule is by no means an insuperable obstacle to reduction in early life, for the condition is that of the infolded finger of a glove, and a very slight distending force acting through the caput femoris is capable of opening it out. As time passes, however, the narrowing or hour-glass contraction of the capsule increases, for it is compressed from below and in front by the ilio-psoas tendon; and as the head of the femur is displaced more and more upwards and backwards on the ilium, the anterior and inferior portions of the capsule approach the posterior and upper portions. By continuous narrowing the aperture leading from the outer portion of the distended capsule into the true acetabular cavity may be reduced to a small button-hole. And in still more marked cases the anterior layer of the capsule blends with the remains of the soft tissues of the floor of the acetabulum. The cavity is thus obliterated, its site being covered over by the outspread attachments of the anterior layer of the capsular ligament.

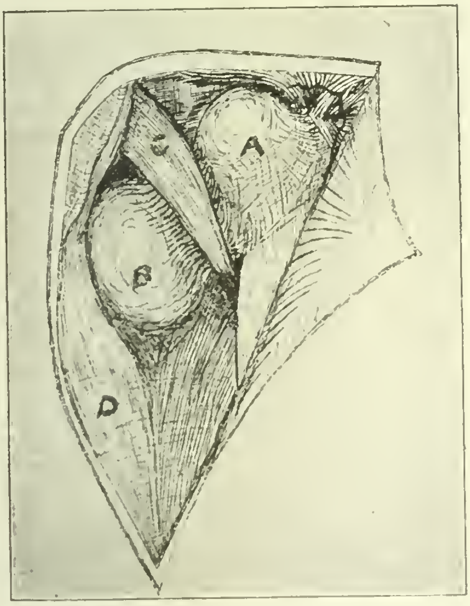


FIG. 1.—To illustrate the open operation for reduction of refractory cases of congenital dislocation of the hip. (A drawing made by Mr. E. Rock Carling at the time of operation.) A, The dislocated and anteverted head of the femur, covered by the outer part of the capsule. B, The inner portion of the capsule, adjacent to the acetabulum. Between A and B the capsule has become constricted by the ilio-psoas tendon, which has become a suspensory ligament of the body-weight. C, The ilio-psoas tendon. D, The rectus femoris muscle.

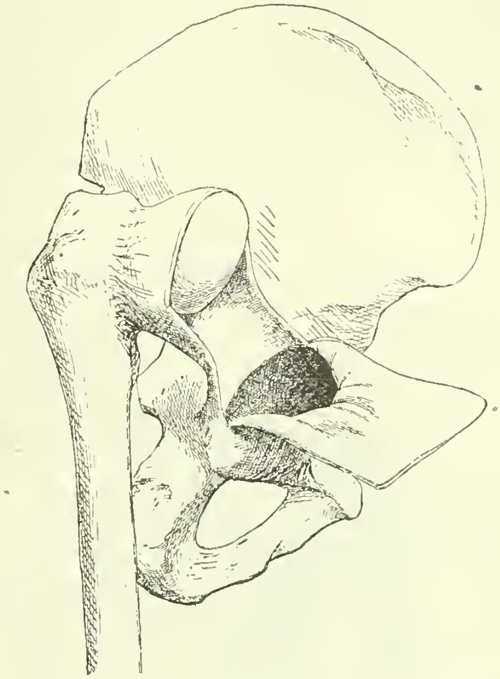


FIG. 2.—Curtain-like narrowing by the hour-glass capsule of the entrance to the acetabulum. (Cabot.)

Having thus briefly outlined some of the chief difficulties in reduction, I am desirous of relating how they have been overcome by open operation.

I may say that no matter what the age of the patient may be, no resort is made to open operation until every effort has been made to reduce the dislocation by the manipulative methods. In one instance, no less than eight such unsuccessful attempts were made, and only then was I compelled to devise this new method of operation. Portions of the adductors had been exsected, extension had been tried by heavy weights for several weeks, traction by pulleys up to the danger-point had been used; and even when the trochanter major had been pulled down one inch below its normal position we found that flexion, hyper-extension, abduction, circumduction inwards and outwards were all unsuccessful.

The following details of the operation in question were founded upon a knowledge of the parts played by the ilio-psoas tendon and the hour-glass contraction of the capsule:—

Operation.

An incision 10 cm. long was made from the anterior inferior iliac spine downwards and inwards. The sartorius and tensor vaginæ femoris were separated from each other and held apart; and, in order to give more room, the latter muscle was cut across in a backward direction. It was quite simple then to expose the thickened hour-glass capsule. This was then opened by a crucial incision over the head of the femur, external to the constriction. By everting the head of the femur the narrow button-hole-like entrance into the acetabulum could be felt and seen, and the tight ilio-psoas tendon defined. In fact, it was found in several cases that an almost complete diaphragm separated the outer from the inner parts of the capsule, and effectually prevented the entrance of the head into the socket (see Fig. 3). I am convinced that no amount of force which could be safely employed would have pushed the head through that button-hole.

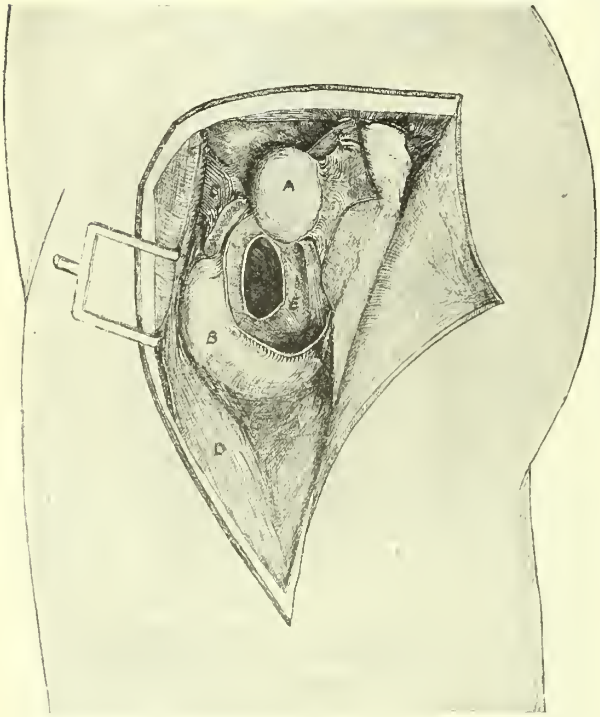


FIG. 3.—A stage, further than in Fig. 1, of the open operation. The capsule has been opened, the anteverted head of the femur exposed, and the ilio-psoas tendon divided. A, The anteverted head of the femur. B, The inner portion of the capsule. C, The cut ilio-psoas tendon. D, Rectus femoris muscle. E, The button-hole aperture in the diaphragm, forming the outer wall of the inner part of the capsule. (From a drawing by Mr. E. Rock Carling.)

However, the remedy was simple: an old-fashioned hernia knife was used as a tenotome, the constriction of the capsule and the ilio-psoas tendon was freely divided, and with a little traction on the limb the caput femoris slipped easily into its socket. The crucial incision into the capsule was then sewn up, and the limb put up in plaster in the fully abducted position. The result was entirely successful.

Emboldened by this case, I have been able to advance the age for operative reduction of the hip from seven years onward, until the latest successful case occurred in a girl aged 15 years. We cannot expect to reduce every hip no matter at what age we meet it, and we shall see cases in adolescent life which defy us; nevertheless, I would urge that no case should be considered hopeless until the manipulative method has been given a trial and has failed; and then free section of the capsular diaphragm and of the ilio-psoas tendon and, if need be, of the quadratus femoris, should be done. Then, and only then, can we regard the case as one which is intractable and incurable.

If it were not for the danger arising from the proximity of the anterior crural nerve and of the superficial and profunda femoris arteries, I believe that section of the important structures indicated might be effected by a subcutaneous tenotomy. In those difficult cases where there is anteversion of the head and neck of the femur it seems to me that, after reduction of the head into the acetabulum, osteotomy of the femur below the trochanters can safely and justifiably be combined with the operation on the ilio-psoas tendon and on the capsule. In order to secure apposite union of the femur after the osteotomy, plating of the fragments should be carried out and the limb be put up in plaster in abduction of 45 degrees.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

◆

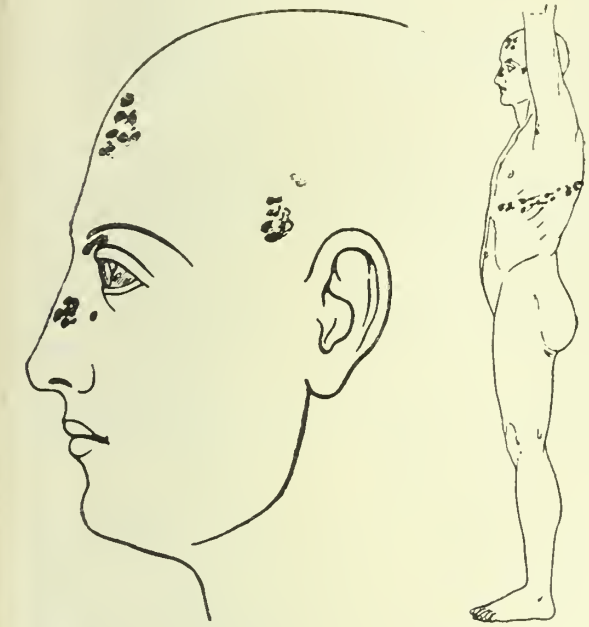
A CASE OF HERPES ZOSTER

INVOLVING SIMULTANEOUSLY THE THORAX AND THE OPHTHALMIC DIVISION OF THE FIFTH NERVE.

BY H. W. BARBER, M.B., B.C.CANTAB., M.R.C.P.LOND.,
PHYSICIAN IN CHARGE, SKIN DEPARTMENTS, GUY'S, PRINCE OF WALES, AND EVELINA HOSPITALS.

THE case here recorded is one of undoubted herpes zoster involving both the thorax and the ophthalmic division of the fifth nerve. I have never seen this combination before, and Sir Cooper Perry tells me that he has never met with a similar case; it is unlikely that my patient is unique, but I have been unable to find any record of true zoster of the face and trunk occurring simultaneously.

Ivy T., aged 6, attended my out-patient department at Guy's Hospital in August of this year for an eruption on the left side of her chest and on the upper part of the left side of her face. The mother stated that the child had seemed unwell for a day or two, and had complained of a feeling as of "pins pricking her" in her left chest. This feeling was followed on August 2nd by the appearance of the eruption in this situation. Two days later a similar eruption appeared on her forehead, nose, eyelid, and temple on the left side. When I saw the patient there was quite typical herpes zoster encircling the lower part of the front chest, corresponding apparently to the seventh dorsal segment. There was little evidence of secondary pyogenic infection of the herpetic vesicles, but the glands in the lower part of the left axilla were considerably enlarged and very tender. The child said she had less pain than just before the eruption appeared. On the left side of the face there were grouped herpetic lesions on the forehead in the course of the supra-orbital nerve, on the side of the nose, on the upper eyelid, and on the temple, as seen in the figure. The preauricular glands were markedly enlarged and tender. The conjunctiva of the left eye was reddened and injected, but no actual vesicles were seen either on the conjunctiva or cornea. The conjunctiva of the right eye was normal in appearance. The child said that she had had some pain on the left side of her forehead and in her left eye, but it was not so severe as that in her chest. When seen by me the child's temperature was normal, but the mother said that she had been "feverish" before the rash appeared.



On Sept. 11th the lesions had all healed, but superficial pitted scars were visible both on the chest and at the sites of the lesions on the face. No history of chicken-pox either in the child herself or amongst her relations and companions was obtained.

Though I can find no record of true zoster occurring simultaneously on face and trunk, involvement of more than one root ganglion on the same side, and very occasionally on the opposite side (bilateral herpes), has been described. Zoster may occur in myelitis, in tuberculous caries of the spine and ribs and from involvement of the posterior root ganglia with new growth (Head and Campbell), in syringomyelia, in syphilitic meningomyelitis, in tabes, and may also apparently be induced by the taking of arsenic internally. But everything points to the majority of cases being due to an acute infection of the posterior root ganglia, and in zoster of the face to infection of the Gasserian ganglion. The infective organism may be the same as, or similar to, that responsible for acute anterior poliomyelitis. The identity of this organism, however, does not seem to have been established with certainty, although Rosenow and others claim to have isolated from the tonsils of infected patients a streptococcus which showed an elective affinity for the central nervous system of rabbits and guinea-pigs, producing in them the lesions of poliomyelitis. Sajous considers, from a study of Rosenow's work, that herpes zoster may also be due to a streptococcal infection, the tonsils or gums being the most likely sites of entry. Both in anterior poliomyelitis and in herpes zoster an increased cell-count in the cerebro-spinal fluid has been found.

One of the most interesting accompaniments of an eruption of zoster is the constant enlargement and tenderness of the neighbouring lymphatic glands. That this is due to secondary infection of the herpetic vesicles with pyogenic cocci is certainly not true, since the glands may be enlarged and tender before the appearance of the rash. In one case I was able to predict an attack of zoster owing to the distribution of the pain complained of by the patient and to the accompanying glandular enlargement; the rash appeared within 24 hours of my seeing the case.

The explanation of the glandular involvement is not clear; it seems hardly likely that it depends directly on the inflammatory changes in the posterior root ganglion. It is possible that the infecting organism of the disease might be isolated by excising or puncturing one of the enlarged glands.

REMOVAL OF A COIN-CATCHER THROUGH ŒSOPHAGOSCOPE.

By JOHN W. HARRISON, L.M.S.S.A. LOND.,

CONSULTING SURGEON, EAR, NOSE, AND THROAT DEPARTMENT, ST. JOHN'S HOSPITAL, LEWISHAM; LATE CLINICAL ASSISTANT, THROAT DEPARTMENT, ST. MARY'S HOSPITAL, LONDON.

THE following case may be of interest in view of recent papers in THE LANCET. A coin-catcher, impacted in the gullet, was successfully removed through the œsophagoscope, and recovery ensued in spite of perforation into the pleural cavity. I am indebted for the notes, apart from those of the actual operation, to the doctor who was in charge of the case at St. John's Hospital, Lewisham.

F. G. D., aged 3 years, was admitted to St. John's Hospital, Lewisham, on July 8th, 1913, with a history of having swallowed a halfpenny four days previously. The X ray revealed a coin impacted half way down the œsophagus. The child looked ill and was unable to swallow. Temperature 100·2 F., pulse 114. A coin-catcher with a winged swivel end was introduced by a local practitioner, and although the coin could be felt it was not found possible to extract either it or the coin-catcher. Further attempts to remove the instrument under an anæsthetic were unsuccessful. The child had been on the operating table under the influence of an anæsthetic for more than two hours when I first saw her and she was very collapsed. I passed a Hill's œsophagoscopic tube of suitable size, proximally illuminated by a Brünings's combined handle and lamp, the tube engaging the protruding whale-bone shaft of the coin-catcher. There was some difficulty in getting the instrument through the post-cricoid pharynx and mouth of the œsophagus, owing to the large amount of blood-stained and frothy saliva present, which made vision difficult. Having passed the œsophagoscope into the gullet, I removed the obscuring secretions as well as possible by suction and continual swabbing; the wall of the gullet was found to be lacerated, tongue-shaped pieces of mucous membrane being visible. The distal end of the coin-catcher was seen; the wings were separated at an increased angle and were crushed together by Irwin Moore's forceps, so that the subsequent removal of the instrument was simple. I did not see the coin, which had doubtless been released and pushed downwards by the previous manipulations. The child was very collapsed and was given a rectal saline, and instructions were left that she should be fed in the same way as long as possible.

On the fifth day after the operation the child's temperature rose to 103°, pulse 148, and dullness on both sides of the back was noticed from the base of the lung to about the fourth dorsal vertebra. The following day the temperature dropped in the morning to 98·6°, but rose again in the evening to 102·6°, the pulse varying between 120 and 140. On the following two days the temperature rose to 103·8° and 104·2° respectively. The child looked ill and had dyspnœa, but no difficulty in swallowing liquid food consisting of milk.

On July 18th—that is, 10 days after the adventure with the coin-catcher—a needle was introduced on the left side in the sixth intercostal space, and some fluid, somewhat hastily presumed to be pus, was withdrawn. A part of the sixth rib was resected, and large quantities of milky whitish fluid, containing some coagulum, was let out. A drainage-tube was inserted and the following day the child's temperature dropped to 100·2°, pulse 146, respirations between 40 and 50. The fluid which was withdrawn was examined and found to consist almost entirely of milk. The bacteriological examination showed that there were no pathogenic organisms present, and that it contained only lactic acid, bacteria, and yeast. For the following week the temperature varied between 97·6° and 101·4°. On July 27th the temperature dropped to normal, and from thence onwards only once rose above 99°. The drainage-tube was removed on August 10th, and the child discharged in perfect health on Sept. 8th. The coin was evacuated in the normal way two days after the operation.

Amongst the many points of interest in this unusual case attention may be particularly directed to:—

1. The dangers of blind instrumentation in general, and the employment of the coin-catcher in particular, in a hidden region like the gullet.

2. The obvious advantage of the œsophagoscopic method, and the unjustifiability of resorting to other methods. It is wiser and safer to leave the foreign body alone until the œsophagoscope can be employed. Delay is surely less dangerous than blind surgery.

3. The possibility of recovery, even in an infant of 3 years, in spite of the wall of the gullet having been completely torn through, provided the escape is into the pleural cavity and not the mediastinal tissues.

4. The advisability of leaving a feeding-tube in for several days when there is a possibility of traumatic rupture in an adult. It is doubtful whether an infant would tolerate it.

5. The curious fact that the pleural cavity was free from septic organisms, although milk in considerable quantity had passed into the cavity through the perforation in the gullet and pleura. The rise of temperature must be attributed to lesions outside the pleural cavity.

A MEETING representative of all phases of Lancashire life was held in the Town Hall, Manchester, on Dec. 9th in support of the appeal made by the University of Manchester for £500,000. The Archbishop of York urged that the conception of university life should not be conditioned by a purely commercial outlook. Subscriptions promised and received amount to £70,618.

AT the last meeting of the Ottery St. Mary Urban Council a farmer successfully applied for the payment of an account for £15 to the Honiton sanitary authority, for treatment in the isolation hospital of a person living on his farm and suffering from diphtheria. He maintained that he should not have been asked to pay this sum, as it was the duty of the Ottery St. Mary Council to provide an isolation hospital. The council decided to pay the £15, and the decision to provide an isolation hospital was announced.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF SURGERY: SUBSECTION OF ORTHOPÆDICS.

EXHIBITION OF CASES AND SPECIMENS.

A MEETING of this section of the Royal Society of Medicine was held on Dec. 2nd, Mr. E. MUIRHEAD LITTLE, the President, being in the chair.

Cases of Deformity.

Mr. H. A. T. FAIRBANK showed one of Multiple Congenital Deformities in a boy aged 11 years. There was bilateral talipes equinovarus and dislocation of both hip-joints, accompanied by posterior subluxation of the left shoulder-joint, which was irreducible. Extension of the right elbow-joint was limited, a bridge of skin stretching from arm to forearm. Bilateral flexion of the wrist and claw fingers were present. The metacarpo-phalangeal joints were extended and the interphalangeal joints flexed. Sensation was normal. All the limbs were very thin and the musculature feeble. In the arm all muscles reacted to faradism except the extensors of the wrist. The left shoulder condition was interesting, as it was similar to that seen after birth palsy, but it was regarded as developmental on account of being associated with so many true congenital deformities.

Mr. FAIRBANK showed another case of Multiple Congenital Deformities in a boy aged 4 months. There was limitation of extension of the left elbow. In the left hand there were dorsiflexion and ulnar deviation, neither of which could be corrected at first. In the right hand palmar flexion accompanied slight ulnar deviation. The left hip was dislocated, the left knee was rigid, and the patella absent. There was bilateral congenital equinovarus. The deformities of the hands and feet were yielding to treatment.

Mr. R. C. ELMSLIE showed a case of Congenital Deformities of All Four Limbs, the head, neck, trunk, and abdomen showing no deformity or wasting. The upper limbs hung at the sides with elbows extended, forearms in a position of mid-pronation and wrists flexed, the whole limb being rotated in. The pectoral muscles appeared well developed, but the deltoid and posterior scapular muscles were much wasted; the muscles of the upper arm seemed moderately well developed, but those of the forearm and the intrinsics of the hand were very small. The wrist was flexed to a right angle and the fingers were held extended. The right and left arms were very similar in appearance and in the mobility of the joints, but the left was slightly smaller and shorter than the right. Movements were much limited. Many muscles were weak. In the lower limbs both hips were dislocated dorsally. The right knee was fully extended and could not be flexed voluntarily. The left knee was fully extended, and could be flexed and extended voluntarily through a small angle. The feet were in a position of equinovarus deformity, partly corrected by operations. All the muscles of the lower limbs were very weak, the right side being the worst. Knee-jerks could not be obtained. Electrical examination was difficult and incomplete. The only muscles which gave a good normal response to the faradic current were the triceps; the pectoralis major and the deltoid gave a very feeble response of normal type; the forearm extensors on the left gave a just perceptible response; no response to a faradic current was obtained in the other muscles of the upper limbs. X rays showed a doubtful dislocation of the shoulder. The head of the radius was dislocated forward. There were five carpal bones at the wrist. The hips were dislocated dorsally. The knees were normal.

Mr. FAIRBANK showed a case of Mr. G. E. Waugh's in which the arms were normal to the elbow-joint, beyond which there was one forearm bone and one digit. The forearm was shortened and acutely flexed. X rays showed absence of the radius. One carpal bone and the phalanges of one digit were present. The patient could feed himself by holding a spoon between the forearm and arm. There was nothing abnormal in the family history.

Sterno-mastoid Tumour.

Mr. **FAIRBANK** showed a case of Sterno-mastoid Tumour in a girl, aged 4 months, born by Cæsarean section. A hard fibroid mass was present in the lower part of the right sterno-mastoid. There was no torticollis. Dr. Hubert Roberts had kindly furnished notes of the birth of the child. The mother was extremely ill, with vomiting, convulsions, albuminuria, and finally coma. Cæsarean section was performed to save her life, and in this the operation was successful. The head was tightly engaged in the pelvis, and considerable difficulty was experienced in extracting it. In Dr. Roberts's opinion injury to the sterno-mastoid was more likely to occur in disengaging the head from the pelvis by the slightly twisting movement necessary than by contraction of the uterine muscle during removal of the child.—Mr. **LAMING EVANS** thought the case might be one of congenital shortening of the sterno-mastoid, as it was difficult to account for such a degree of shortening by embolus. The muscle seemed to be more like tendon than fleshy belly of muscle.—Mr. **P. B. ROTH** said that he had found that simple movements prevented wry-neck.—Mr. **FAIRBANK** thought there was little muscle shortening. The condition was under treatment.

Malformation of Femur.—Multiple Exostoses.

Mr. **W. ROWLEY BRISTOW** showed a case of Congenital Malformation of the Right Femur, with deficient growth of that bone, in a child aged 3 months, which had been at first regarded as a united intra-uterine fracture. The child was born with the knee flexed. The mother was extending it gradually and the condition was now improving, and he thought the child would ultimately be able to walk with a high patten.

Mr. **BRISTOW** also showed a case of Multiple Exostoses in a girl aged 16 years, involving both shoulders, wrists, hips, and ankles. There was lack of growth at the epiphysis of one ulna; only half the epiphysis of the ulna was present. There was displacement of the head of the radius on the same side.

Mr. **LAMING EVANS** said that in one case he had removed the exostoses from the inside of the knee in order to allow the patient to grip the saddle. Unless the exostoses interfered with work it was inadvisable to remove them.

Arthritis of the Knee.

Mr. **LAMING EVANS** showed the case of a girl of 17, who, at the age of 2, developed an Arthritis of the Right Knee, in which flexion was the prominent symptom. Since that time she had been treated in several hospitals and by various methods, without reduction of the flexion deformity. A recent slip necessitated rest in plaster of Paris in a general hospital. The knee was now flexed at an angle of 20 degrees, a fibrous ankylosis permitting 2 to 3 degrees of movement. X ray examination showed the epiphyseal cartilages to be synostosed, and a translucent area was present in the external condyle which suggested an old abscess. The joint line was hazy, and showed a marked obliquity downwards and inwards from collapse of the external condyle. Mr. Evans thought that conservative treatment by splints had been carried out too long in this case, and advocated excision of the ends of the femur and tibia with a view to correcting the flexion and obtaining a firm bony ankylosis.—The **PRESIDENT** agreed that it was a case of caries sicca, with deformity of the head of the tibia. He thought that the joint ought to be excised and the limb put up in the extended position.—Mr. **ELMSLIE** spoke of the results of excision of the knee-joint, and said that out of 100 children in the L.C.C. physically defective schools, on whom this operation had been performed by surgeons of the highest standing, the results had been very bad. Hoffmeister had laid down certain rules in these cases. Excision under 9 years of age, he said, was unjustifiable; under 14 years of age it should only be done as a limb-saving operation. After that age the operation was a good one.

Mr. **ELMSLIE** showed a case of

Suture of Median and Ulnar Nerves in the Forearm,

with recovery. The patient was a girl, aged 16, who cut her wrist by falling through a window in July, 1918. The tendons were sutured at the time and the ulnar artery tied, but the nerves were not united. She was first seen by Mr. Elmslie in the following September. There was a cruciform incision above the wrist, the transverse scar (due to the injury) being about three inches above the joint; the longitudinal scar was that of the operation. All the long tendons were acting satisfactorily, but all the intrinsic muscles of the hand were completely paralysed; the hand was clawed, the metacarpo-phalangeal joints being hyper-extended, the inter-phalangeal joints flexed. Anæsthesia to light touch included the whole of the palmar surface of the hand, the front of the ulnar side of the forearm as high as the transverse scar, the back of the ulnar half of the hand, the whole of the dorsal surface of the little and ring fingers, the last two phalanges of the index and middle fingers, and the last phalanx of the thumb. On the next day the longitudinal scar was excised and the median and ulnar nerves were explored; the ends of the median nerve were found displaced laterally from each other by about three-quarters of an inch; the ends of the ulnar nerve were continuous through a strand of fibrous tissue, which was about 1½ in. long. The nerve ends were freshened and sutured, the median meeting easily, the ulnar only with some tension when the wrist was flexed. After the operation the wrist was kept flexed for six weeks, and this joint and the fingers were then slowly extended on a splint. To counteract the tendency to clawing of the hand, and to produce a palmar arch, an egg splint was used for some time. Treatment by daily massage and galvanic stimulation of the intrinsic muscles was commenced as soon as the wound was healed, and as soon as voluntary power returned re-educational exercises were added. The forearm muscles were treated by faradic stimulation throughout. At the present time there was an almost complete return of sensation to light touch in the whole of the affected area. All the intrinsic muscles responded to a faradic stimulation, and all showed some voluntary power; the ulnar muscles recovered more slowly than the median, and the interossei were still weak. The hand was now a natural shape, there was a palmar arch, and the fingers could be flexed at the metacarpo-phalangeal joints, whilst the interphalangeal joints were extended. Opposition of the thumb was good. The circulation in the hand was now satisfactory; throughout the winter of 1918–19 it had been very poor, the fingers being constantly blue and shiny. The pads on the last phalanges were now returning.

Traumatic Myositis Ossificans.

Dr. **W. T. GORDON PUGH** showed a case of Traumatic Myositis Ossificans following dislocation of the elbow. About eight weeks previously the patient, a boy aged 15, while playing in a gymnasium, caught his foot in a mat and fell sideways on to his hand, dislocating his left elbow. This appeared to have been readily reduced without an anæsthetic; cold compresses were applied and the arm slung in a flexed position. About a fortnight later, finding that any attempt at movement caused great pain, the doctor moved the joint under chloroform and put the arm in a straight splint. For a few days the elbow was flexed and extended several times each morning, but gradually the movement possible became less and less in extent and more painful. When he was admitted to hospital a few days ago the arm was found fixed within 40° of full extension and the forearm fixed in a position midway between pronation and supination. There was considerable swelling around the elbow due chiefly to a firm thickening extending from the olecranon upwards for about 3 in., and to a similar thickening in front of the joint. X ray examination showed considerable areas of opacity in positions corresponding to the triceps, brachialis anticus, and notably the supinator longus. The history was that usually associated with traumatic myositis ossificans, and the treatment would be to secure absolute rest so as to cause the development of new bone to cease and that already formed to be absorbed. It was advisable to place the elbow in the standard position, and he asked for opinions as to whether this should be done at once under an anæsthetic, or gradually by means of a hinged splint. He also wished to hear the experience of others as to the final result in cases so well marked, and as to how long it would be before the patient might actively use his elbow to restore movement.—The PRESIDENT considered that the boy would never regain the use of his elbow, and he would therefore put the limb up in the best position for use.—Mr. ELMSLIE thought that there was a considerable chance of improvement, because the bone was open and light and cast little shadow. He would fix the arm in its present position, as any movement would increase bone formation.—Mr. FAIRBANK agreed that the arm should be left alone in order not to increase bone formation.—Mr. ROTH said that he advocated bending the arm to a right angle under an anæsthetic, and putting it up in that position. He would not wait for the bone to absorb, and thought that the very slight movement of bending the joint would cause little increase in bone formation, and the arm would be in a useful position. The case was one which afforded an opportunity for pointing out the mistakes which still appeared in text-books of surgery as to the treatment of inflamed joints. It was most important that they should be put at rest until the inflammation had disappeared.—Mr. LAMING EVANS said that the X ray picture showed a displacement of the tip of the olecranon. He thought that the arm should be fixed in its present position, as any movement would increase hæmorrhage and bone formation, and tension of triceps would pull the epiphysis further from the shaft of the ulna.

Dupuytren's Contracture.

Mr. ROTH showed a case of Dupuytren's Contracture following injury in a man aged 31. He was wounded in January, 1916, with a rifle grenade splinter in the ring and little fingers of the left hand. There were two small flesh wounds. After a month the wounds were healed, though there seemed to have been some suppuration. In the following December the patient "began to feel something tight pulling down his fingers," and they became bent towards the palm. This had got gradually worse, and the little finger was now flexed at its proximal interphalangeal joint to a right angle and could not be straightened, whilst the ring finger was flexed at its metacarpo-phalangeal joint to 45°, the interphalangeal joints not being affected. There was a very prominent ridge in the palm, due to the contracted palmar fascia, which led up to the base of the ring finger, to which the skin was adherent. A smaller and less defined ridge led up to the base of the little finger. The points of interest were the manner of causation, the rapid onset, the youth of the patient, the treatment to be adopted, and the fact that the right little finger had been contracted ever since the patient could remember. Mr. Roth suggested that organisms of suppuration had gained entry to the prolongations of the fascia on the ring and little fingers, and spread down them to the palm and set up a septic fibrositis in it. He preferred to adopt Adams's operation performed in the manner he described, and followed by bandaging the fingers in nearly complete extension to a malleable iron splint.—The PRESIDENT said that he was doubtful whether the wounds had had anything to do with the condition. He thought that Adams's operation was tedious and uncertain.—Mr. P. MAYNARD HEATH said that he would remove all the palmar fascia.—Mr. ELMSLIE said that many recurrences were due to insufficient operation, some of the deep palmar fascia being left behind.—Mr. BRISTOW urged the importance of after-treatment.

Scoliosis of Uncertain Origin.

Mr. MAYNARD HEATH showed a case of Scoliosis of uncertain origin. The patient was a girl aged 10 years, who fell in the playground in 1918. The accident was apparently trivial, but no details were available. Very little notice was taken of it, and the child was not incapacitated. Some months later the mother noticed that the back was not straight. Examination in the erect posture showed that there was very little abnormal to be seen, but when the spine was flexed the whole trunk was carried markedly to the left. At the same time some rotation occurred, so that the right lumbar region became prominent, and a secondary curve, convex to the left, was produced in the dorsal region. Flexion of the spine directly forward or to the right, actively or passively, was impossible. There were no nervous symptoms, and the condition was not progressive. The hip-joints and lower limbs were normal, and there were no signs of abscess formation. The deformity of the spine was obviously due to some lesion in the lower lumbar vertebræ. X rays showed that the articular processes between the fourth and fifth lumbar vertebræ on the left side were apparently fused into a structureless mass of dense bone, and that the fourth lumbar vertebra was set obliquely on the fifth. No fracture of the articular processes could be seen. There was a deficiency in the laminæ of the fifth lumbar vertebra and its left transverse process was longer than its right and came in contact with and was possibly joined to the left lateral mass of the sacrum. The bodies of the vertebræ were normal in outline and no rarefaction of bone was visible. The X ray appearances might be due to fracture, congenital abnormality, or caries. If the cleft in the laminæ of the fifth lumbar vertebra were due to fracture, it was possible that the articular processes between the fourth and fifth lumbar vertebræ were fractured and had subsequently fused. The slightness of the accident was somewhat opposed to this view. On the other hand, the increase in size of the left side of the fifth lumbar vertebra was clearly developmental and suggested that the cleft in the lamina of that vertebra and the condition of the affected articular processes were also developmental. Caries was considered to be unlikely in view of the symptoms and X ray appearances. The child had been treated for six weeks in a plaster jacket by another surgeon. Since then she had been given exercises and massage with improvement in her comfort and general health, but without any influence on the deviation of the spine.—The PRESIDENT thought that the scoliosis was functional.—Mr. LAMING EVANS, Mr. A. S. BLUNDELL BANKHART, and Mr. ELMSLIE also discussed the case, Mr. Elmslie suggesting that, as the condition might possibly be one of caries, the spine should be kept at rest, in spite of the absence of pain. Mr. HEATH, in the course of his reply, said that he considered caries to be impossible, as the condition had been stationary for months.

SECTION OF PATHOLOGY.

A MEETING of this section of the Royal Society of Medicine was held on Dec. 2nd, Professor W. BULLOCH, the President, being in the chair, when Dr. F. A. TEALE read a paper on the Relation of the Antitryptic Titre of the Blood to Bacterial Infection Anaphylaxis.

Exhibition of the Abdominal Viscera of an Infant.

Dr. B. H. SPILSBURY showed the Abdominal Viscera of an Infant who died three days after birth. There was a congenital defect of the large intestine, which was completely occluded at the splenic flexure. Behind the occlusion the large intestine was distended with thick meconium and its wall was hypertrophied. The upper part of the small intestine was distended with similar material. Beyond the occlusion the large intestine was of normal development and contained a little colourless mucus. The normal bowel was adherent to the occluded end. The specimen also showed general antenatal peritonitis, with partial organisation and with fine but fairly firm adhesions between the viscera. In the midst of the adhesions were found masses of dry, yellow, cheesy material, which was gritty from commencing calcification. The masses consisted of altered meconium, and they pointed to an antenatal perforation of the distended intestine as the cause of the peritonitis, with subsequent closure of the perforation. There was no indication in the wall of the bowel of the site of the perforation. The liver and spleen were covered with a layer of organising lymph, and a microscopical specimen was shown of the liver in which a group of simple glands lined with goblet cells and resembling the normal glands of the large intestine were seen on the surface of the lymph. It was suggested that these glands had developed from the intestinal epithelium which had escaped with the meconium into the peritoneal cavity, and, becoming transplanted upon the developing granulation tissue, had reproduced the intestinal glands in that situation. Microscopical preparations were also shown of peritoneal nodules obtained from two cases of mucocele of the vermiform appendix. The nodules consisted chiefly of mucin containing columnar epithelial cells arranged regularly in rows and exhibiting a tendency towards the formation of glands. The mucin was surrounded and penetrated by a vascular and cellular stroma. It was suggested that the nodules were produced by the transplantation on the peritoneum of intestinal epithelium which had escaped owing to the rupture of the mucocele in each case.

A specimen was also shown of a mucocele of the vermiform appendix with a recent perforation at its base; the patient died during the operation for its removal.

MEDICAL SOCIETY OF LONDON.

THE TRUE NATURE OF MULTIPLE EXOSTOSES.

A MEETING of this society was held on Dec. 7th, Mr. V. WARREN LOW, the President, being in the chair, when Professor ARTHUR KEITH read a paper on the True Nature of Multiple Exostoses. He said that he had had opportunities of studying the X ray records of four cases of multiple exostoses, and from his study had come to the conclusion that the disease should be definitely removed from the category of tumours and placed among the disorders of growth under the name—suggested by Mr. Morley Roberts—Diaphysial aclasis. The exostoses, which attracted the attention of clinicians to the presence of this disease in patients, were merely secondary results which masked one of the most remarkable of all disorders of growth. His attention had been drawn to the nature of the underlying condition by certain X ray plates which were taken in France by Captain J. A. Annan in the spring of 1918 and sent to England to be added to the War Office Collection in the Royal College of Surgeons.

In Case 1 they had been taken from a private in a labour battalion, aged 20, who had been diagnosed in the 3rd Canadian General Hospital as suffering from multiple exostoses, and subsequently discharged as unfit. The lower ends of this man's femora and the upper and lower ends of the shafts of his tibiæ represented an arrest of bone development of a peculiar kind—one which was to be anticipated if John Hunter's teaching concerning the growth of bones was correct. John Hunter was the first to perceive that the shafts of the long bones grew by a double process; in the first process new bone is laid down at the extremities of the shaft in the diaphysial lines; in the second, which Hunter named the "modelling process," the cancellous bone laid down on the diaphysial line is rebuilt, trimmed, and gradually converted into an architectural part of the shaft. In diaphysial aclasis the pruning or modelling process is arrested; hence between the properly formed part of the shaft and the epiphysial end there is interposed an irregular cylinder of imperfectly modelled bone, on the surface of which there are several outgrowths. Further investigation of the first case showed that the diaphysial ends of all the bones of the body manifested a similar disturbance of growth, the disturbance being greatest at the lines where growth is most vigorous and prolonged.

For the X ray plates of Case 2 Professor Keith was indebted to Captain Lionel West, who forwarded them to the War Office Collection early in the present year. They were taken in Prees Heath Military Hospital from a soldier, aged 26, 5 ft. in height. The X ray plates showed the same growth disturbance at the diaphysial ends of all the long bones. As in the first case, the inequality of growth between the bones of the forearm had led to a dislocation of the proximal end of the radius.

The X ray plates of Case 3, that of a soldier, aged 29, in Fulham Military Hospital, were taken and sent to the War Office Collection by Dr. Florence Stoney. In the first and second cases only imperfect family histories could be obtained; in Dr. Stoney's case one brother and four maternal uncles were affected with the same disorder; it was probable that there was a family history showing a Mendelian hereditary incidence in the majority of cases.

For the full records of Case 4 Professor Keith was indebted to Mr. W. Rowley Bristow. The case, that of a girl aged 18, was particularly valuable because Mr. Bristow had obtained two sets of X ray plates, the second taken ten months after the first, and in such a way that the one set was strictly comparable to the other. By a close comparison of the two sets of plates it had been possible to work out the exact nature of the growth changes which had taken place in a period of ten months. The changes thus observed were totally different from those which occurred at the diaphysial ends in normal growth.

For Case 5 he was indebted to his colleague Professor Shattock, who brought to his notice a case of multiple exostoses represented in the museum of St. Thomas's Hospital by the bones of the upper and lower extremities. Although the disease was not uncommon, the case preserved in St. Thomas's Hospital Museum, that of a short adult man of unknown age, but probably well over 30, who committed suicide by throwing himself in front of a railway train, was the only skeletal representation of the disease in London. Professor Keith was thus able to check his interpretations of the X ray plates by a study of actual specimens of the disease.

A Clue to the True Nature of the Disease.

A clue to the true nature of multiple exostoses (diaphysial aclasis) was given by noticing its incidence on the skeleton. Bones formed in a membranous basis, such as those of the face and vault of the skull, were not affected, nor were the bones formed in cartilage, such as the epiphyses of long bones, the vertebræ, sternum, carpal or tarsal bones. It was only where these two processes—membrane formation and cartilage formation—came into juxtaposition in the formation of bones that this peculiar disorder of growth occurred. Hence the disturbance was most marked at the growing ends of diaphyses of long bones, and was most emphatically marked where growth was greatest. In the upper extremity the proximal end of the humerus and the distal ends of the radius and ulna showed a much greater growth disturbance than the shafts which end at the elbow-joint. In the lower extremity growth was greatest at the diaphysial ends directed towards the knee, and there the disturbance was greatest, but as there is also considerable growth at the proximal end of the shaft of the femur and at the distal ends of the tibia and fibula these parts also exhibited ample evidence of the disease. The growing margins of the os innominatum and scapula, particularly the vertebral border of the latter bone, showed irregular formation with the production of exostoses. The clavicles showed a disturbance at both extremities, in the ribs the alterations occurred at the growing costo-chondral junction. At all these sites two different kinds of bone formation are in progress; as bone is laid down within the growth disc (epiphysial line) in cartilage a covering of fibroblastic bone is being deposited by the growing margin of the overlying periosteum. We had been so in the habit of concentrating our attention on the process of ossification which takes place in the cartilaginous growth disc that we had left out of sight the equally important growth processes which go on in the ferrule of periosteum which surrounds the growth disc; consequently we were not prepared to encounter a dislocation in the harmony with which these two processes ought to proceed in health. In achondroplasia the arrest of growth was a partial cessation or a retardation of the growth process which goes on within the cartilaginous disc; in diaphysial aclasis the arrest or retardation lay in the growing edge of the periosteal ferrule. Hence it came about that large areas of cartilage-formed bone laid down at the ends of the shafts of long bones were left exposed. A comparison of plates taken from subjects showing different degrees of disorder in the growth and architecture of bones made one quite certain that this arrest of periosteal formation was not permanent but temporary. The modelling process, which is attended by the deposition of periosteal bone, went on for years after all growth in length had ceased.

A Definite Disorder in the Disc Growth.

Although the chief lesion lay in a delay in the extension of the periosteal ferrule which surrounds every cartilaginous growth disc, yet it was legitimate to infer that there was also a definite disorder in the growth disc itself. The exact nature of that disorder could only be revealed by a study of the microscopical appearances of the growing ends at various stages of the disease. As seen in X ray plates growth discs of the shafts of the long bones had the same irregular notched appearance as in late rickets, to which disease diaphysial aclasis presented several points of resemblance. In normal development the margin of growing bone, through a mechanism we had not yet discovered, exercised a most definite influence on the cartilage cells of the growth disc. The manner in which the cartilage cells divide and group themselves in ranks placed so that they are enfiladed by the ingrowing osteoblasts was well known. It was possible, however, that the prime movers in the normal process of ossification were not the bone cells but the cartilage cells. It might be that the primary changes occurred in the cartilage cells, and as a consequence of these changes there took place an invasion of the cartilage territory by the bone cells. It was also possible, as many believed, that the cartilage cells actually became bone cells. The essential lesion in achondroplasia was a failure in the preliminary transformation of the cartilage cells at the growing edge of the diaphysial disc. Experiments on the thyroid had failed to produce achondroplasia and microscopic examination had revealed no change in the thyroid gland in cases of that disorder of growth, nor had thyroid medication any influence on the growth of those who were the subjects of the disease. Yet the disordered growth in the subjects of achondroplasia had so many resemblances to the growth disturbances seen in cretins that one might safely group achondroplasia as a growth disturbance due mainly to an alteration in some of the functions of the thyroid body. If we agreed to place achondroplasia in that group we must also place diaphysial aclasis there too, for the growth disturbances were related, although of opposite types.

Light thrown on the Mechanism of Growth.

The study of growth disturbances were of interest to all medical men, but especially to anatomists, because they gave opportunities of discovering the very complex mechanism concerned in the growth of the human body. Diaphysial aclasis was primarily a disturbance of growth discs and of both the cartilaginous and periosteal elements comprised within these discs. Giantism and dwarfism in all their forms involved disturbances in growth discs and disordered function on the part of the glands of internal secretion. In diaphysial aclasis the stature was stunted; it fell from four to eight inches (10 to 20 cm.) short of the stature that might have been anticipated if the growth had been normal. When adult years were reached growth ceased both in the diaphyses as well as in the diaphysial exostoses; the retarded modelling process, on the other hand, still went on. Although the exostoses usually became evident at or soon after the period of puberty, a review of all the evidence indicated that diaphysial aclasis is congenital in origin, but in only severe cases were there manifest signs of the condition before the eighth year. It was not unusual to find exostoses springing from near the middle of the shaft of a long bone—the site of the diaphysial end in the first or second year after birth. Multiple enchondromata formed a distinct but allied disorder of growth. The disorder was attended by several curious results. In more than a third of the cases on record the growth at the distal end of the ulna failed, while that at the distal end of the radius continued. The result was that the radius became bent into a bow, the ulna serving as its stretched string. Under the stress of growth the proximal end of the radius became dislocated and might detach with it the external epicondyle from the humerus. There was only a slight disparity of growth between the tibia and fibula, but in the majority of cases the diaphysial extremities of these two bones became fused and firmly ossified together. Further clinical observation would probably show that in diaphysial aclasis there were disorders of other systems of the body besides the bony one. The conception of multiple exostoses as a growth disease was not a new one. John Hunter emphasised its constitutional nature; Paget recognised it as an ossific diathesis due to some morbid condition of the blood. Several German writers had recognised it as a disturbance of growth. (A full account of Prof. Keith's investigations will be published in the forthcoming number of the *Journal of Anatomy.*)

Mr. LAMING EVANS showed X ray plates of four cases.

Dr. B. H. SPILSBURY read a paper on the Medico-Legal Significance of Hæmorrhage.

SCOTTISH SOCIETY OF ANÆSTHETISTS.—A meeting of this society was held in the Hall of the Faculty of Physicians and Surgeons, Glasgow, on Nov. 29th, Dr. Paton Boyd, the President, being in the chair.—The President read his inaugural address upon the Value of Chloroform as an anæsthetic. He stated he desired to bring the subject before the meeting owing to the extreme attitude taken up by the American school of anæsthetists. In the report of the Committee on Anæsthesia of the American Medical Association in 1912 it was stated: (1) that the use of chloroform as an anæsthetic for major operations was no longer justifiable owing to the danger of delayed chloroform poisoning; (2) that for minor operations also the use of chloroform should cease, nitrous oxide and oxygen taking its place; (3) that chloroform was sometimes convenient for inducing anæsthesia in alcoholic or other difficult subjects. While giving all credit to the American school for their valuable work, Dr. Boyd considered this attitude was extreme, if not absurd. There were many cases to whom it was impossible to administer ether, particularly certain abdominal cases where the necessary relaxation could not be obtained except by chloroform. He agreed, however, that it was safer to initiate anæsthesia with nitrous oxide and ether, or ethyl chloride and ether, and that it was really undesirable to use chloroform for short cases where nitrous oxide and oxygen would suffice. Ready made mixture of chloroform and ether he did not use; if he desired to exhibit both drugs together he allowed them to mix only upon the mask. He was a believer in Levy's dictum that in giving chloroform the first principles are to keep the patient fully anæsthetised and to make the administration continuous. Above all, he considered the safety of anæsthetics depended more upon the man who was giving them than upon the exact drug or method chosen.—In the general discussion which followed the common opinion seemed to be that chloroform should not be administered unless really necessary, but that it frequently was necessary and might then be given with very reasonable safety so long as sound principles were followed.—Dr. J. S. Ross opened a discussion upon the Teaching of Anæsthetics. New methods, such as open ether, vapour and rectal oil, ether and gas oxygen in its modern developments, and the intra-tracheal method, had all proved their value, and the whole subject of anæsthetics had been illuminated by the work of Crile upon anoci-association. The increased knowledge should lead to a higher general level of anæsthetising, but he was not sure that it had done so to the extent which it ought. The special anæsthetist in many schools had not been given the status necessary to enable him to influence work done in the institution, all of which was not necessarily under his own eye. As regards when and how the subject should be taught he favoured simple lectures, given to the student as soon as he begins his practical surgical work. The personal supervision of administration could not, unfortunately, always be done by a specialist. Since it seemed to be impossible that the specialist should personally teach every student, he ought to concentrate upon teaching a limited number of students very thoroughly, the students selected for this advanced training being those who were in the running for resident posts.

Reviews and Notices of Books.

MIND AND ITS DISORDERS.

By W. H. B. STODDART, M.D., F.R.C.P. Third edition. London: H. K. Lewis and Co. 1919. Pp. xx. + 580. 18*s*.

IN his preface the author writes:—

> "Since the last edition I have fundamentally changed my attitude towards mental disease. ...... Mental disease can only be understood by studying the psychology of the unconscious mind of patients, and the physical manifestations of a functional nervous disorder must be regarded as secondary, not primary, as I taught in the first edition."

Dr. Stoddart has, in short, taken over the Freudian system in its entirety, and the result, so far as this edition is concerned, is a curious jumble. For instance, on one page "The Psychoses," which are set forth as including dementia præcox, are said to "have no morbid anatomy," though some pages later the physical stigmata and anatomical changes of dementia præcox are described in detail.

Again, "the cortical paralysis" and "slight double hemiplegia" associated by the author with "intraneuronic intoxication" in cases of melancholia go strangely with such ætiological factors as "parental fixations" and "repressed homosexuality," which, "with repressed maternal instincts" and "unsatisfied sexual desire," are said to be "at the root of" the manical-depressive psychosis. Dr. Stoddart has evidently not yet managed to throw off old associations or wholly to accept his own doctrine as to the only method of understanding mental disease.

In a section on Instinct there appears the following:—

> "Instincts are developed for the benefit of the race. Occasionally, however, we come across an uncorrected instinct, as in the case of the lemming, which periodically attempts to migrate in its thousands from its native valleys in Norway to the long-submerged continent of Atlantis: the result is that thousands of these animals are drowned in the sea."

We wonder if the author when he tells us of this migration is writing, as the setting of the story would suggest, very much in earnest, or whether we have here an example of ponderous and inapposite humour. There are many similar perplexities before the reader. We may cite a couple.

> "The supposedly accidental breakages by domestic servants supply another example of unconscious wish fulfilment. The servant would never admit, even to herself, that the breakage was intentional; but it gratifies some unconscious wish, such as reduction of labour, tending to equalise the property of herself and her employer, personal revenge, or some such kindred unconscious desire."

The second example is even more striking. In young children who voluntarily retain their fæces,

> "Psycho-analysis reveals this instinct to retain the fæces to be the first attempt at economy, for such persons invariably grow up thrifty and methodical."

The naïve and ready acceptance of such pronouncements will prepare the reader for the phallic significance of Zeppelins, aeroplanes, and bombs, and for the doctrine that neurasthenia, as described by the author—

> "Is always due to partially or completely repressed autoeroticism. It is in conformity with this observation that the disorder quite commonly dates from the renunciation of masturbation."

The author, so far as he reveals himself in this book, shows a fine taste for the novel, a placid facility in belief, some share of the confusion which so commonly prevails between hypotheses concerning phenomena and the more matured conclusions of prolonged research, and an unfortunate penchant for certain unpleasant phases of thought. The doctrine comprised under the term psycho-analysis requires treatment from a very different source; a more critical analysis and a less imaginative synthesis might place it in a position to command respect. The work before us is likely to be of interest for certain advanced psychologists investigating particular aspects of medical and literary mentality, but we doubt its value for practitioners or students. It at any rate teems with contentious matter, metaphysical, psychological, and medical, while the controversies it might excite would, no doubt, be heightened in interest by the varying character of the theses that are presented.

1. GROUNDWORK OF SURGERY.

For First-year Students. By ARTHUR COOKE, M.A., F.R.C.S. Cambridge: W. Heffer and Son. 1919. Pp. 189. 7*s*. 6*d*.

2. MINOR SURGERY AND BANDAGING.

By GWYNNE WILLIAMS, M.S., F.R.C.S. London: J. and A. Churchill. 1920. Pp. 447. 10*s*. 6*d*.

1. IT is more difficult to write a book on general principles than it is to write a treatise for advanced students. It is by no means easy to break new ground and write in a new way on such a subject as general surgery. In the book before us Mr. Arthur Cooke, surgeon to Addenbrooke's Hospital and a teacher in surgery in the University of Cambridge, has not shirked these difficulties, and his effort to break away from tradition is a bold one. The work is intended for students starting the study of surgery, for whom a text-book is too big and too complex. Surgical text-books, he says, to a large extent follow regional lines, with the result that the average man is lost in a maze of local lesions. The author hence abandons this old method of classification. His classification is based on the fact that nearly all the diseases and abnormalities of the body are due to one or more of the following causes: (1) Infection by some form of micro-organism or parasite; (2) injury; (3) deformity; (4) degeneration and tumour formation. We find this system far more reasonable and scientific than the traditional regional one which the author has discarded. Instead of a picture obscured by detail, the new dresser gets a bird's-eye view of what surgery may come to mean for him, and some hint of the ideals at which he is to aim. We cordially approve the writer's initial idea, which is well carried out with regard to infections, to which nearly one-half of his book is given up. Infections are considered according as they are introduced by injuries or via the mucous membranes of the air-passages, of the alimentary canal, and of the genito-urinary tract—an excellent method of approach to the subject. Injuries, deformities, and new growths receive less detailed description, and it may be that they do not readily lend themselves to the same treatment. It is satisfactory to note, however, that many of the lessons learnt during the war are included in the author's teaching—as, for instance, the treatment of accidental injuries by early excision of the wound and the use of blood transfusion. The book concludes with short chapters on Prophylaxis and Preventive Treatment, and the Time Factor in Surgical Treatment. A sentence from each of these chapters may be quoted to show the author's freshness of outlook:—

> "If prophylaxis by serum could be adopted for all important infections, the work of the surgeon in connexion with these would be much reduced."
>
> "The passing away of those mothers of the present generation who think themselves competent to treat abdominal pain by castor oil will bring about another fall in the mortality."

Mr. Cooke's book is an experiment, but an experiment based on sound principles. We feel assured that any student who grasps these principles will have an excellent foundation of knowledge on which to build.

2. This is the seventeenth edition of a book originally produced by Mr. Christopher Heath 59 years ago. Its exceptionally long life tempts the critic to essay an analysis of the reasons for its success, for it must have proved useful to have withstood the test of time. It may not be devoid of interest to compare the system of teaching as it existed at the time of the earlier editions with that of the present day, for though, as the preface states, the book has been thoroughly revised and to a certain extent rearranged, it still retains a reminiscence of the nineteenth century.

The book, though not at all a large one, is a perfect mine of information dealing with a thousand and one details, such as sterilisation of hands and gloves, bandaging, methods of cutting strapping, lumbar puncture, amputation of fingers and toes, measurement of limbs for artificial splints, and administration of anæsthetics. This subject matter and the type of illustrations are well known, for they have figured in books of this sort for many generations. After reading it there is left a feeling of dissatisfaction, not because the subject matter is wrong or badly set out, for this is not so. The reason seems to be that this type of book is not founded on any scientific method of teaching, nor does it enunciate any particular principle. It consists of a mass of facts and points of technique. In other words, it is a craftsman's handbook, and for those who desire such a book an excellent one.

THE ESSENTIALS OF CHEMICAL PHYSIOLOGY.

By W. D. HALLIBURTON, M.D., LL.D., F.R.S. Tenth edition. London: Longmans, Green, and Co. 1919. Pp. 324. 7*s*. 6*d*.

THE revision of a text-book of chemical physiological chemistry is constantly called for, so rapid are the advances made, in theoretical and practical directions. A book without reference to these developments is useless. Professor Halliburton may well be trusted to realise this, and we can appreciate the great difficulty which he has experienced in revision due to the necessity of adding new material without rendering the book awkwardly bulky This has been overcome "by judicious excision of matter no longer necessary." The book thus provides a well-planned practical course consistent with progressive working detail. The paragraphs dealing with new material are clearly and ably written, preserving the traditions of a text-book on the essentials of chemical physiology, which has been rightly valued as a laboratory companion since it was first written in 1893.

PRACTICAL PHYSIOLOGICAL CHEMISTRY.

By SYDNEY W. COLE, M.A. Fifth edition. Cambridge: W. Heffer and Sons, Ltd. 1919. Pp. 401. 15*s*.

WE welcome a new edition of this excellent practical book. Throughout its pages we find evidence not only of laboratory experience but of the adaptation in a revised and sometimes enlarged form of fresh methods approved by that experience. In regard to the newer and less familiar tests and methods, the directions are not copied from elsewhere, not even (when they are due to others) from the description of their originators. Professor Gowland Hopkins in his foreword bears witness to the fact that the author has always a first-hand acquaintance with his subject. The instructions, he says, "have been written at the laboratory bench, step by step with the successful accomplishment of the process they describe. When success has seemed doubtful, or too difficult, of attainment, the method has found no place in the book." That is precisely the impression that a reviewer with a knowledge of laboratory work would obtain by looking through the experimental directions given. They are thorough and clear, but the general plan is not confined to the course in practical physiological chemistry outlined at Cambridge for medical students, but opens up suggestive lines of work on the great problems of animal nutrition generally. The chapter on the preparation of amino-acids is a case in point. We have no hesitation in commending this work to beginners and post-graduates alike who are drawn to the study of the questions involved.

THE YOUNG PHYSICIAN.

By FRANCIS BRETT YOUNG. London: W. Collins, Sons and Co. 1919. Pp. 485. 7*s*.

"The Young Physician" in so far belies its title that only half-way through does the hero, reluctantly enough, drift into the study of medicine, and only on the last page does he qualify. Since the last few chapters are among the most interesting, to us at any rate, the sudden end would be disappointing were it not so indefinite as to suggest a sequel in due course. Not in this respect alone does Major Brett Young show that he belongs to the modern school of novelists; his hero starts life as the ubiquitous introspective boy "with interesting eyes," and his bourgeois origin as the legitimate son of a chemist alone differentiates him from others we have met. His school days,—the age of terror until he hits the bully,—his passion for reading, and instinctive avoidance of the sleek master who seeks his confidence, the chapter headed Impurity—all these differ in no marked respect from the adventures of the same small boy in other novels, but the pictures of the school itself and its surroundings are unusually vivid.

When an incompatible father suggests "North Bromwich" Medical School instead of classics at Oxford the boy cannot frame his objections and reluctantly acquiesces, and accordingly we follow him through the normal life of a medical student. The work, from the preliminary sciences to hospital posts, is described in some detail, and it is probably our familiarity with the curriculum that prevents us from being more interested. The mental attitude of each year is indicated accurately enough, especially the sentimental pride in professional skill which attacks the casualty dresser and from which he happily recovers under the brisk common-sense of the sister in the wards. The hero passes through the stage of disgust at the callous rude manner of his chief, changing to adoration of this great man who can do no wrong, and later on we note the usual healthy reaction from the somewhat unbalanced zeal and top-heavy ideals to the more obvious duty of reading for examinations. It is not always easy to recognise in the developing medical student the sensitive youth of the commencement. Near the end, however, we re-discover him, for the thought of his father's second marriage to an unknown lady is so abhorrent that he decides to leave home and keep himself for his final year as best he can.

During the uncongenial work of assisting at a poor-class dispensary he is involved in a drama that might have been treated as a problem of medical ethics, but we have instead conventional melodrama, and the curtain comes down on the hero qualified, and engaged as a ship's doctor, with the hope that the sea breeze may remove the taste of unpleasant experience.

Occasionally through the story the author reaches such a high level as to make us anxious to see more of his work, but it is the pictures rather than the psychology that impress us.

BEVERAGES AND THEIR ADULTERATION.

By HARVEY W. WILEY, M.D. With 42 illustrations. London: J. and A. Churchill. Pp. 422. 21*s*.

Dr. Wiley is insistent that this book was not written for the scientific investigator "but for the average, sober-minded, reasonably well-educated American citizen, who is daily taking a greater interest in what he eats and drinks." So far we think it will fulfil his purpose, and the author has evidently made a careful avoidance of highly technical language. The subjects dealt with are of general interest, extending to the wines of France, Spain, Portugal, and Germany, but a good proportion of the beverages described are only familiar in the United States. Then again, the references to the laws controlling adulteration are entirely to American legislation, which in many respects is not on all fours with the Food and Drugs Acts of this country. The American views of food, drink, and drug questions are well worth studying, but the English reader must remember the scope of the work. The opening chapter is on "Waters," for Dr. Wiley writes: "water is the typical beverage, and in the hope of its coming into more general use it occupies the place of honour in this volume." No one will object to this sentiment.

THE late Adam Thomson Nisbet, M.D., C.M. Glasg., died at St. Ishmael's, Newton Abbot, Devon, on Nov. 19th, in his fifty-fifth year. The deceased was on the honorary staff of the Newton Abbot Hospital and was one of the best known and respected medical men in the district, where he had been in practice for many years.

FRENCH SUPPLEMENT TO THE LANCET

Under the Editorial Direction of
Professor CHARLES ACHARD, PROFESSOR OF PATHOLOGY AND THERAPEUTICS IN THE UNIVERSITY OF PARIS.
AND
Dr. CHARLES FLANDIN, D.S.O., CHEF DE CLINIQUE A LA FACULTÉ DE PARIS.

FRENCH WORK ON ICTERO-HÆMORRHAGIC SPIROCHÆTOSIS.

BY MARCEL GARNIER,
PHYSICIAN AT THE LARIBOISIÈRE HOSPITAL, PARIS.

THE investigations on ictero-hæmorrhagic spirochætosis carried out by Japanese authors were made known in France by a paper published March, 1916.[1] Analyses of a series of German investigations on the ætiology of Weil's disease appeared at the same time.[2] But MM. L. Martin and A. Pettit draw attention to the fact that, whilst their work confirmed the results of the Japanese, the German writers were unaware of the researches made by the latter, or at least they did not refer to them. At the meeting of the Société de Biologie held on July 22nd, 1916, MM. Martin and Pettit reported their own results obtained on inoculating guinea-pigs with the virus supplied by Dr. Adrian Stokes, which that author had isolated from European soldiers attacked with infectious icterus on the French front. MM. Martin and Pettit acquainted the medical public[3] with the work of the Japanese authors, giving a description of the parasite, and drawing the attention of medical men to this new morbid entity.

Circumstances were particularly favourable to the study of the forms of infectious icterus. Indeed, jaundice had become quite common since the outbreak of the war. Being at that time stationed at the central hospital at Bar-le-Duc, I had charge of a department in which all the cases of jaundice occurring in the army holding the Verdun front were concentrated. We always had a large number under treatment, nearly a hundred at a time. Consequently, we were able to study the various clinical forms of infectious icterus; we were struck by the frequency of the recurrence of febrile attacks following on a phase of temporary freedom, and had applied the name of *infectious icterus with febrile recurrence*[4] to these forms. We were well aware that it was the malady previously described in France by M. Mathieu under the name of *benignant hepatic typhus*, and which was described some months later by Weil in Germany. The infectious nature of certain slight forms of jaundice was, of course, familiar in France since the work of Landouzy (1883) and Chauffard (1885).

The three first cases of ictero-hæmorrhagic spirochætosis noted in France were reported by MM. Martin and Pettit at the meeting of the Academy of Medicine, April 10th, 1916. Later on S. Costa and J. Troisier published three more, whilst M. Garnier related 4 cases and E. Renaux added 32 more observed on the Belgian front. From that time onwards there was a rapid increase in the number of investigations. They are mentioned in the book on ictero-hæmorrhagic spirochætosis published at the beginning of 1919 by MM. Martin and Pettit. Finally, a whole number of the *Journal médical français* (April, 1919) is devoted to ictero-hæmorrhægic spirochætosis. We propose to study the contributions to the knowledge of the new disease made by French medical men, reviewing successively the ætiological diagnosis, the clinical types, the pathological anatomy and physiology, the ætiology, and finally the treatment of the malady.

DIAGNOSIS OF SPIROCHÆTOSIS.

Spirochætosis can be diagnosed by various means —by inoculating guinea-pigs with blood, urine, or cerebro-spinal fluid; by seeking for the parasite directly in the urine; by studying the humoral reactions: amboceptor, agglutinin, and the like.

1. *Inoculation of Guinea-pigs with Blood, Urine, or Cerebro-spinal Fluid.*

The Japanese authors showed that on inoculation of the blood or urine of patients attacked by infectious icterus the disease was transmitted to the animal. It seemed necessary to us to ascertain at what particular point of the development these liquids were virulent. In the case of the blood the Japanese authors found it virulent up to the end of the first week; we ascertained that this is indeed the case within the limits determined, and on the 1st and 2nd days after the jaundice has appeared. As soon as the icterus has developed completely and the fever has dropped the inoculations remain consistently negative.[5]

Urine, on the other hand, is not contagious till later. According to our investigations[6] virulence is only rarely observed from the 8th to the 15th day of the illness, whilst it is frequently observed from the 15th to the 23rd. This is the moment when the spirochæte is eliminated; but as this elimination is not continuous the urine is not constantly virulent. This explains why our results differ from those obtained by the Japanese authors. Indeed, according to Ido, Hoki, and Ito urine taken from the 10th to the 20th day gives a positive result once in three times, exactly the same as that taken during the first 10 days. But the contradiction is only superficial. As a matter of fact, the Japanese injected urine from the same patient several times without on each occasion comparing results obtained by direct examination with results obtained by the inoculation. Now the spirochæte may be found in the urine both before and after the 10th day, and though elimination is more frequent after the 10th day than before it, it does not take place every day, even after that date. The discrepant nature of the results obtained can therefore be easily understood. In order to get exact information the urine which is to be injected must itself be examined. Since the blood is no longer virulent from the time that the icterus is completely developed, and the urine only becomes so several days after its establishment, it is obvious that there is a phase of the malady during which it is impossible to get ætiological proof by this means.

---

[1] Journal of Experimental Medicine, vol. xxiii., No. 3, March 1st, 1916.

[2] Bulletin de l'Institut Pasteur, April 30th, 1916.

[3] Bulletin médical, July 28th, 1916.

[4] Marcel Garnier: Les formes de l'ictère infectieux, Bull. de la Soc. Méd. des Hôpitaux de Paris, May 12th, 1916. L'ictère infectieux à recrudescence fébrile, Presse médicale, August 31st, 1916.

[5] M. Garnier: La transmission au cobaye de l'ictère infectieux primitif, Comptes Rendus de la Société de Biologie, Nov. 4th, 1916.

[6] M. Garnier et J. Reilly: L'élimination du spirochète par l'urine dans la spirochétose ictérigène chez l'homme, Presse médicale, Oct. 3rd, 1918.

The virulence of the eliminated spirochæte varies according to the different stages of the illness. The forms appearing at the beginning seem to possess greater virulence than those met with during the static period. When the examination is positive it reveals them in the first days only in the state of isolated units, whilst later it shows them in clusters. Towards the end of the illness the spirochætes in the urine are deformed and distorted, their virulence is then diminished, and they produce in the guinea-pig a curable spirochætosis, as we have been able to prove in three cases, in particular with urine drawn off on the 34th day.

The virulence of the cerebro-spinal fluid has been shown by MM. S. Costa and J. Troisier,[7] who observed it in three cases at the beginning of the illness, at the same time as that of the blood. It seems to be the result of the initial septicæmia. In a fourth case the cerebro-spinal fluid was found to be virulent at the moment of a recrudescence of febrile symptoms; the virulence was diminished, the incubation period was long (18 days), and the animal recovered. It is very important to point out this fact, for it is known that the blood is never virulent at this period, and the virulence of the cerebro-spinal fluid seems to indicate that the recurrence of feverish symptoms is certainly due to a fresh multiplication of spirochætes.

2. *Direct Investigation of the Parasite in the Urine.*

For a long time the easiest method of diagnosing spirochætosis clinically has been the establishment of the presence of Inada's and Ido's parasite in the urine of icterus patients. It has, consequently, been recommended by various authors, Favre and Fiessinger,[8] Garnier and Reilly,[9] Pagniez, Cayrol, P. P. Lévy, and de Léobardy.[10] But the search is fruitful only if it is carried out at the favourable moment. It does not invest the diagnosis with any certainty except under the condition of not confusing *Spirochæta icterohæmorrhagiæ* with the other spirochætes which may eventually be met with in the urine. Together with Reilly we have therefore discussed the various conditions of elimination and the suitable technique in the article in the *Presse médicale* already quoted. According to our investigations, it is only towards the 12th day that we begin to find the parasite with some frequency; but it is especially from the 15th to the 23rd day—i.e., at the time of the recurrence of the feverish symptoms—that the search has most chance of success, and even then the examination is not invariably followed by positive results. The duration of the elimination period varies on the average from 5 to 10 days, though we have found it prolonged to 15, 18, and even 23 days; but elimination is not continuous during this period. On the other hand, the period may be abnormally shortened. In one case which came under our observation it lasted only 3 days, and in another only 1 day. If, therefore, the search for the parasite in the urine is to be used as a means of diagnosis it must be repeated daily during the favourable period until the presence of the spirochæte has been proved.

Elimination often ceases from the 20th or 22nd day of the illness, but it is not exceptional after the 30th day. In cases where the illness was of a sluggish type we have found it on the 32nd, 33rd, 34th, 40th, and 41st days. We have had two rare cases where the period may be verified as of much greater length, even up to the 100th day.

The appearance of the parasite in the urine varies according to the stage of elimination. At the beginning it is only very slightly waved and nearly straight; at the end degenerate forms with badly defined outlines are seen; finally, when elimination is prolonged one finds elements of a flexuous, more or less delicately waved form. Renaux and Wilmaers[11] have also met with such forms, but attribute them to change of technique.

The question of non-pathogenetic spirochætes has given rise to researches by MM. Netter and Salanier,[12] Noël Fiessinger,[13] Garnier and Reilly. They lead to a positive result only in cases of patients whose prepuce is long and overlapping, and whose glands and prepuce were not cleaned before the voiding of the urine.

The method employed is usually the examination of the deposit of centrifugalisation. If a centrifuge is not available the ligroin process may be employed, as recommended by Pagniez, Cayrol, P. P. Lévy, and de Léobardy. According to the same authors, if the examination cannot be made immediately on the emission of the urine, five parts of formalin must be added to every 100 parts of urine; the spirochæte may then be found even at the end of 22 days.

3. *Study of the Humoral Reactions.*

The development of *Spirochæta icterohæmorrhagiæ* in the organism causes the appearance in the serum of various substances, the establishment of which may be used in diagnosis.

A. *Immunisins.*—As the Japanese authors have noted, the search for immunising substances in the serum of patients is a means of diagnosing spirochætosis. However, in benignant types and illnesses assuming the type of catarrhal icterus immunisers may be wanting, or at any rate not be met with in the serum in sufficient quantity to protect the guinea-pig in ordinary doses. Thus, in a case which we observed in conjunction with M. Reilly,[14] the ætiological diagnosis was made certain by establishing the presence of spirochætes in the urine on three different occasions—the 15th, 17th, and 19th days—and the positive result of the inoculation of the urine into a guinea-pig, which succumbed to the usual lesions of icterohæmorrhagic icterus. The serum taken on the 29th day, injected in a 4 c.cm. dose, did not protect it from the inoculation of virus of passage.

B. *Sensitisers.*—The serum of patients affected with icterogenous spirochætosis contains a sensitiser relative to Sp.I. But the investigation of the deviation of the complement cannot be used for clinical diagnosis. Indeed, if the liver of a guinea-pig rich in spirochætes is used as antigen, the deviation of the complement is obtained with serum from a spirochætic case as well as with serum from a syphilitic case (L. Martin and A. Pettit,[15] Garnier and Reilly[16]). In making use of antigen used regularly to establish Wassermann's reaction MM. Costa and Troisier,[17] Martin and Pettit have obtained the deviation of the complement with the serum of spirochætosis patients as well as with that of syphilis patients. However, speaking for ourselves in conjunction with Reilly, we have not had the same positive result when using a liver with hereditary syphilis as antigen.

---

[7] S. Costa et J. Troisier: Rèactions méningées dans la spirochétose ictéro-hémorragique. Virulence du liquide céphalo-rachidien, Bull. Soc. Mèd., Nov. 10th, 1916. La méningite dans la spirochétose ictéro-hèmorragique, Presse médicale, April 2nd, 1917.

[8] Favre et N. Fiessinger: Des facilités du diagnostic de la spirochétose ictèrique grâce à la mèthode de Fontana-Tribondeau appliquée à l'examen des urines centrifugèes, Bull. Soc. mèd. Hôp., Dec. 8th, 1916.

[9] M. Garnier et J. Reilly: La recherche des spirochètes ictérigènes dans l'urine de l'homme et du cobaye, C. R. Soc. Biol., Jan. 6th, 1917.

[10] Pagniez, Cayrol, P. P. Lévy, et de Léobardy: Bull. Soc. Med. Hôp., Jan. 11th, 1918.

[11] Renaux et Wilmaers: Arch. médicales belges, 1917, Nos. 2 et 3. Renaux: Sur les modifications des affinités colorantes et de l'aspect morphologique de *Sp. icterohæmorrhagiæ* en culture, C. R. Soc. Biol., June 16th, 1917.

[12] Netter et Salanier: C. R. Soc. Biol., Jan. 12th, 1918.

[13] Noël Fiessinger: A propos des spirochètes du mèat et de l'urine de l'homme normal, C. R. Soc. Biol., Jan. 12th, 1918.

[14] M. Garnier et J. Reilly: La recherche des substances immunisantes chez les convalescents de spirochètose icterigène. C. R. Soc. Biol., Jan. 20th, 1917.

C. *Agglutinins.*—The establishment of a specific agglutinin in the serum of patients infected with Sp.I. has been carried out by MM. Martin, Pettit, and Vaudremer,[18] who have applied this process to the diagnosis of spirochætosis. In order to get agglutination a culture of spirochætes must be used. In coöperation with Reilly[19] we tried spirochætes obtained by centrifugalising a urine quite exceptionally rich in parasites, but we did not obtain agglutination on mixing a drop of this microbe emulsion with a drop of serum from a patient attacked by a severe form of the disease on the 30th day of the same. On the other hand, the same spirochæte emulsion was beautifully agglutinised by the anti-spirochætic serum prepared by the Pasteur Institute in Paris.

By using a spirochæte culture MM. Martin and Pettit obtained agglutination in a dilution of 1/500 and often of 1/1000. The serum manifests its agglutinative power from the 10th day of the illness, sometimes even from the 6th day. The agglutinins continue to exist in the serum for a long time, and MM. Martin and Pettit have been able to verify them in one of their cases 22 months after the outbreak of the disease. Moreover, serum taken from a patient and preserved in vitro retains its agglutinative power for a very long time; MM. Martin and Pettit have proved it at the end of three months. Finally, neither normal human serum nor syphilitic serum ever contain agglutinins with respect to Sp.I. Consequently the diagnosis of spirochætosis by means of establishing agglutinins in the serum seems at present to be the best method of determining the origin of infectious icterus; it is, indeed, the most rapid and most easy to carry out, provided that a culture of spirochætes is at disposal. However, in a case recently reported[20] by Villaret, Bénard, and Dumont, no agglutinating power was shown by the serum, investigated by MM. Martin and Pettit at three stages of the disease and convalescence, although the urine contained a typical spirochæte making a guinea-pig icteric, and although the serum possessed immunising properties. I have just seen with Reilly a similar case. It must be admitted that in Sp.I., as in other infectious maladies, the agglutination test may occasionally fail.

CLINICAL FORMS OF ICTEROGENOUS SPIROCHÆTOSIS.

1. *Typical Form.*

Since hæmorrhages are exceptional in human beings ictero-hæmorrhagic spirochætosis is more exactly termed icterogenous spirochætosis, and its most typical form is *infectious icterus with febrile recrudescence.* This clinical type corresponds to the old *infectious icterus with relapses*, often described under the name of Mathieu's or Weil's disease.[21] French works have made us acquainted with its various modalities: the icterus may be more or less intense in different cases; the initial temperature is more or less high; the duration of the intercalary apyrexia varies from 3 to 14 days; the recurrence of the fever takes place from the 12th to the 23rd day of the illness. This recrudescent fever often follows a cycle; in that case it rises steadily to the maximum and then falls slowly to the normal; it affects the remittent type, and the differences between the daily maximum and minimum are always important. Sometimes it takes an irregular form, and the curve is uneven; sometimes, again, it takes a sluggish form, and the temperature oscillates about 38° for 8 or 10 days. After the second fall of temperature there are sometimes brief rises, outlining the second relapse. In all cases this renewed rise of temperature is not accompanied by a new attack of icterus. If the jaundice had begun to diminish during the apyrexia it continues to do so. Sometimes, however, an attack of bilious diarrhœa indicates that the liver has reacted on the fresh rise of temperature. Arterial tension is clearly diminished, as has been noted by Pagniez[22] as well as ourselves in coöperation with Reilly. The points which have attracted the particular attention of French authors are the meningeal reactions, azotemia and Ambard's constant, leucocytosis and the blood formula.

A. *Meningeal reactions.*—The meningeal reactions, which do not seem to have been pointed out by the Japanese authors, have been studied by MM. S. Costa and J. Troisier. These authors have found them in nine-tenths of the cases observed by them. The symptoms are those of acute meningitis. Lumbar puncture produces a clear fluid under increased pressure, usually yellow-tinted, at least when the icterus is very dark. This fluid contains an excess of albumin, as much as 0·60 to 0·70 on Sicard and Cantaloube's albuminimeter, a less than normal quantity of chlorides, glucose at a physiological rate or sometimes above it, urea in nearly always increased quantity. On centrifugalisation it forms a deposit of the common forms of polynuclears, mononuclears, and lymphocytes in equal proportions, the polynuclears being mainly of the forms in which meningeal symptoms predominate. According to our researches,[23] the meningeal reaction is clinically appreciable only in a quarter of the cases, but it is constant if measured by the results of lumbar puncture. On centrifugalisation the cerebro-spinal fluid gives a deposit which is made up of polynuclears on the 1st day of the icterus, and later, on the 3rd day, of mononuclears as well as of multinuclears; from the 6th to the 9th day reaction decreases and the multinuclears disappear, so that only mononuclears and lymphocytes are found. A similar reaction is found in the case of the dog, if a small quantity of biliary salts are introduced into the spinal cavity, as shown by experiments made by M. Reilly and myself. Further, in our experience the meningeal reaction is connected with cholæmia and the passage of elements from the bile into the spinal cavity at the time when, at the beginning of the icterus, the pigment spreads into the whole organism. The virulence of the cerebro-spinal fluid is independent of the cytological formula, nor is it bound to the existence of meningeal symptoms; it is parallel to that of the blood, and a function of the initial septicæmia.

---

[15] A. Pettit: C. R. Soc. Biol., Dec. 2nd, 1916, p. 1041.

[16] M. Garnier et J. Reilly: La spirochétose ictérigène, Paris médical, March 3rd, 1917, p. 180.

[17] G. Costa et J. Troisier; Sur la spirochétose ictérohémorragique, C. R. Soc. Biol., Dec. 2nd, 1916, p. 1040.

[18] L. Martin, A. Pettit, and A. Vaudremer: Sur les propriétés agglutinantes et immunisantes du sérum sanguin chez les sujets atteints de spirochétose ictérohémorragique, C. R. Soc. Biol., Dec. 22nd, 1917, p. 919. L. Martin et A. Pettit: Sérodiagnostic de la spirochétose ictérohémorragique, Bull. Soc. méd. Hôp., June 28th, 1918, p. 672.

[19] M. Garnier et J. Reilly: La spirochétose ictérigène, Paris médical, March 3rd, 1917, p. 180.

[20] Bull. Soc. méd. Hôp., Oct. 31st, 1919.

[21] M. Garnier et J. Reilly: L'ictère infectieux à spirochètes, Bull. Soc. méd. Hôp., Dec. 22nd, 1916. La spirochétose ictérigène, Paris Médical, March 3rd, 1917. J. Castaigne et N. Fiossinger: La spirochétose ictérigène, ses formes cliniques, son traitement, Journal des Praticiens, Oct. 13th and 20th, 1917.

[22] Pagniez, Cayrol, P. P. Lévy et de Léobardy: Etude clinique de 45 cas de spirochétose ictérigène, Bull. Soc. Méd., Nov. 30th, 1917, p. 1181.

[23] M. Garnier et J. Reilly: Les réactions méningées au cours de la spirochétose ictérigène, C. R. Soc. Biol., May 5th, 1917, p. 446.

B. *Azotæmia and Ambard's constant.*—Authors who studied infectious icterus noted serious forms of azotæmia from the outbreak of the war onwards (Pr. Merklen). Lemierre showed that this azotæmia existed in the phase preceding icterus. In collaboration with M. Gerber[24] we found that azotæmia was met with in the different varieties of Sp.I. It is constant in severe forms, with oliguria and anuria, and reaches the very considerable figures of 6, 7, 8, and even 9·2 g. per 1000 in fatal cases. Recovery may take place after figures of 5·50 and 5·93 g. have been determined in the serum. The proportion of urea in the blood decreases only very slowly, and only returns to the normal at the end of about a fortnight. Sometimes the elimination of urea is disturbed during the whole course of the illness, and death is brought about slowly by the progress of the nephritis. In favourable cases retention of urea may sometimes be also proved at the commencement of the icterus; we have found figures of 1·11, 1·40, and 1·54.

At the beginning Ambard's constant attains a high figure; but it is well known that its determination is hardly of interest, except in cases of slight azotæmia, less than 1 gr. per litre. Now, although the proportion of urea does not generally rise again during the renewal of the fever the figure of the constant of urea secretion is always modified at this time. The rise is proportionately much less than at the beginning, but still very appreciable. Thus it reaches 0·130 or 0·160 in place of the normal 0·060.

C. *Hæmatology.*—The first examination of the blood was published by MM. Costa and Troisier.[25] Shortly afterwards E. Renaux[26] drew attention to the anæmia which appears even in patients who have not suffered from great hæmorrhages, to the slowness of the reparation of the blood, to the increase in globular resistance, and finally to the initial leucocytosis, together with the presence of neutrophil myelocytes. Later on Pierre Clément and Noël Fiessinger reported two fresh examinations. Together with Reilly we went into the question on a broader basis and reported the results of 60 examinations of the blood of 38 different patients.[27] We thus ascertained that in its medium and serious forms, and more rarely in its lighter forms, Sp.I. determines marked anæmia. Although it only manifests itself at convalescence this anæmia really appears early. It is in general less intense than would seem to be indicated by the colour of the patients, whose skin long retains the traces of biliary impregnation. Sanguineous reparation proceeds very slowly. When the myelocyte-producing activity of the bone marrow is exaggerated at the outset there is no blood-forming activity during the whole of the morbid development or even long afterwards. These data have been confirmed by anatomical examinations. This disturbance in the formation of blood seems certainly due to the parasite and its toxins, and not to cholæmia. Indeed, the experimental injection of biliary salts acts quite differently, and quickly produces the appearance of nucleated red blood corpuscles in the circulation.

At the time when icterus appears the number of leucocytes is increased, but this increase is slight and the number of leucocytes rarely exceeds 15,000. This leucocytosis declines during the apyrexia, and increases slightly with the recurrence of high temperature. This leucocytosis is multinuclear in character. The number of multinuclears rises to 84 or 86 per cent., declines in apyrexia, and increases again during the febrile period. In fatal cases this multinucleosis becomes so considerable as to reach 97 per cent. A similar condition is not found in icterus gravis without spirochætosis. In benignant forms multinucleosis does not occur.

Another characteristic of the leucocytic formula is the steadiness of the myeloid reaction. When it is feeble it hardly merits attention; indeed, we have been able to assure ourselves that it can be found in icterus due to obstruction caused by gall-stones or new growth. But it often reaches unusual proportions, particularly in cases where the icterus is intense. Not only do the neutrophil myelocytes pass into the circulation, where they are found in the proportion of 8 to 10 per 100 white globules, but other elements, such as Turck's cellules, may also invade the blood. This myeloid reaction may also be found in apyretic forms. Finally, eosinophilia is constant. In apyretic forms it appears early, and in febrile forms at the time of convalescence. It may persist for several months after the fall of temperature.

These modifications of the differential count must be compared with those observed in guinea-pigs by M. Bablet.[28] This author has reported a slight diminution in the number of red blood corpuscles, a constant leucocytosis varying between 7500 and 35,000, and, finally, a modification of the leucocytic formula characterised by the early appearance of abnormal elements, myelocytes, and by the rapid disappearance of mononuclears; among the leucocytes with polymorphic nucleus adult forms predominate at the beginning, younger forms at the end; according to Arneth's classification the leucocytic formula is regularly deviated to the left.

Coagulation disturbances have been studied by M. Pagniez,[29] who has observed a more or less marked delay of coagulation, with diminution or entire disappearance of the retractility of the coagulum. This disturbance of retractility is conditioned by a huge diminution in the number of the blood platelets. It appears before cholæmia and disappears when the icterus is still very marked; it is due to a selective action of the spirochæte and its products on the platelets.

Together with Reilly[30] we have ascertained that in febrile forms of Sp.I. the duration of coagulation is slightly lengthened, coagulation taking place with formation of a buffy coat capping the red clot. Even in fatal cases coagulation disturbances are always of slight intensity; moreover, the test of induced purpura is invariably negative, and the time of bleeding, as measured by Duke's method, is normal or even shortened.

---

[24] M. Garnier et C. Gerber; Le fonctionnement des reins au cours de l'ictére infectieux primitif, C.R. Soc. Biol., Dec. 16th, 1916.

[25] S. Costa et J. Troisier: Un cas de spirochétose ictéro-hémorragique, Bull. Soc. méd. Hôp., Oct. 20th, 1916.

[26] E. Renaux: Note sur la spirochétose ictéro-hémorragique, C. R. Soc. Biol., Nov. 4th, 1916.

[27] M. Garnicr et J. Reilly: Les réactions sanguines au cours de la spirochétose ictérigènc, Arch. de Méd. expérimentale et d'Auatomie pathologique, December, 1917.

[28] Bablet: Les hématies au cours de la Sp. I. expérimentale chez le cobaye. La leucocytose au cours de la Sp. I. expérimentale chez le cobaye. C. R. Soc. Biol., March 9th and 23rd, 1918.

[29] Ph. Pagniez: Les troubles de la coagulation du sang dans la spirochétose ictérigène, C. R. Soc. Biol., Nov. 10th, 1917.

[30] M. Garuier et J. Reilly; Les réactions sanguines au cours de la S.I., 2me mémoire, Arch. de Méd. expérimentale et d'Auatomie pathologique, Juue, 1918.

Globular resistance to hypotonic saline solutions is increased in febrile forms, but this increase disappears before the end of the icterus, at the beginning of the recrudescence of fever, doubtlessly because the biliary salts disappear from the serum and the urine. In serious forms, in which the late anæmia syndrome appears at the period of definitive apyrexia, globular resistance continues to disappear. At the same time the globular resistance to saponin,[31] which was diminished at the beginning of the illness, becomes normal, as in hæmolytic icterus; nevertheless the study of the hæmolysis curve shows that it cannot be identified with that observed in hæmolytic icterus. At the time of recrudescence or immediately afterwards there is in reality an abrupt weakening of the globular resistance, bringing about rapid anæmia, then a kind of equilibrium is established between the diminished resistance of the globules and the hæmolysing agents. A phenomenon like this can only be explained by a modification of the chemical constitution of the globules, in particular a physico-chemical change in the globular colloids. Neither hæmolysin nor hæmolytic sensitisers ever appear in the serum. The anti-hæmolysing power increases at the beginning and disappears when the biliary salts cease to be found in the urine; it probably follows the variations in cholesterinæmia.

2. *Non-typical Forms.*

In a recent article[32] we have epitomised the opinions formed by us on non-typical forms of Sp.I. They may be grouped under three headings.

A. *Forms which are not typical in evolution.*—Sp.I. may take on the appearance of *icterus gravis.* Death is then usually caused by anuria accompanied by uræmic symptoms. Spirochætic icterus gravis never corresponds with Frerichs's acute yellow atrophy of the liver; that lesion never gives rise clinically to either azotæmia or multinuclear leucocytosis.

Sp.I. may assume the form of *catarrhal icterus,* several observations of which we have reported.[33] The illness then takes its course without fever and almost without any general phenomena. Within the range of one and the same epidemic centre one can see serious and light cases alternating. Finally, it may sometimes have a *lengthened* evolution;[34] we have reported two such cases in which the febrile attacks recurred for two and three months. In one of them the principal seat was the kidney (*renal form*), and each attack was accompanied by an increase of albumin in the urine. In the other the illness chiefly attacked the liver and the spleen (*hepato-splenic form*). Both these organs hypertrophied considerably; at the same time the complexion remained sub-icteric, so much so that the clinical aspect was that of Hanot's disease. MM. Sacquépée and Guy Laroche have also observed a case, in the course of the second month of which painful splenomegaly with cervical adenopathy was developed.[35]

B. *Non-typical forms due to some anomaly in the reaction of the organism.*—The chief symptom of the illness, icterus, may be wanting. This *anicteric form* presents several varieties. It may be pure—i.e., the illness may assume the usual clinical type of spirochætosis with febrile recrudescence without icterus making its appearance at any time. It may take a *myalgic* form, a beautiful case of which has been reported by MM. Bloch and Hébert.[36] In this case one of the main symptoms of the disease, icterus, did not appear at all, whilst myalgia, usually a secondary phenomenon, preponderated. General muscular hyperæsthesia, together with fever and general infectious symptoms gave the patient the appearance of suffering from meningitis, but careful analysis of the symptoms showed that there was neither Kernig's sign nor stiffness of the nape of the neck. Besides that, the cerebro-spinal fluid remained normal. Towards the 20th day there was a slight recurrence of fever. The patient recovered.

Finally, the non-typical form may be *meningitic in type.* MM. Costa and Troisier report two such cases.[37] The I.Sp. may assume a *meningitic form.* Icterus is then more or less marked according to the individual case; sometimes it is hardly noticeable, and it may even be entirely wanting. MM. Costa and Troisier have studied such cases. This association of icterus with the meningitic syndrome had already attracted the attention of observers, and MM. Guillain and Ch. Richet, jun.[38] had reported examples in 1910. They may be retrospectively connected with I.S.

Sometimes crises of violent pains complicate the clinical picture. MM. Sacquépée and Boidin report such a case.[39] In exceptional cases I.Sp. may first reveal itself by a mental syndrome, as in a case met with by M. Dujarric de la Rivière and another found by MM. Pierre-Kahn and Robert Debré.[40] The pulmonary form described by Sasportès in his thesis[41] is characterised by blood-stained expectoration and fugitive pulmonary symptoms at the outset of the illness. In the sputa M. Reilly and myself have been able to see spirochætes which we were not able to identify with exactitude and certainty, but the morphological aspect of which resembled Inada's parasite.

C. *Non-typical forms due to association of I.Sp. with some other illness.*—I.Sp. may be associated with a typhoid fever with Eberth's bacillus. Reilly and myself have reported such a case.[42] The disease developed with the appearance of a continuous fever with icterus; the spirochæte could be revealed by injecting urine into a guinea-pig which took the disease. Eberth's bacillus was isolated from the pus of a muscular abscess and purulent pleurisy, which supervened during convalescence; moreover, the patient's blood agglutinated Eberth's bacillus.

I.Sp. may appear in a patient previously attacked by biliary lithiasis, and a hepatic crisis may show itself during convalescence. M. Reilly and myself have observed a case of this kind. But as I.Sp. is a disease of the hepatic parenchyma and leaves the biliary tracts intact, whilst lithiasis is a disease of the biliary tracts which does not affect the hepatic parenchyma, it is plain that the two diseases do not affect each other very much. Finally, I.Sp. may be associated with acute leukæmia, as in the case described by MM. Sicard, H. Roger, and L. Kindberg,[43] although it cannot be said whether the I.Sp. marks a secondary infection or whether it in itself determines the leukæmic syndrome.

---

[31] M. Garnier et J. Reilly: La résistance globulaire à la saponine au cours de la spirochétose ictérigène, C. R. Soc. Biol., March 31st, 1917.

[32] Marcel Garnier: Les formes atypiques de la Spirochétose ictérique, Journal médical français, April, 1919.

[33] M. Garnier et J. Reilly: Les formes légères de la S.I., Bull. Soc. méd. Hôp., Jan. 19th, 1919.

[34] M. Garnier et J. Reilly: Les formes prolongées de la Sp.I. (forme rénale et forme hépato-splénique), Bull. Soc. Méd., May 29th, 1917.

[35] Sacquépée et Guy Laroche: Sp.I. Réunion médicale de la 4me armée, Presse méd., April 16th, 1917, p. 226.

[36] Marcel Bloch et Pierre Hébert: Myalgies généralisées simulant une méningite aigüe, Spirochétose anictérique, Bull. Soc. méd. Hôp., Jan. 19th, 1917.

[37] S. Costa et J. Troisier: Nouvelles observations de Sp.I. à forme méningée pure, Bull. Soc. méd. Hôp., July 12th, 1918, p. 762.

[38] G. Guillain et Ch. Richet fils: Etude sur une maladie infectieuse caractérisée par de l'ictère et un syndrome méningé, Bull. Soc. méd. Hôp., Oct. 28th, 1910.

[39] Sacquépée et Boidin: Forme nerveuse de la Sp.I., Bull. Soc. méd. Hôp, May 9th, 1917.

[40] Pierre-Kahn et Robert Debré: Un cas de S.I. à forme mentale, Bull. Soc. méd. Hôp., Oct. 11th, 1918.

[41] Sasportès: Les formes fébriles de la S.I., Thèse, Paris, 1918.

[42] M. Garnier et J. Reilly: Sp.I. et fièvre typhoïde associées, Bull. Soc. méd. Hôp., April 20th, 1917.

3. *Complications.*

Various complications have been noted with I.Sp.

Aortic weakness.—At the beginning of the convalescence of one of our patients M. Reilly and I noted the appearance of a diastolic murmur at the base in the midst of the clinical syndrome, revealing an acute aortic attack—retro-sternal discomfort, pain on passing the alimentary bolus into the œsophagus, vomiting. These phenomena disappeared rapidly, but the murmur due to aortic weakness persisted and the pulse became uneven. The icterus spirochæte is therefore able to produce lesions of the aorta exactly like the syphilis treponema, with which it has analogies.

Acute cardiac dilatation.—MM. S. Costa and J. Troisier[44] have noted in four of their patients a syndrome of acute cardiac dilatation characterised by the increase in the area of præcordial dullness, the muffling of the first bruit, sometimes a regular galloping sound, probably connected with dilatation of the left ventricle, a marked weakness of arterial tension. This cardiac dilatation syndrome coincided with azotemia. It disappeared progressively after about ten days.

Parotitis.—Long ago parotitis was noted amongst the complications of icterus gravis. It is sometimes found in severe cases of spirochætosis; it may give place to a periparotitic phlegmon, a case of which we have reported.

Secondary infection of the biliary tracts.—In autopsy of severe forms of I.Sp. an infection of the biliary tracts may be observed, cholecystic in nature with streptococci in one case, in the others with hypertrophy of the hilar ganglions.[45] This infection is not accompanied by any clinical symptoms.

PATHOLOGICAL ANATOMY.

The pathological anatomy of I.Sp. has been the subject of several publications by MM. Martin and Pettit, Garnier and Reilly. The former have had regard chiefly to the hæmolymphatic agents, the latter to the liver and the kidneys. In I.Sp. in the guinea-pig MM. Martin and Pettit[46] have noted hæmatophagous phenomena at the surface of the lymphatic ganglions, and these have been found, though to a less extent, in several other organs, notably the spleen and liver.

M. Reilly and myself[47] have studied the state of the hæmolymphatic organs during I.Sp. in human beings. At the beginning of the affection the bone marrow is reddish in colour. When viewed under the microscope, proliferation is manifest in the elements of the white series, almost entirely in the myelocytes. By means of appropriate methods the presence of typical spirochætes can be demonstrated. If death supervenes after a long period the bone marrow is uniformly grey. The microscope reveals considerable macrophage activity, together with the presence of large masses of pigmentary grains inside the cells. This hæmatophagous activity, which explains the presence of anæmia, is accompanied by a marked deviation of the medullary function, the hæmatopoietic character of the marrow as largely diminished, whilst its myelocyte activity is considerable. The spleen is usually normal in weight. If death supervenes at the beginning of the illness, it presents macrophage excitation of the cells of the reticulum, contrasting with the integrity of the follicles. In cases where death is tardy, one notices an appearance of hypertrophic sclerosis of the pulp-augmentation of the cells with clear nucleus and thickened reticulum.

In human beings the lymphatic ganglions may exceptionally present the lesions described by MM. Martin and Pettit as occurring in the guinea-pig. In a case which we have observed the ganglions presented follicular hyperplasia with multiplication of the large mononuclears without macrophages. In some cases hypertrophy of the ganglions of the hilum of the liver may be noted, with necrosis of part of the medullary zone. This hilar adenopathy seems to us to stand in connexion with a secondary infection of the biliary ducts; indeed, in one case we were able to find on the sections bacilli with the morphological appearance of Hallé's *Bacillus funduliformis.* As regards the liver, MM. Martin and Pettit[48] have laid stress on the polymorphous nature of the lesions in connexion with the two cases observed by them, and also on the existence of a certain amount of karyokinesis and the intensity of the hæmatophagic reaction. Reilly and myself[49] have been in a position to study the livers of 23 patients who have died of Sp.I. and have reported the results of our examinations. The organ is regularly increased in size, and its weight varies from 1650 to 2350 g. The biliary tracts are always free; a catheter is easily introduced; the gall-bladder sometimes contains brown or greenish-brown bile; in other cases it is limp and flattened, and only contains a little thick mucus, generally coloured. From the point of view of microscopical examination it is necessary to distinguish cases when death occurred before the 15th day from those in which it occurred later. To begin with, the lesions are variable, but they may be nevertheless reduced to three types. The first is characterised by nearly complete integrity of the parenchyma and cellular hyperplasia. The second is determined by the disappearance of the columnar arrangement of the liver structure and extensive cellular degeneration. The third contains intermediary states between the two preceding types. The hyperplastic reaction seems to be the fundamental modification of the parenchyma of the liver; when it exists at all the cellular degeneration has no specific character. Still, it is well to note that fatty degeneration is always moderate, thus distinguishing spirochætosis liver from Frerich's acute yellow atrophy. In portions removed immediately after death we have been able to study the delicate lesions of the protoplasm and to recognise the changes in the chondroma, which may be referred to two types—viz., homogenisation and cytolysis. Homogenisation is the first in time; it is found sometimes in livers which have undergone only very slight change and have been invaded by hypertrophied cells. Whatever the form and intensity of the lesions, they are always diffuse, reach all regions of the lobule, and show no tendency to gather into centres. From this point of view the pathological changes brought about by Sp.I. are completely different from those caused by infectious illnesses accompanied or not accompanied by icterus.

---

[43] J. A. Sicard, H. Roger, et L. Kindberg: Leucémie aigüe avec spirochétose urinaire et viscérale. Séro-diagnostic ictéro-hémorragique positif de Martin et Pettit, Bull. Soc. méd. Hôp., Oct. 11th, 1918.

[44] S. Costa et J. Troisier: De la dilatation cardiaque aigüe dans la Sp.I., Bull. Soc. méd. Hôp., May 4th, 1917.

[45] M. Garnier et J. Reilly: L'infection secondaire des voies biliaires dans la Sp.I., Bull. Soc. Méd., March 1st, 1918.

[46] L. Martin et A. Pettit: Réaction hématophagique dans les ganglions lymphatiques du cobaye au cours de la I.Sp., C. R. Soc. de Biol., Nov. 4th, 1916.

[47] M. Garnier et J. Reilly: Les organes hémolymphatiques au cours de la Sp.I. (moelle osseuse, rate, ganglions lymphatiques), Archives de Médecine expérimentale et d'Anatomie pathologique, Sept., 1918, p. 155.

[48] L. Martin et A. Pettit: Apropos des lésions histologiques qui surviennent chez l'homme au cours de la Sp.I.. C.R. Soc. de Biol., June 30th, 1917.

[49] M. Garnier et J. Reilly: Etude anatomique du foie dans la S.I. chez l'homme, Arch. de Médecine expérimentale et d'Anatomie pathologique, March, 1919.

In the case of patients who died after the 15th day, we note the integrity of the lobule, the structure of which is preserved, hyperplasia of a large number of cells and degeneration of some of them, biliary stagnation and an accumulation of pigmentary grains in the lobule. The stagnation is noticeable from the 20th day onwards and continues to the end of the illness; it is accompanied by a dilatation of the intercellular biliary canaliculi, which is often enormous. Consequently the preparations are like those obtained in cases of icterus following on biliary obstruction.

MM. Martin and Pettit have also pointed out lesions of the kidney, hæmorrhages within and between the Fallopian tubes, the presence of hyaline and granular casts, groups of multinuclear leucocytes, and finally the beginning of interstitial sclerosis. M. Reilly and I have noted the localisation of the lesions in the twisted tubes, whilst the glomerules remain untouched. The spirochætes are invariably eliminated by the twisted tubes; at first they gather round the tubes, and at a second stage pass through the wall of the cell and enter into the bore of the canal.[50]

PATHOLOGICAL PHYSIOLOGY.

The evolution of the Sp.I. is very curious and is determined by the action of the biliary salts on the parasite. In coöperation with Reilly we have, indeed, shown that the bile, and in particular the biliary salts, suppress the virulence of the icterohæmorrhagic spirochæte.[51] Since then we have recognised that solutions of biliary salts bring about the lysis of the icterogenic spirochæte by acting on this parasite, as they do on the pneumococcus. Consequently, it is easy to understand the progress of the illness. As soon as the icterus appears the kidney shuts down and the elements of the bile accumulate in the organism. At this point the blood decreases in virulence and the temperature declines progressively. It remains normal as long as the excretion of biliary salts persists, an expression of cholalæmia. But the biliary salts soon disappear from the urine, Hay's reaction becoming negative, whilst the excretion of pigment continues. Then the temperature rises again, and the new febrile attack marks the effort of the organism to react and realise the conditions requisite for producing immunity.[52] The duration of the intervening feverless period is determined by that of the cholalæmia. The intensity of the recrudescent fever depends upon the virulence of the germ, and at the same time upon the ease with which the system produces biliary salts. The reason for the recrudescence being sometimes only outlined is that the biliary salts still persist in the urine, and that for several days two phenomena overlap, a slight rise in temperature and cholaluria.

In I.Sp. icterus is by no means due to the intestine. Macroscopic and microscopic examinations show that there is no obstacle to the circulation of the bile, which can flow freely into the intestine, and moreover the matter is often coloured. Nor does the almost complete integrity of the liver in certain fatal cases of spirochætosis allow us to think that the icterus is due to a slighter communication between the biliary duct and the blood capillary, which would presuppose the destruction, or at least a profound affection, of the hepatic cells. The icterus therefore cannot be explained by a biliary retention connected with notable lesions of the hepatic cells, as MM. Brulé and Moreau have attempted to do.[53] It must be admitted that at the origin of the process there is some disturbance in the cells the nature of which escapes us, but which consists in a deviation of the biliary secretion which is diverted into the canaliculus instead of following its usual path and reaching the blood capillaries.

This deviation of the cellular secretion is not the only disturbance at the beginning of icterus. It is accompanied by irritation of the functions of the liver, which is proved by the hyperplasia of the hepatic cells and betrays itself not only by excess of bile, but also by excess of nitrogenous matter in the blood and urine. The frequent integrity of the liver, which would be otherwise so surprising in a disease in which hepatic disturbance is so marked, may now be understood. The absence of virulence in the tissues as found on autopsy, and the difficulty often found in identifying the microbe under the microscope may also be understood. Death mostly supervenes from renal lesions, when the icterus is intense; all the tissues are impregnated with bile. But when death occurs in the septic period, when the icterus has not completely developed, the tissues are virulent after death and the parasite can easily be found.

It is not, however, the fact that the cells cannot degenerate. Autopsies prove it, whilst from the clinical point of view signs of hepatic failure may appear. Thus MM. Clément and Fiessinger have been able to prove hepatic failure in two cases[54] by investigating the glycuronic acid in the urine. In spite of the administration of camphor the reaction was negative until convalescence.

ÆTIOLOGY.

1. *The Parasite.*

Several Frenchmen have published their studies of the parasite of I.Sp. By means of Laveran's panchromatic stain, or Burri's Indian ink method, M. Legroux[55] has demonstrated that *Spirochæta icterohæmorrhagiæ* is not a filament with two or three undulations, but a spiral filament with numerous spiral turns. By using Löfler's and Van Ermengen's methods of staining the flagella, MM. L. Martin, A. Pettit, and A. Vaudremer[56] have established the fact that the two extremities of the parasite are provided with cilia. One of them forms a loop and attains a length nearly equal to half the body of the spirochæte, while the other is shorter and seems more rigid. The Japanese writers indicate a loop at the ends of the spirochæte, though their description did not allow of understanding its origin; but these loops are easily explained when the existence of the cilia is known. They are due to the displacement of the latter.

---

[50] M. Garnier et J. Reilly: Etude anatomique des reins dans la spirochétose ictérique chez l'homme, Arch. de Méd. exp. et d'Anat. path., August, 1919.

[51] M. Garnier et J. Reilly: Action de la bile sur la virulence de Sp.I., C. R. Soc. Biol., Jan. 6th, 1917.

[52] M. Garnier et J. Reilly: Influence de la cholalémie sur l'évolution de S.I. chez l'homme, Bull. Soc. méd. Hôp., Nov. 23rd, 1917.

[53] Brulé et Moreau: Sur la cause de la rétention biliaire dans la Sp.I., C.R. Soc. Biol., May 19th, 1917.

[54] Pierre Clément et Noël Fiessinger: Deux cas de spirochétose ictérique avec réproduction expérimentale; spirochéturie et insuffisance hépatique glycuronurique, Bull. Soc. méd. Hôp., Dec. 8th, 1916.

[55] R. Legroux: Recherche de Spirochæta hæmorrhagica, C. R. Soc. de Biol., Nov. 18th, 1916.

[56] L. Martin, A. Pettit, et A. Vaudremer: Coloration du spirochète de l'ictère hémorragique par les méthodes de Löfler et de Van Ermengen, Présence de cils, C. R. Soc. de Biol., Dec. 20th, 1916.

As to the colouration of the parasite, it is well known that it is easily impregnated by simple nitrate of silver, but that procedure with silver nitrate and pyridin fails. According to Hollande,[57] this failure in impregnation is caused by the body of the parasite being surrounded by a lipoid which resists reduction by nitrate of silver. If the thin layers of colour are first treated with grease solvents, such as ether, chloroform, or xylol, colouration with nitrate of silver and pyridin is successful. In reality, as Hollande himself saw,[58] the lipoids which prevent the impregnation of the spirochæte in the layers do not really belong to the spirochætes themselves, but come from the cellular elements in which they are enclosed. Nevertheless, if either icterus spirochætes taken from cultures, or syphilis treponemas or *S. dentium*, is mixed with fresh liver pulp from a guinea-pig, it is found that *S. ictero-hæmorrhagiæ* alone is not impregnated by pyrodinic nitrate of silver after fixation in alcohol by itself, and is only impregnated after being passed through alcohol ether. We have there a differential characteristic which may perhaps be used in the diagnosis of these various parasites.

Further, Manouélian[59] has modified the procedure which he and Levaditi had recommended in 1906 in such a way as to allow of a rapid impregnation of the spirochætes.

Cultures of icterus spirochætes have been obtained by MM. L. Martin, A. Pettitt, and A. Vaudremer[60] by making use of a mixture of rabbit or ox serum with physiological saline of a strength of 8·5 per 1000 or Locke's liquid. The best medium for culture is that made up of one part of rabbit serum to six parts of physiological saline at 8·5 per 1000. At first they thought 23° to be the most favourable temperature, but according to their last researches they gave 29° to 30°. Subcultures are easily made and the virulence is prolonged, though it diminishes slowly and progressively.

2. *The Part Played by the Rat as Virus Reservoir.*

Taking the investigations of the Japanese writers as their starting-point, MM. Martin and Pettit[61] have shown that the Norwegian rat, so common in the army zone, might be a reservoir of virus. Out of five rats caught in a part of the French front from which we had a patient with I.Sp. one had spirochætes in its tissues, as was proved by inoculation into a guinea-pig, which succumbed with characteristic symptoms. Shortly afterwards MM. J. Courmont and Paul Durand[62] sought for the icterus spirochæte in 50 sewer rats caught in various parts of Lyons. Inoculation into guinea-pigs proved its presence in four cases. Later on MM. Martin and Pettit[63] found icterus spirochætes in rats caught in Lorient and Rennes. They did not find any in the course of a first series of investigations carried on in April on rats from Marseilles, and similarly MM. Nicolle and Blanc[64] did not find a single one in Tunis during February and March. But fresh investigations in the autumn demonstrated to MM. Nicolle and Lebailly[65] the presence of the virus in 28 per cent. of the rats in the slaughter-houses of the town, though in accordance with the spring investigations they were not found in street rats. It is noteworthy that not a single case of I.Sp. had been reported from Tunis. MM. Nicolle and Lebailly[66] prosecuted their researches into the disease produced experimentally in the guinea-pig by rat virus and have defined its characteristics. This illness can be cured and is characterised solely by fever without icterus; the animal is then immune.

Finally, MM. Nicolle and Lebailly[67] showed that I.Sp. inoculated into rats or mice may persist for a long time in the bodies of these animals. The period of latent conservation may be 69 days in *Mus decumanus*, 102 days in *Mus alexandrinus*, and at least 100 days in the grey mouse. Inoculation of mice therefore provides a convenient method for transporting the virus of infectious icterus to a distance and for preserving it at little expense.

In the town of Algiers L'Héritier[68] found rather different results from those obtained in Tunis. The proportion of animals infected with parasites is only 6 per cent. at most; there are more in winter than in summer, and the harbour rats are less frequently affected than town rats.

As Migayama has already shown, rat virus and human virus are very much alike, and serum prepared from rat virus by Ch. Nicolle in Tunis makes the guinea-pig impervious to human virus (Martin and Pettit). But the virulence of spirochætes isolated from the rat decreases in the course of transmission (A. L'Héritier), and the injection of rat virus into the guinea-pig does not invariably bring about spirochætosis (Martin and Pettit).

3. *Susceptible Animals.*

MM. J. Courmont and P. Durand[69] have shown that the young dog is susceptible; it certainly contracts typical and fatal I.Sp. after subcutaneous or intraperitoneal inoculation, or after ingestion of infectious matter. In three cases MM. S. Costa and J. Troisier[70] have transmitted jaundice to rabbits by inoculating blood from spirochætosis patients. Only one of these animals died. on the 11th day; 22 c.cm. of blood had been injected into the left thigh. Various other writers have obtained confirmatory results (Ulenluth and Fromme, A. Monti).

4. *Paths Taken by the Virus in Penetration.*

MM. J. Courmont and P. Durand[71] have examined whether I.Sp. passes through the skin, and have found that it invariably (7 times out of 7) passes through the shaved skin, and nearly always (5 times out of 6) through the depilated skin, but only 3 times out of 6 through the entirely untouched skin.

5. *Epidemiology.*

I.Sp. is more common in summer. We have ascertained this in the military service which we have been carrying on for three consecutive years, 1916 to 1918, during which we received all the icterus cases from one of the largest armies on the French front. In Sapportès's thesis we have reproduced a graph showing the number of cases in each month of 1916 and 1917. They are most numerous in summer, from June to October, whilst they are scarce from December to March. Men who had studied infectious icterus had already informed us of the greater frequency of the disease in summer.

---

[57] Hollande: Au sujet d'une rèaction microchimique du spirocheta ictéro-hémorragiæ, C. R. Soc. de Biol., June 2nd, 1917.

[58] Hollande: Action de lipoïdes sur l'impregnation pyridoargentique du Sp.I., C. R. Soc. de Biol., July 28th, 1917.

[59] Monouèlian: Technique rapide pour l'impregnation des organismes spiralés dans les coupes, C. R. Soc. Biol., July 20th, 1918.

[60] L. Martin, A. Pettit, et A. Vaudremer: Culture du Sp.I., C. R. Soc. Biol., Feb. 17th, 1917.

[61] L. Martin et A. Pettit: Présence de Sp.I. chez le surmulot de la zone des armées, C.R. Soc. Biol., Jan. 6th, 1917.

[62] J. Courmont et P. Durand: Le rat d'égout "rèservoir de virus" pour la Sp.I., Bull. Soc. mèd. Hôp., Jan. 26th, 1917.

[63] L. Martin et A. Pettit: Présence de Sp.I. chez le surmulot de l'intérieur, C.R. Soc. de Biol., Jan. 16th, 1917.

[64] Nicolle et G. Blanc: Première enquête sur l'existence chez le rat de Tunis des spirochètes pathogèncs pour la cobaye, C.R. Soc. Biol., May 5th, 1917.

[65] Ch. Nicolle et Ch. Lebailly: Existence du spirochète de l'ictère infectieux chez les rats des abattoirs de Tunis, C.R. Soc. Biol., April 13th, 1918.

[66] Ch. Nicolle et Ch. Lebailly: Etude du virus ictèrigène naturel du rat, ibid., April 13th, 1918.

[67] Ch. Nicolle et Ch. Lebailly: Conservation latente du spirochète de l'ictère infectieux chez les rats et souris inoculès expérimentalement, ibid., May 11th, 1918; Nouveaux faits concernant l'étude du spirochète de l'ictère infectieux.; Un procédé de longue conservation du virus dans les laboratoires: l'inoculation à la souris, C.R. Soc. Biol., Dec. 7th, 1918.

[68] Bull. Soc. Path. exot., 1918, p. 357.

[69] J. Courmont et P. Durand: Le S.I. chez le chien, C. R. Soc. Biol., March 17th, 1917.

[70] S. Costa and J. Troisier: Mort du lapin et survie du cobaye dans le S.I. expérimentale, C. R. Soc. Biol., Jan. 6th, 1917.

[71] J. Courmont et P. Durand: Pénétration transcutanée du spirochète de l'ictère hémorragique, C. R. Soc. Biol., March 17th, 1917.

THE LANCET.

LONDON: SATURDAY, DECEMBER 20, 1919.

An Experiment in Racial Pathology: Christmas in Vienna.

THE letter of Professor K. F. WENCKEBACH, which we print on p. 1167, gives no information which cannot be obtained from other contemporary sources, but it comes with the special appeal of a distinguished medical man, an "international" of pre-war times, to his colleagues in this country. Long time director of the Pathological Institute at the University of Groningen, WENCKEBACH is an old friend of many leaders of the English-speaking medical profession, and during his recent flying visit to London and Oxford he found the warm reception which he was entitled to expect, and yet did not dare to count upon. He has been the intermediary of a message to the medical fraternity in Vienna which may serve to hearten them in circumstances of unprecedented difficulty. What the difficulties are in detail there is no need to recapitulate here. The most recent account is given in a letter, dated Dec. 6th, from a special correspondent of the *Manchester Guardian* which appeared in the issue of Dec. 12th. "The whole life of Vienna is haunted by this lack of fuel"; the children "are suffering from the lack of all necessities of health"; linen is so scarce that in the operating room of a baby clinic "every patient ...... has to be laid on the same sheet": these horrors are becoming commonplace to those who know the facts. But they are only the prodrome of the convulsion which is to come when the mid-European winter sets in, unless some radical change occurs.

"We cannot wait" is the note of WENCKEBACH'S letter and of a recent leading article in the *Neue Freie Presse*, headed "Untenable Conditions," and written with a frank and caustic humour. After alluding to the men of science who went to the uttermost parts of the earth to study the solar eclipse and to verify the attempt of Professor EINSTEIN to upset the Newtonian laws of motion and all that has been builded upon them, the writer points out that the explorer need go no farther than Vienna to investigate the destructive effects of a debased currency and of the action and reaction upon each other of such a currency and of a strange financial policy. In the process men who have spent their whole lives in honourable labour for small reward are slowly being crushed to atoms in the economic mill. An Austrian republic without sufficient corn-lands, with scanty coal-mines, with no access to the sea, and strictly limited transport facilities is proceeding to doom, rendered inevitable by economic laws which an EINSTEIN could scarcely deflect. To us who are students of morbid processes on an organic and personal scale, there is something of deep but terrible interest in this spectacle of the inevitable working out of an experiment in racial pathology. Obviously nothing but the removal of the cause is going to cure the ill or prevent its further development, and the removal of the death-sentence rests with our rulers.

But there is one ray of comfort meanwhile. Although it does not lie in us to cure the malady, some symptomatic treatment is possible and may help to tide over an emergency. The delegates of the Lister Institute are studying on the spot the best way of avoiding scurvy and are popularising the results obtained. A report from Vienna has reached the Friends' War Victims and Emergency Committee, stating that a consignment, including amongst other things 304 cases of medicines and dressings, 8917 cases of foodstuffs, including milk, and 120 bales of linen and blankets, has been safely received, and is being distributed under the supervision of Professor TANDLER, Under Secretary of State to the Ministry of Health. Professor WENCKEBACH assures us that any supplies sent to him at the First Medical Clinic in Vienna will be used to good purpose; they may afford to some, possibly to more than a few, just the modicum which will keep nutrition going until the crisis is over. And whatever the material result may be, it is quite certain that such gifts will produce a harvest of goodwill which cannot be a matter of indifference to a profession which has in the past owed much to Vienna beyond pleasant and hospitable relations.

◆

The Story of Wound Shock.

A REPRINT[1] of the reports of the Special Investigation Committee of the Medical Research Committee on Surgical Shock has recently appeared in book form, and serves to direct attention to a subject of far-reaching importance. The initiated may begin by regretting the omission of a memorandum issued in February, 1917, by the Shock Committee, for it was this brief document which introduced new and hopeful ideas to many workers in France at a time when the problems of shock seemed almost overwhelming. The thoughtful clinician in the front line thenceforth had the stimulus of working hand-in-hand with the keen investigator at home, and as time went on the relations between the two arms of this service became more intimate. The results of laboratory research were communicated forthwith to the surgeons in the clearing stations, and in exchange clinical observations, results of pathological inquiries, and notes of therapeutic measures undertaken were forwarded for criticism and advice. There is instruction to be drawn from the sequence of events in the years 1916–18.

---

[1] Special Report Series, No. 25, pp. 285, H.M. Stationery Office.

In the summer of 1916 intravenous infusion with normal saline was employed on a large scale with discouraging results, although at one clearing station treatment in a special ward by warmth, quiet, and fluids was successful in apparently hopeless cases. In the early spring of 1917 one of the surgeons from a clearing station was given opportunities for making blood pressure observations in the trenches, which established the predominating effect of cold in the production of shock in wounded men. The use of gum saline was suggested by Professor W. M. BAYLISS in 1916, and gradually became general. In the summer of 1917 Professor W. B. CANNON took part at Bethune in a system whereby both clinical and laboratory observations were made on a certain number of serious cases from the time of the receipt of the wound, during the journey down the trenches, and in the ambulance to the clearing station, where observation was continued through the operation and until the commencement of convalescence. Wound shock, as it was now called, was thus classified into primary and secondary. In the few primary cases the blood pressure was found to be lowered immediately after receipt of a wound, and profound constitutional disturbance was already present. In the greater number, even with such injury as gunshot amputation or penetrating abdominal wound, no untoward symptoms arose, nor did the blood pressure drop until such factors as cold, hæmorrhage, and toxæmia, bacterial or otherwise, were brought into play. The conception of secondary wound shock now became clear and definite, and accordingly a vigorous campaign was started against shock. In every regimental aid-post arrangements were made for the réchauffement of patients, who thus arrived at the station fit for operation. The resuscitation ward became an established institution, with a sufficient number of beds ever ready for wound shock cases. Medical officer, sister, and orderlies formed a team to heat up and infuse with blood or gum saline all patients requiring it. Enthusiasm being aroused, gum infusion in the actual line was practised, and men were thus kept alive to reach the clearing station. Reduced alkalinity of the blood was at first thought to be one of the causal factors in shock, but later it became clear that the acidosis was a result and not a cause of the lowered blood pressure. Experimentally it was shown that on raising the blood pressure by infusing gum solution the normal alkalinity of the blood returned. From the sum-total of experimental and laboratory work four facts ultimately emerged as characteristic of wound shock, namely: (1) Increased capillary permeability; (2) reduced blood volume; (3) arterial hypotension; (4) consequent intracellular anoxæmia, leading to cerebral changes and finally death.

This being but a summary of a long series of reports of surpassing interest, what is the application of all this research work and war experience to everyday civilian practice? Wound shock occurs daily in accidents in street and factory; surgical shock is not yet banished from our operating theatres. In the first place, those who are responsible for the teaching and supervision of first-aid should impress on all concerned the importance of the preventive treatment of shock. The value of efficient splinting, early arrest of hæmorrhage, and prevention of chill cannot be over-estimated. Stretchers should be abundantly provided with blankets and hot bottles, and motor ambulances heated electrically or otherwise. In the casualty departments of hospitals means should be at hand for warming up the patient while waiting to be examined or treated. In the operating theatre a few electric lamps under the table are easily controlled and are safer than hot bottles. In the private nursing home a suitable oil lamp placed under the table will vastly affect the condition of the patient at the end of operation. Sisters and nurses everywhere should be made fully alive to the effect of cold in the production of shock. The operator has his special contribution to make in the form of speed, gentleness, and attention to hæmostasis. If shock develops, fluids are given by mouth or rectum, or, in urgent cases, by a vein, gum saline being of more lasting effect than normal salt solution. Blood transfusion has its place in civilian surgical practice, and the apparatus, together with a suitable donor, should be available at every large hospital. Applied in this way one of the greatest surgical lessons of the war will not have been learned in vain.

◆

The Draft Regulations for 1920.

THE National Insurance Benefit Draft Regulations for 1920 were the subject of a conference convened in London last week by the British Federation of Medical and Allied Societies, which met at the Steinway Hall on Friday, Dec. 12th, under the chairmanship of Sir MALCOLM MORRIS. A report of the conference will be found in another column, but we may repeat here the words of the first resolution, which, if it can be acted upon with the full support of the medical profession and the ancillary bodies thereto, and if it can obtain sympathetic appreciation among prominent members of the public, should have valuable effect The resolution runs as follows:—

> "That in the opinion of this Conference of medical and allied organisations the Draft Regulations for 1920 proposed to be made by the Minister of Health with respect to the administration of the National Health Insurance Medical Benefit are not adapted to secure the most efficient service from the medical profession nor adequate results to the community."

The medical feeling, thus illustrated, conflicts with statements in the press that the medical profession is really satisfied with the regulations; while Dr. ADDISON'S assurance in the House of Commons, that at a meeting of Panel Representatives only three dissentients were found out of 147 Representatives, must be understood exactly, if it is not to be misunderstood. Those who expressed a general approval of the new regulations cannot be regarded as having no criticism to pass upon them. On the contrary, apart from those members of the medical profession who actively object to the panel system, there are many—very many—who find the new regulations faulty, and it was due to this feeling that the conference was convened by the Federation.

The conference kept admirably to the tone set by the chairman's brief introductory remarks, in that small details were not discussed, bickerings were avoided where principles were not concerned, and a real wish was shown by all the speakers to ensure that the medical profession would act in unison with the authorities to secure for the public the best form of service. This note was struck when both Dr. E. H. M. STANCOMB, the proposer, and Dr. GORDON DILL, the seconder of the essential motion, asked that medical men should have a freer hand than was provided through the regulations as regards the actual methods by which panel patients receive treatment. Dr. A. LATHAM's remark that the regulations could have been as well drawn up in 1913 as in 1919 was a severe criticism which appeared to meet with common agreement in the room, although this was tantamount to saying that all the vast advances which have been gained for medicine during the war are left out of account by the Ministry of Health, which takes no larger view of the medical wants of the community to-day than could have been taken had no such advances been made. As there is reason to suppose that, when the Prime Minister has been made aware of the outcome of the conference, he will receive a deputation, we trust that this point will be taken. Sir BERTRAND DAWSON, who is chairman of the Medical Consultative Council of the Ministry of Health, but who attended the conference, of course, as a private individual, assured the audience that the Minister was anxious to meet the medical profession and to work in harmony with it, and added that his Council were making an official inquiry into the best type of medical service, a report of which would soon be issued. Both Sir BERTRAND DAWSON and Colonel F. E. FREMANTLE, the Coalition candidate for Mid-Hertfordshire, agreed that a full-time medical service was not required, but that a fuller use should be made of the vast and varying medical talent already at the disposal of the country in public, private, and mixed capacities. This, throughout, has been the attitude which we have attempted to maintain in these columns.

The British Federation of Medical and Allied Societies have done thoroughly good work by convening the conference, for the resolutions passed after well-argued and reasonable speeches show what is the general feeling of the medical profession, and of the bodies allied. By the invitation of Sir WATSON CHEYNE, representatives of the Federation have met the Committee of Medical Members of Parliament on the matters at issue.

Annotations.

"Ne quid nimis."

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

THE last meeting of the constituents of the Belgian Doctors' and Pharmacists' Relief Fund took place on Monday afternoon last, when Dr. Pechère, the President of the Committee which, sitting in Brussels, took charge of the distribution of all moneys, delivered a message of thanks to the subscribers. An account of the meeting, which was held by the permission of the Royal Society of Medicine in the house of the Society, is given elsewhere (see p. 1159), and Dr. Pechère's address will be read, we know, with real emotion. Speaking slowly but clearly, his narrative gained in effect by its studied moderation: He stated the simple facts as he had seen them, or had learned them from incontrovertible evidence, and as he spoke a picture emerged of courage in misery, of tenacity in terrorism, which will not be forgotten by his audience. Those who subscribed to the Fund will have satisfaction in knowing how many they succoured, and what hope their practical sympathy kindled in despairing breasts. And those who managed the Fund may congratulate themselves upon the results of their work.

THE TREATMENT OF ICTERIC SPIROCHÆTOSIS.

Dr. Marcel Garnier's comprehensive survey, in the French Supplement to the present issue of THE LANCET, of the work done by his compatriots during the last three years in the field of disease caused by the *Spirochæta icterohæmorrhagiæ* contains no allusion to therapeutic measures. There has indeed been little time for the development of any useful experience in this direction, but at the Pasteur Institute in Paris MM. L. Martin and A. Pettit[1] have prepared an antispirochætosis serum by injecting, at the outset of their investigations, emulsions of guinea-pig liver, and, later, pure spirochæte cultures, into horses. The serum of animals prepared in this way acquired a moderate agglutinating power and manifestly immunising and spirochæte-destroying properties. The same workers also obtained a serum, a dose of 1/20th c.cm. of which neutralised 1 c.cm. of a thick emulsion of the parenchyma of guinea-pig liver rich in spirochætes. Several observers have made use of the serum thus prepared. Dr. Garnier himself employed it in 13 cases, coming to the conclusion that, under the conditions in which he was placed and with the doses he used, the serum did not seem to have any obvious action on the development of I.Sp. But in one case N. Fiessinger and E. Leroy obtained marked amelioration. S. Costa and J. Troisier used the serum in a grave case of meningitic type, when the patient recovered after receiving the serum subcutaneously and intrathecally. Renaux, and later Wilmaers, obtained encouraging results in the Belgian army, observing that the elimination period of the parasite was substantially reduced. Finally, in a case treated by Nolf and Firket the injection of serum into the spinal theca was followed by considerable improvement. From these facts MM. Martin and Pettit conclude that when faced by an ascertained infection with I.Sp. specific serotherapy should be adopted without delay. The technique which they propose is to inject on the first day a dose of 60 c.cm. under the skin, followed by injections of 20 to 40 c.cm. each every two or three days. The treatment must be regarded as being still in the experimental stage.

---

[1] L. Martin et A. Pettit: La spirochétose ictéro-hémorragique, Paris, 1919; Le sérum contre la Spirochéta de l'ictére hémorragique, Bull. Soc. méd. Hôp., Nov. 23rd, 1917.

THE DECLINE OF ALCOHOLISM IN GERMANY DURING THE WAR.

THE decline of alcoholism during the war to which several previous writers have drawn attention is illustrated by Dr. Schweisheimer,[1] of Munich, who gives the following figures: The number of male patients under treatment for alcoholism in public and private asylums in Germany was 3148 on Jan. 1st, 1914, and only 1896 on Dec. 31st, 1916, and the number of female alcoholics fell during the same period from 382 to 295. The decline in the number of fresh admissions for alcoholism was still greater, the male admissions being 6380 in 1914 and 1986 in 1916, and the female admissions 541 in 1914 and 280 in 1916. In striking contrast with these figures was the absence of any change in the relative frequency of mental diseases not due to alcoholism. Thus the percentage of male admissions for dementia præcox to the Berlin Charité Hospital was 8·3 in 1912, 8·8 in 1915, and 8·0 in 1916; and of female admissions, 14·4, 16·0, and 13·0 during the same years, showing that the war had no effect upon this disease.

THE PERILS OF THE RADIOLOGIST.

THE tragic death by electrocution of a radiologist in Paris draws attention to the rarity of such accidents, a sufficiently remarkable fact when we consider the enormous voltages used in the ordinary course of radiological work. To receive a shock from some part of his apparatus is the frequent experience of nearly every busy X ray operator, and produces as a rule little more than a momentary annoyance. The reason for this is that the great majority of such shocks are from one terminal only, the amount of current transmitted to the body being limited to its capacity as a condenser, which is small; and this is especially so if the apparatus is installed in an ordinary room with a floor of dry wood or covered with thick linoleum. Uncovered floors of concrete allow direct leakage of current to earth and materially increase the severity of any shock; they should not be permitted in an X ray room. Apart from this question of floor material, it occasionally happens through the development of faulty insulation that the operator becomes connected with both terminals of the coil, and this is a very unpleasant experience. Conceivably such an occurrence might be immediately fatal in the case of an individual with a weak heart; in normal persons, however, the effects pass off rapidly and are soon forgotten. While the tension or voltage is high, the quantity of current from an induction coil is very small, due less to the high resistance of the secondary winding than to self-induction and impedance. The available current can never rise above a limited number of milliampères, and as the induction coil is the most generally used means of exciting the X ray tube, herein lies the explanation of the radiologist's immunity from fatal accident.

To meet the demand for rapid exposures, something more powerful than the induction coil was needed, and this led to the introduction of the high-tension transformer with its closed magnetic circuit and rectifying device for keeping the current impulses through the tube unidirectional. By its employment a greatly increased current passes through the X ray tube, and the risks to the operator are proportionately increased in the event of personal contact with one or both terminals when the machine is working at anything approaching its full power. The necessary precautions for the avoidance of accident are well known to instrument-makers and to radiologists who use this type of machine, and the circumstances of the Paris accident suggest that some recognised safeguards were not observed. The room was too small to allow sufficient freedom of movement clear of the apparatus, the high-tension wires were hanging in a dangerous position, the tube stand was of metal and not earthed, and the floor was of concrete. A movement of the stand brought it in contact with the high-tension wire, allowing the current a free passage to earth through the body of the radiologist —with the natural, and almost inevitable result. The tragedy should lead to more care in the installation and use of high-power X ray generators.

PUBLIC HEALTH CONGRESS IN BRUSSELS.

THE resumption of the annual meetings of the Royal Institute of Public Health will be welcomed not only by those who habitually attended these congresses, but also by the largely increased number of people now interested in public health problems. The congress was held at Berlin in 1912, and at Paris in 1913. The Edinburgh meeting in 1914, at which the medal given by the institute for conspicuous service in the cause of preventive medicine was awarded to Dr. James Niven, M.O.H. of Manchester, for his work towards the prevention of tuberculosis, was the last meeting held. A renewed invitation from Burgomaster Adolphe Max, of Brussels, and from the rectors of the Universities of Belgium, has been accepted by the President and Council, and the next congress will be held at Brussels in 1920, from May 20th to 24th inclusive. Delegates from the universities, municipalities, and public bodies will be invited in due course, and full particulars, presumably including a preliminary programme, will be issued shortly. Those who wish to participate in the congress are asked to communicate with the honorary secretaries, the Royal Institute of Public Health, 37, Russell-square, London, W.C. 1.

COMBATING CANCER.

Professor Alexander Fraenkel, secretary of the Austrian Society for Combating Cancer, has performed a public service by giving an excellent review of the present position and prospects of the cancer problem in an article[1] entitled "The Curability of Cancer" in a recent number of the principal Vienna medical journal. The pathological facts of human and animal cancer and the results of experimental study of the disease are set out clearly and in detail, and focussed to the conclusion that the disease is local in origin. Due prominence is given to the part played by chronic irritation and the great variety of forms which this factor may take, ranging from chemical irritants to gross metazoan parasites, such as bilharzia and the spiroptera found by the Danish investigator, Fibiger, associated with cancer of the stomach in rats. Fraenkel regards this variety in origin as practically excluding a parasitic ætiology of cancer, and he goes on to remark acutely that the same variety in the predisposing factors renders any attempt at a specific cancer prophylaxis nugatory, apart from a general improvement in the prevention of all diseases. The rare cases of spontaneous cure of cancer, and the more numerous instances of success after incomplete operations, are regarded as of the most happy augury for success in the ultimate triumph of a rational therapy. Early and complete removal is emphasised as still the most successful method of treatment, full recognition being given at the same time to the brilliant results of radiotherapy in suitable cases. Fraenkel then goes on to an account of the chemo-therapeutic experiments of von Wassermann and others, emphasising the necessity of improved methods of diagnosis early in the disease and of research in this direction. The article concludes with a severe indictment of the extravagant claims of Adamkiewicz to have produced a practically infallible cure with his cancroin, the soluble toxin of a supposed protozoan parasite of cancer. The danger to the credulous public from such irresponsible claims is not less in other countries than in Austria, and, shorn of its verbose and florid style, an article conceived on similar lines and circulated broadcast might do something to put down the raising of false hopes by interested people, and to encourage the efforts of those who, without hope of material reward, are seeking the solution of one of the most fascinating, as well as one of the most serious, problems in medicine.

---

[1] Öffentliche Gesundheitspflege, 1919, iv., 256–260.

[1] Ueber die Heilbarkeit der Krebskrankheit, Wien. klin. Wochenschr., Nov. 13th, 1919.

INFLUENZA AND TUBERCULOSIS.

DEALING with the death-rate at institutions under their supervision the Commissioners of the Board of Control noted in their report for the year 1918 that the increase in the number of deaths among the insane, as compared with 1917, was due mainly to influenza and tuberculosis, although they did not suggest any connexion between the two diseases except in so far as both were regarded as dependent on "weakened physical resistance" due to war conditions. Some asylum medical officers, however, accept a more intimate relation—e.g., Dr. F. A. Elkins and Dr. H. H. Thomson in their paper on the Incidence of Tuberculosis Amongst Asylum Patients in THE LANCET of August 9th include as contributory causes "the occurrence of outbreaks of influenza and pneumonia during 1917, and more especially in 1918." It is, of course, difficult to eliminate with certainty the *post hoc ergo propter hoc* fallacy, owing to the extent of the influenza epidemic in some institutions, for it would be hard to find among the inmates of older standing any developing tubercle during 1919 who had not suffered from influenza during the preceding year. An article which has recently appeared in *Lyon Médical*[1] lends a little more exactitude to the available evidence. Dr. Roubier has investigated three classes of cases: (1) those in which there is a prolongation of the illness simulating tuberculosis; (2) cases of tuberculosis definitely appearing after influenza; and (3) cases of influenza in patients already suffering from tubercle. He recognises, thus confirming the teaching of Professor J. Teissier and others, that some cases of influenza present persistent physical signs of apical bronchitis or basal cavity formation or pneumonia. Among 91 patients sent to him with suspicious bronchitis following influenza he found 12 (13·2 per cent.) in whom a diagnosis of tubercle was confirmed. In some of these there was a *phase grippale* with a subsequent stage of apyrexia lasting for various periods up to a month, and finally a regular evolution of tuberculosis on the usual lines. In some instances the incidence of the tuberculous affection was chiefly upon the pleura, but in none was meningitis observed. As regards the effects of influenza upon patients already suffering from pulmonary tuberculosis, it was found that, while the influenza exerted a generally unfavourable influence, the results were in some cases negligible.

VOLUNTARY HOSPITAL FINANCE.

THREE meetings vitally affecting voluntary hospital finance have been held during the past week. The General Council of King Edward's Hospital Fund for London met on Tuesday at St. James's Palace. The annual meeting of the League of Mercy fell on Wednesday. The annual meeting of the Metropolitan Hospital Sunday Fund was held at the Mansion House on Thursday. The time is a critical one for the voluntary hospital. The private citizen, faced with an increased cost of the necessaries of life, cuts down his style and manner of living, unless his income has increased proportionately. The income of voluntary hospitals has not grown in the same ratio as their expenses, but expenditure cannot be cut down without failing to carry out the work for which hospitals were started. At this stage the State might step in with financial backing, and the right to control as a necessary part of the bargain. But for the present neither the hospitals nor the Ministry of Health desire this solution, one which, moreover, will be distasteful to many medical men. The executive committee of the League of Mercy recently passed a resolution asking the King's Fund what action that body intended to take in the matter, and, in reply, the executive committee of the fund quoted and endorsed the words of King Edward when he inaugurated it:—

> "Public opinion has shown itself upon more than one occasion, and I think wisely, in favour of the maintenance of the voluntary system for support of our hospitals, combined with an adequate system of representation of the body of subscribers in their control and management. It is obvious, however, that if these institutions are to be saved from State or parochial aid, their financial position must be secured."

Towards securing this position in London the three funds which we have named are this year making exceptional contributions. Lord Revelstoke announced, as honorary treasurer of the King's Fund, an available balance of £230,000, including an amount of £17,000 to be handed over by Sir William Collins on behalf of the League of Mercy. In addition to this large sum, the British Red Cross has allotted £250,000 of its surplus as a special donation to the voluntary hospitals to be distributed by the committee of the King's Fund at a different time of year. At the public dinners held during the last few days in support of the building schemes for the Middlesex and the Great Northern Central Hospitals feeling was evidently strongly against the placing of these institutions as a charge on public funds. In the one case a sum of £50,000, in the other of £25,000, was announced as the immediate result of the festivity. King's College Hospital has appealed for the million and a half population of South London. These are good beginnings, but it will require the fulfilment of the task through hours of gloom to save the voluntary system if it is to be saved.

---

[1] Grippe et Tuberculose, par le Médecin-major de 2e classe Ch. Roubier, Lyon Médical, September-November, 1919, Nos. 9-11.

FATALITIES FOLLOWING SALVARSAN.

Dr. Wyndham B. Blanton,[1] writing from the Base Hospital, Camp Custer, Michigan, records four fatalities in healthy young men aged from 24 to 29 following a course of salvarsan treatment consisting of four to six intravenous doses. There was an average interval of four days between each injection; 0·4–0·6 g. salvarsan was given at a time. Two days in three cases and three days in the fourth intervened between the time of the last salvarsan treatment and the onset of the illness. The symptoms and post-mortem findings were closely similar in each case. After a latent period of about two days a sudden and profound coma developed and dominated the clinical picture so that it was difficult to elicit any focalising symptoms at all. There were no cranial nerve palsies. The pupils were dilated in two cases, and in two unaffected. During the last 24 hours of life the reflexes disappeared in all four cases. Two patients had convulsions. Cheyne-Stokes breathing was present in all and death was apparently due to failure of the respiratory centre. The lesions in the brain in each case consisted of minute hæmorrhages confined to the basal nuclei and that part of the cerebrum bounding the lateral ventricles, and were associated with softening confined to this site. There were marked cerebral œdema and congestion. In only one case was there slight fatty degeneration of the liver. Dr. Blanton attributes the fatalities to the toxic by-products of salvarsan synthesis, the exact nature of which is unknown. The technique could be exonerated, as hundreds of other injections were given by the same method without reaction.

MALINGERING AND THE SIMULATION OF DISEASE.

IN the December number of *Medical Science: Abstracts and Reviews*, published for the Medical Research Committee by the Oxford University Press, there is a résumé of an interesting paper which appeared in the *Münchener Medizinische Wochenschrift* on malingering in Russia during the war. Mende, the writer of the article, met with 1200 cases in a little over two years in which soldiers had self-inflicted injuries. The most common were artificial swellings produced by the injection of liquid paraffin or paraffin mixed with vaseline. The swellings so produced varied in size from a hazel nut to a child's head. They were situated most commonly over the knee or ankle, but they were found in almost any part of the body. The swellings were always superficial, and though fixed to the skin they could be moved easily over the deeper parts. The neighbouring lymphatic glands were swollen and painful. The tumours were at first painful, but the pain gradually died away and the swelling itself disappeared after about a year's duration. The malingerer generally attributed it to a kick or a fall, but in some cases the paraffin and the syringe were found. The only method of removing the swelling was excision. Many ways of producing an ulcer are described, some more and some less painful. Œdema of a limb was induced by means of a tight band, and if a broad band like a handkerchief were used no mark was left. The subcutaneous injection of benzene gave rise to an acute inflammatory œdema with a widespread erythema; over the points of injection in a day or two appeared bullæ filled with turbid fluid, and necrosis of the skin developed underneath them, while in some cases there was extensive sloughing. Rectal prolapse was produced by the insertion into the rectum of a bag of dried peas; when the peas had swollen by the absorption of water the bag was drawn out and with it the mucous membrane was brought down. Acute blepharitis and conjunctivitis were produced by rubbing the eyes with urine, or by the insertion of a foreign body, such as a gramophone needle, beneath the lid. True nephritis was produced by taking potassium chlorate, but blood in the urine was often due to injuring the urethra by means of a pointed instrument. There were five cases in which an artificial jaundice was produced by picric acid poisoning; and one case died. The symptoms were headache, loss of appetite, constipation, and pain in the region of the liver; the skin and mucous membranes were tinged yellow as in natural jaundice, but there were no other symptoms associated with the jaundice, for the fæces were normal in colour and the dark red urine contained no bile pigments, though it gave reaction of picric acid for a long time. A simple test was to soak a strand of silk in the urine for five minutes; it became tinged yellow and the colour could not be removed even by prolonged washing. One patient stated that for four days he had taken a small crystal of picric acid, but this was not a fatal case. The knowledge of the army surgeon, if he is to detect even half of the malingerers and simulators that come before him, must be very wide.

AT the recent session of the General Medical Council it was decided to inspect the examinations of the universities and corporations for diplomas or certificates for proficiency in sanitary science, public health, or State medicine in the course of the next two years. Dr. Robert Bruce Low, C.B., has been appointed the Council's inspector for this purpose.

STANDARD SOLUTIONS FOR ESTIMATING THE REACTION OF CULTURE MEDIA.—It has been found that a large demand exists for a supply of sets of standard solutions for estimating the reaction of culture media. These solutions may be made in accordance with the directions given in the report on the Reaction of Media, by the Committee upon Pathological Methods, recently issued by the Medical Research Committee (Special Report Series, No. 35), but it appears that many workers would welcome an opportunity of purchasing sets ready for use. The Medical Research Committee accordingly have come to an arrangement with Messrs. Baird and Tatlock whereby the latter have placed sets of these standard solutions on the market at an approved price, the actual making and testing of the solutions being performed under the Committee's direction. The sets are at present of two kinds, one (with phenol red as indicator) having a range of P_H 6·6 to P_H 8·0, and the other (with bromcresol purple as indicator) having a range of P_H 5·4 to P_H 6·8. The solutions have been electrometrically controlled and are permanent if kept protected from light. Each set consists of eight hermetically sealed tubes in a wooden block, and is sold at the price of 10*s*. 6*d*. An outer case to hold one set can be supplied at an additional cost of 8*s*. 6*d*. Indicator solutions to be used with these standards are also obtainable from the same firm and are made up in duro-glass flasks, each containing 50 c.cm. All inquiries should be addressed to Messrs. Baird and Tatlock, Ltd., 14–15, Cross-street, Hatton Garden, London, E.C. 1.

---

[1] American Journal of Syphilis, 1919, iii., 648–660.

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND:

ADDRESS BY DR. PECHÈRE.

A MEETING of the constituents of the Belgian Doctors' and Pharmacists' Relief Fund was held on Monday last, Dec. 15th, at the house of the Royal Society of Medicine, 1, Wimpole-street, London, to hear an address from Dr. V. PECHÈRE, the President of the National Relief Committee (Aide et Protection aux Médecins et Pharmaciens Belges Sinistrés), the body which, sitting in Brussels throughout the war, distributed the money received from the British Fund and other analogous organisations. The meeting was necessarily small as Dr. Pechère's arrival was unexpected, and but little notice of it could be given publicly.

Sir RICKMAN GODLEE, the chairman of the British Fund, introduced Dr. Pechère in a few words, saying that the audience, which knew by the regular accounts in the press all the details of the collection of the Fund, would hear from the speaker how the money had been distributed at the other end. He referred to his personal knowledge of the good that had been done, which was derived from the perusal of many grateful letters from beneficiaries.

Dr. Pechère addressed the meeting as follows:—

A Belgian writer has said during the war: "I would give a good part of my life to see a happy man." Well, ladies and gentlemen, you can see one without giving anything. Look at me. I am that man. Yes, I am quite happy, because I am realising a dream that I have dreamt many times during the war and many more times since. This dream was to cross to England and thank the whole English nation, and specially you, for all you have done for us during the terrible years we had to live in Belgium. And now, I am here, on this old English earth which was so hospitable to so many of my countrymen; I am now before those women and those men who have given without counting not only of their goods but also of their time and their trouble, and, above all, of their hearts to the Belgian soldiers, refugees, and exiles; to the first because they had so well defended their country, to the others because they had been driven out therefrom by a brutal invader.

The Gratitude of Belgium.

How should I not be happy? Among those unhappy people were many who belonged to the medical and pharmaceutical professions, and it is specially to these that you have extended your sympathy and your succour. In addition, it is a great pleasure, and not less an honour, for me to be here as their representative to say "Thank you." Thank you, Mr. President, who have given to the Committee the honour of your authority. Thank you, Dr. Des Vœux and Dr. Squire Sprigge, who were the mainstay of this work, and whose perpetual devotion has assured its complete development. Thank you, gentlemen of the Committee, those whom I know and those whom I do not know, who were always at the side of these indefatigable officers to help them in their charitable mission. Thank you, also, ladies and gentlemen, present or absent, English, Welsh, Irish, Scotch, or of the Dominions overseas, who were as united in this philanthropic crusade as you were on the battlefields, and without whom the goodwill of the workers would have remained inoperative. As long as the war remains in the mind of the Belgians—and it will live eternally—neither the medical nor the pharmaceutical profession will ever forget what you have done for us. Your generosity is the greater in that you have given without any mental reservation, without knowing, most of the time, what was being done with your gifts. For that lack of information I have to apologise. I may assure you that in our committee, which we have always considered as a branch of yours, we have done all in our power to give you details of our actions.

The Situation in Belgium after the Invasion.

We have tried many times to send you our regular reports; we know that often you did not get them. We appealed for the assistance of the American Relief Committee, and they told us that the Germans did not allow our papers to reach England. So you remained quite ignorant of our work, and for that reason I thought that you would be interested now to hear something of it. As a matter of fact I am unexpected here to-day. I shall have to come officially at the end of December or the beginning of January. But since I was obliged to come now as well, I realised that my first duty on reaching England was to meet you and tell you of my personal gratitude and that of my friends. We hope that one of us may pay you an official visit in the future. But if you will allow me I will take this opportunity to say a few words on the situation in which you have given us your kind support. At the end of August, 1914, when we heard of the destruction and the atrocities committed in Eastern Belgium by the Germans, we tried to establish a committee of salvation for our confrères sinistrés. But at that moment it was very difficult, if not quite impossible, to get any exact information about what had happened. The difficulties of leaving Brussels were enormous, for one had first to get a permit from the occupation authorities. A passport could only be obtained if it were for official purposes specified in detail. If a man were happy enough to get one, he was subjected to an incessant personal supervision. Railways were not available; the trains were commandeered by the German military forces. Moreover, the battle was raging between Brussels and Antwerp, between Brussels and Namur. All the roads were picketed, and Red Cross cars only were allowed to pass, with special licence, of course. Even then one was obliged to stop every moment to exhibit papers. It very often took two hours to travel six miles. In each village a report had to be made to the Commandantur. Moreover, a traveller was always in suspicion, the officer or his attendant kept him under supervision, and very often he was sent back. Of course, no explanations were ever given. Entrance into or exit from destroyed towns, such as Andenne, Dinant, Tamines, Aerschot, was formally forbidden. There was no postal service, much less telegraph or telephone. It was the beginning of the prison régime. Briefly, it was impossible for us to realise our plan to keep in touch with you.

Those whom the Fund Succoured: a Tale of Horror.

I pass on to the day when we heard from Dr. Jacobs of your establishment of the Belgian Doctors and Pharmacists' Relief Fund. I need not now explain to you how we have managed our work. I think you know it from our reports and letters. We got by subscriptions in our country about 180,000 francs (£7500), we got from foreign lands about 100,000 francs (£4000) and from your fund about £27,000. With this sum we were able to save about 140 families; that means more than 400 persons, among whom were many children. Now, what are the reasons that called for our intervention? Firstly, the disappearance of the head of the family. Among those killed by the Germans were five doctors. One in Andenne, Dr. Camus, was the burgomaster of that little city. When the German regiments took possession of the town they began to plunder, and, as was their custom, they took all the men, the burgomaster first of all. He was made responsible for all that subsequently happened. The soldiers were not in the place more than an hour when a fusillade took place. It was the beginning of the massacre. Why? Because "Man hat geschossen." You know it was the *mot d'ordre.* Let me tell you it was never true. There have never at any moment been any franc-tireurs in Belgium. In the first days of the war the authorities had enjoined the civil population, by notices, by posters, and so on, not to cause any trouble and not to make use of firearms. It is possible that perhaps, in isolated areas, a shot was fired. I say it is possible, but it was never proved. "Man hat geschossen" was the signal of the massacre, which had actually been prepared in cold blood by the staffs; also of the plunder and the fires. Many such plans were made and the same excuse was given. In other places there had been Belgian soldiers, or even French ones, who, while defending the place, had killed some of the enemy. In many of these cases the inhabitants were accused of having participated in the battle, and that was the reason given for the subsequent murders. This occurred in Dinant and Tamines, for you must know that hundreds of people in each of these little towns were put against the wall and shot—old people, men, women, and children, all together. Among those at Dinant were two pharmacists and two at Tamines, of whom one died ten days later from his wounds. As for Dr. Camus, he was fired on, kicked, lashed. His corpse was drawn round the streets, hoisted on the bridge of the Meuse, and, as it is said, thrown in the river. Another doctor was killed in Canthée, one in Hastière, one near Dinant, and one in Spontin, a little village not very far from Dinant. Eight pharmacists were killed in the same way. I know the story of all of them, because I have heard it from their relatives or other eye-witnesses. One of them was told me by the widow of the victim, the pharmacist, Guilitte, of Andenne. May I tell it to you in few words? When the searching for the men began M. Guilitte, his brother-in-law, and his son, aged about 18, succeeded in escaping and in reaching the office, where his wife and another son, a boy of about 6, had been taken, paralysed by fear. The men shut themselves up in the cellar. Some minutes after came three German soldiers. "There is somebody hiding here." No, was the answer of the poor woman. They covered her face with their revolvers. No, she said again. Then one of those beasts held the woman on a chair while the two others went straight down to the cellar. They broke open the door with the butt-end of their rifles and found the three inmates. Nobody knows exactly what happened then, but the poor woman heard clamours and a noise of fighting and shots. When she saw the corpses afterwards she found them riddled by shot and pierced by bayonet wounds. That was the fate of about 80 doctors and as many pharmacists, while many were plundered and their houses destroyed by bombs, shells, or fire.

Medicine at its Post.

What has now become of most of these poor people? Nearly the whole population of the cities or the destroyed villages had been forced to flee. Only the poorest have remained in the houses which had not been burned or demolished.

But it was the duty of certain men to stay. There were the doctors and the clergymen and those in authority. They did stay, and also those pharmacists who had still somewhere to live and had kept some of their materials. Many of the doctors and chemists had one or more children. They were deprived of everything. Very often the only clothes they had were on their shoulders. Their money had been stolen, and they were as poor as their fellows. That is to say, they had nothing at all. Even had any citizens retained some of their possessions, it was surely impossible, for the doctors at any rate, to solicit their aid. The doctors are there, are they not, to help the people, rich or poor, not to be helped by them? The doctors were, moreover, not only deprived of their possessions, but owing to the general poverty they remained unpaid for their work, which increased daily. Their position made it impossible for them to ask for the charity dispensed to the labouring classes, and their need was in many cases greater. These were the men who were helped by your Fund. Our Committee supplied them with food, with clothing, and with coal; and since the end of the war we have in many cases helped them to rebuild their surgeries and their shops. If I could make you realise the conditions under which they lived and worked during the war you would better appreciate what your generosity has done for us.

The Call of Duty to Humanity.

I think I have said enough about the material side. I would like to add one word as to the mental distress in which these poor men lived. They were in most cases completely isolated from their confrères, and they were obliged to see the health of the people rapidly deteriorating owing to the absence of food, drugs, and medical appliances. For instance, the percentage of deaths from tuberculosis, which was before the war 16 per 1000 rose in 1918 to 34 per 1000. Intellectual life ceased and we were obliged to live under a rule which was hateful and which we felt to be degrading. Of the many reasons we had for hating the Germans their efforts to debase the population was the strongest.

Dr. Pechère concluded by saying: "When I was a little boy, there hung in my room the picture of the deck of a battleship, under which was written 'England expects every man to do his duty.' In the great war England has done her duty, and done it splendidly, to herself, to Belgium, and to humanity, and Belgium will never forget it."

A vote of thanks to Dr. Pechère for his moving address was proposed by Dr. **SQUIRE SPRIGGE**, and seconded by Dr. **H. A. DES VŒUX**, who said that the great exploit of the Fund was performed in its last year. In that year the Fund received over £4000 from subscribers, although those responsible for its distribution could give no positive assurances to the constituency of how the money was being spent. Such information as was now and again forthcoming—and for a period of 18 months it ceased entirely—showed that the money arrived and was being well spent; so the subscribers trusted and gave.

Sir **RICKMAN GODLEE**, in putting the vote of thanks to the meeting, said that the assistance of Mr. C. Hoover in the early stages and of the American Red Cross in the closing period had been invaluable to the Fund.

The vote of thanks being carried with acclamation, Dr. **PECHÈRE** briefly replied, stating that his Committee still had a little money in hand and many claimants upon their assistance.

Dr. **ALFRED COX** proposed a vote of thanks to Sir Rickman Godlee for presiding, and added that the Fund owed a deep debt to its chairman of Committee for his energy and sagacity in the conduct of business.

This having been seconded by Dr. **DE HAVILLAND HALL**, the meeting terminated.

BRITISH FEDERATION OF MEDICAL AND ALLIED SOCIETIES:

AN INTERESTING CONFERENCE.

UNDER the auspices of the Federation of Medical and Allied Societies (late Medical Parliamentary Committee) a conference was held in the Steinway Hall, Lower Seymour-street, London, on Dec. 12th, under the chairmanship of Sir **MALCOLM MORRIS**, to consider the draft regulations for insurance practice. In opening the proceedings the chairman explained that the Federation was not formed in antagonism to any existing society, but marked, for the first time in the history of medicine, the combination of the three sides of medicine—namely, practitioners, nurses, and pharmaceutical chemists. The aim of the Federation was to encourage medical men to take their proper position in the social work of the nation in the House of Commons and on municipal bodies. He then read to the meeting a communication from Sir W. Watson Cheyne, M.P., a former chairman of the Federation, who stated that he was glad to hear that the Federation proposed to discuss the draft regulations, as it was difficult to find out how far matters had gone under piecemeal methods, while the whole situation should be considered together, and any increased payments made retrospective. Sir Watson Cheyne described the idea of legislation as being "to avoid opportunities of discussion in Parliament, and to push things through by orders and rules which can never be properly controlled by the House," and suggested that the conclusions arrived at by the conference might be discussed with the committee of medical Members whom he would summon for the purpose. A communication was also received from Captain F. E. Guest, Chief Liberal Whip, who promised a sympathetic attitude on the part of the Prime Minister towards the suggested deputation.

Criticism of the National Health Insurance Act.

Dr. **E. H. M. STANCOMB** said the medical profession had had some years of experience of service under the National Health Insurance Act, and was now in a position to judge it, and, in his opinion, to condemn it, the grounds being the absence of adequate equipment, clinical, surgical, pathological, and ancillary, the form of consultant and nursing service, together with the restrictions as to drugs, appliances, and other things which were necessary for efficiency. The Ministry of Health had a medical service incapable of securing efficiency on the part of the practitioner with inadequate results to the community. In such conditions the panel practitioner was threatened with delegation to an inferior grade. He was dispossessed of a due share in the administration of his industry, and was approaching bureaucratic slavery. The Great War had demonstrated what organised medical service upon an adequate scale could do, and whoever won the war medical service saved it. With this knowledge before them the profession might expect from the Ministry of Health something better than a perpetuation of past weakness with only slight, if favourable, variations. The new regulations bore no evidence of any grasp on the fundamental question of national health viewed from the preservative side. He hoped that the conference would voice an insistent demand for efficiency and freedom. By efficiency he understood proper equipment, and endowment for the best scientific service; and by freedom the granting of such administrative power to the medical profession in local autonomous areas as would enlist the whole-hearted interest of practitioners in their task of paramount importance. He believed that along the lines of our existing educational system would be found the means of conferring local autonomy with central control, thus securing efficiency and freedom.

Dr. **J. F. GORDON DILL** commenced by saying that it was reasonably certain that a large body of the medical profession and of the general public did not find the provisions for medical treatment under the National

Insurance Act were sufficient to ensure the prevention and arrest of early disease. He did not think that anyone could seriously assert that the medical profession had been advanced either in scientific acquirements, facility for good work, or prestige in public estimation by the panel system, while the relations between the doctor and his patient were in no way bettered by the new regulations. He deplored the absence of personal interest in his charges brought about by the regulations, but he thought that the opportunity which the profession had had to assume the proper position in the forces of the State might still be taken advantage of, adding that now was the time to act, before a large number of new practitioners were involved in unsatisfactory terms of service. He asked, was it a fantastic dream to think that every doctor might be assured of a sufficient and increasing competence to continue to do good work for the State, obtaining regular holidays and a pension to look forward to? And he thought that the medical profession, while criticising the regulations, had undertaken the responsibility of putting forward a concrete scheme for proper medical service.

Dr. FRANK COKE, the President of the Medico-Political Union, heartily agreed with the views of Dr. Stancomb.

Mr. P. F. ROWSELL, representative of the Pharmaceutical Society, also agreed in the main with the previous speakers. The existing Insurance Act had hampered the efficiency of pharmaceutical service to the medical profession. A country which could spend from six to eight millions a day on a war ought to be able to find ten or twenty million pounds for outlay on the health of the people when the necessity was shown.

Miss GERTRUDE COWLIN said that the College of Nursing was in accord with the work of the Federation, and the College would always be ready and willing to support any scheme that made for efficiency, freedom, and service.

Dr. WILLIAM HODGSON (Crewe), who said he was a vice-chairman of a county council and chairman of its education committee, spoke of the lack of coördination between the panel practitioner and the public services—public health work in connexion with tuberculosis, for example, being considerably hampered because there was no connecting link between the panel practitioner and the public health authorities. He would like to see a Royal Commission, or some committee of inquiry which could take evidence, and inquire into the whole working of the Act.

Dr. G. B. BATTEN disliked the idea of a whole-time State Medical Service. He agreed with Dr. Dill that panel practice tended to destroy the relations which had hitherto existed between doctor and patient, but he did not consider that panel practice had degraded a large number of the profession. In some of our industrial towns the conditions that existed before the Insurance Act were very much worse than those prevailing at the present time. The conditions of panel practice were better than those of club practice. The Insurance Act, however, aimed at a very low level, and to illustrate the importance of local autonomy advocated by Dr. Stancomb he instanced the arrangements of the Government with King's College Hospital during the war. The hospital received so much per bed per year, and had full control of the money, with a consequence that the patients had all that they needed for treatment immediately. At the military hospital next door anything that the surgeon required for his patient might be obtained in (say) four months' time.

The Necessity for a Change to a Better System.

Sir BERTRAND DAWSON, chairman of the Medical Consultative Council of the Ministry of Health, but speaking unofficially, said that unfortunately the controversy over the question of the regulations tended to divert the attention of the medical profession from the bigger to the smaller things. As far as the Ministry of Health was concerned, it was only fair to say that it inherited the organisation of the previous state of things. It was important that the Consultative Council should keep its mind fixed on the big things that Dr. Stancomb had referred to. If it be admitted that the organisation of the profession was inadequate to present needs, and that the Insurance Act had grave defects, was it better to sponge the slate quickly? Or slowly, and as opportunity offered, to remove the defects? Some system of insurance was necessary, and we had to change the present system into a perfect and ideal system. From the Prime Minister downwards he thought there was a very general desire to meet the profession in a broad-minded and sympathetic spirit. The Consultative Council had been well chosen from representative members of knowledge and experience, and he thought the profession would be well advised to take advantage of that body, using it as a model, and asking that similar organisations be extended to various parts of the country. He pointed out that the primary duty of the Council was to advise the Minister, but up to the present time the Minister had only been advised by permanent officials. The Medical Consultative Councils represented an endeavour to bring the Minister into relation with the medical profession outside, and while any committee advising the Minister did so confidentially, it was recognised that to make the proceedings entirely confidential would take away from the value of the advice. It had been agreed, therefore, that from time to time authorised statements from the Council should be made which would be, he hoped, published in the medical press. Those reports would not be unduly delayed.

Colonel F. E. FREMANTLE, F.R.C.S., the coalition candidate for Mid-Hertfordshire, referring to Dr. Stancomb's suggested analogy between the health organisation of the country and the educational authority, said it was a useful one for securing in the public mind the idea of a health service to retain voluntary and part service, and at the same time get State grants, but a health service on parallel lines with the education service would not be accepted by the medical profession. Whatever authority governed, it must be by popular election, although members might be co-opted on the analogy of the educational authorities. Where public money was dealt with there must be public control.

Dr. STANCOMB moved the following resolution, which was seconded by Dr. HODGSON.

> That in the opinion of this conference of medical and allied organisations the draft Regulations for 1920 proposed to be made by the Minister of Health with respect to the administration of the National Health Insurance Medical Benefit are not adapted to secure the most efficient service from the medical profession nor adequate results to the community.

Dr. CARGILL said that the present Insurance Act was a great advance on anything we had had before, and, further, it was elastic and could be added to. He thought the meeting would take a sane view if they built on the Insurance Act instead of wiping the slate clean.

Sir BERTRAND DAWSON emphasised the necessity of the profession being united in its views, and again called attention to the Consultative Council, which was a new chapter in Government. The Council had a right of access to the Minister and this had never been granted before.

Dr. CHARLES BUTTAR said the time had come when it was necessary for a commission to inquire not only into the working of the Insurance Act, but into all alternative systems to the panel system. Before any extension of the Act was made it was the duty of the Government to inquire into the effect of the existing system.

Dr. ARTHUR LATHAM said that everybody in the medical profession and in the political world was anxious that the health of the nation should be improved. They all realised that this could only be done when medicine was brought closely into touch with the individual. Nothing in the new regulations suggested that anything had been learned during the war, and medicine was not allowed to give to the community what it could give. The changes in the regulations were a political move to make the road easier for subsequent movements, and the present time was the right one to do whatever could be done to see that the community was better looked after.

Dr. STANCOMB'S resolution was put from the chair and carried.

On the motion of Dr. **Buttar**, seconded by Dr. **Hodgson**, it was agreed that a committee of inquiry be asked for to take evidence and report.

On the motion of Dr. **Latham**, seconded by Dr. **Coke**, it was decided that the resolutions of the Conference be conveyed to the Prime Minister, and that he be requested to receive a deputation, the Executive Committee being left to select a strong deputation from the various constituent bodies of the Federation.

The meeting closed with a vote of thanks to Sir Malcolm Morris for presiding.

TUBERCULOSIS.

Sanatorium Benefit in London.

Dr. Noel Bardswell's memorandum, dated Nov. 24th, to the London Insurance Committee, analysing the after-histories of patients recommended for sanatorium benefit during the year 1914 deserves to be widely read and studied. The sufferer from tuberculosis has long been charged with an unreasoning cheerfulness, although the spes phthisica pales before the optimism of the doctor concerned with his treatment. Useful, or indeed essential, to aid the recovery of the individual patient, this habit of mind does not conduce to an impartial survey of the results of therapeutic measures. Dr. Bardswell is never optimistic, and he is here analysing verifiable statements and not mere opinions. 2588 of the 3224 patients recommended for sanatorium benefit during 1914 have been traced up to the end of the year 1918 and their length of life ascertained. 70 per cent. of the total were dead within some four years from the date of recommendation. Of those who received institutional treatment 60·5 per cent. were dead. Classifying the patients into three groups according to the clinical severity of the disease: Of 552 early cases, 70 per cent. were known to be alive at the end of the period; of 1417 more advanced cases, 25 per cent.; and of 619 far advanced cases, only 3 per cent. Satisfactory results were largely limited to the patients in whose sputum no tubercle bacilli were found; of those with positive sputum, 72 per cent. were dead at the end of 1918, of those with negative sputum, 39 per cent. On these results Dr. Bardswell passes two careful but searching remarks:—

> "The records show that, so far as the majority of the cases is concerned, the treatment given to the patients failed in its chief object—namely, to cure or sensibly to prolong life."
>
> "The circumstances of most of the London patients were incompatible with the efficient treatment of tuberculosis."

Sanatorium benefit has certainly failed in London to fulfil its promise, but this fact does not condemn the whole dogma of the hygienic-dietetic treatment of phthisis. Put rudely, we know what to do, and we don't do it. The several aspects of curative treatment are, in Dr. Bardswell's phrase, inter-dependent and complementary. It is quite well known that the great part of treatment must be carried out in the home, and that the lack of after-care can invalidate institutional treatment. It is equally well known that the convalescing consumptive cannot compete in the labour market with the healthy man. But we have provided neither efficient relief nor any concerted plan of part-time employment. Within a few foolscap pages Dr. Bardswell sets out how these things are to be made good, and incidentally calls attention to the excellent scheme, suggested by Dr. F. S. Tinker to the Wimbledon War Pensions Committee, for the establishment of a special workshop for tuberculous ex-soldiers.

Report of the Tuberculosis Officer for Kent.

In his sixth annual report (1918) Dr. A. Greenwood finds that the notification of tuberculosis is still incomplete and unsatisfactory. In 33 urban and 19 rural districts the notifications of pulmonary tuberculosis failed to number more than twice the average number of deaths from this disease—a ratio suggested as a reasonable standard to be attained with respect to the efficiency of notification. This standard was reached only by eight urban and four rural districts. The average annual number of deaths from pulmonary tuberculosis in the 41 urban districts of Kent for the five-year period ending on Dec. 31st, 1918, was 728, and the total number of notifications in these districts during 1918 was 965. The corresponding figures for the 23 rural districts were 298 and 406 respectively. A curious fact brought out in the table, showing the results of sputum examinations, is the uniformity in the proportion of positive sputums in the different years. The figures for 1912, 1913, 1914, and 1918 are 26, 25, 25, and 25 per cent. respectively. The four districts into which the county is divided are reported on by the tuberculosis officer responsible for each district. These sub-reports contain many useful hints as well as information. In Section 2 of the report an account is given of institutional treatment and its effects.

Derbyshire County Council Report.

The report of the county medical officer, Dr. S. Barwise, includes the outline of a scheme for the prevention and treatment of tuberculosis. He finds the provision of an institution for the treatment of disease of the bones and joints and a residential open-air school the most important steps to be taken in the campaign against tuberculosis. Having found that as many as 70 per cent. of the patients notified died within 12 weeks of notification, he has addressed a circular to all medical practitioners in the county, pointing out the facilities provided by the tuberculosis staff for consultative assistance free of charge. A valuable feature of this report is an analysis by Dr. W. C. Fowler of the condition of the 1125 patients passing through the county's sanatorium during the four-year period 1915–18. As many as 94 per cent. of all the patients were traced. Only one-quarter of the sputum-positive cases were fit for work, whereas three-quarters of the sputum-negative or closed cases were fit for work at the end of the four years. Of the 1915 cases 58·4 per cent. were still living. Roughly speaking, half of all the patients completing treatment were at work, and slightly under one-third were dead.

Sanatoriums for Printers.

The members of the National Society of Operative Printers and Assistants have decided to perpetuate the memory of their comrades who fell in the war by endeavouring to save the lives of other members stricken with tuberculosis. To effect this object the society proposes to erect sanatoriums. Its members are raising £20,000 for this purpose, and Temple Hall Farm, Wellsborough, near Market Bosworth, Leicestershire, has been bought. A sanatorium will be erected on this site. The convalescent buildings are being separately paid for by the members of the society apart from the £20,000. Lord Northcliffe is the president of the committee set up to carry out the scheme, which has the support of the Newspaper Conference. Mr. Bowerman, M.P. (President of the Printing and Kindred Trades Federation), and Major George L. Berry (President of the International Printing, Pressmen, and Assistants' Union of North America) are the vice-presidents. The patrons already announced include Lord Burnham, Lord Rothermere, Sir Edward Hulton, Sir George Riddell, Colonel Sir Campbell Stuart, and Sir Samuel Waring. Subscriptions are appealed for. Cheques should be made payable to Mr. George Isaacs, Natsopa Memorial Home Account, 26, Blackfriars-road, London, S.E. 1.

Tuberculosis Training Colony for Chester.

Chester County Council have approved a scheme for acquiring, at a cost of £18,000, the Wrenbury Hall estate, consisting of the hall and 164 acres, to be used as a training colony for tuberculous patients. The British Red Cross Society have promised to contribute £20,000 towards the cost on certain conditions, one being that soldiers and sailors who served in the war shall, when possible, have preference.

Sir William R. Smith has been appointed recently an Officier de Légion d'Honneur, a Commander of the Order of Leopold II. of Belgium, and a Knight Commander of George I. of Greece

MEDICINE AND THE LAW.

Newington v. *Holman and Wife.*

AN action recently brought by a partnership of medical men, Messrs. C. W. H. Newington and T. Newington, against a patient who had been placed under their care in a nursing home maintained by them for persons suffering from mental disorders, ended in judgment for the plaintiffs. The action was brought to recover money due for medical attendance and advice, nursing, board, and residence, and other services, and the defence was based on facts of an unusual character. The defendant was placed under the plaintiffs' care with the full concurrence of his wife and near relatives, the former being appointed on June 26th, 1917, receiver of her husband's estate, his brothers joining in the request for her appointment. On June 8th the defendant had been admitted to Ticehurst House, the plaintiffs' establishment, after being confined at a private asylum, "Moorcroft." From "Moorcroft" there accompanied him the certificates and other documents under which he had been taken charge of at "Moorcroft" as a person of unsound mind suffering from general paralysis of the insane. The case for the defendant was that it was a statutory duty of the plaintiffs under Rule 9 of the Commissioners of Lunacy, dated June 26th, 1895, to have made an independent examination of the defendant on the day of his arrival, and under Sub-rule B of Rule 12 to have made a full entry and report of his condition in the case-book of the institution within seven days. An examination was, in fact, made by a medical officer on the staff of the institution on June 10th, and the defendant alleged that this showed no symptom to justify a diagnosis of general paralysis of the insane. The defendant further alleged that the symptoms found were due to derangement of the heart, which would account for the symptoms set out in the papers from "Moorcroft" as justifying a diagnosis of general paralysis of the insane. The defence was therefore that in the circumstances alleged there had been such non-performance of the plaintiffs' contract that they were not entitled to any payment in connexion with it. There was no complaint as to the treatment of the defendant when under the plaintiffs' care, Mr. Hastings, K.C., the plaintiffs' counsel, summarising the defence as a claim that the plaintiffs, in spite of the documents received from "Moorcroft," ought to have recognised at once that the defendant was not a lunatic. After medical evidence had been called on both sides and the defendant himself had given evidence, including evidence that he had at no time suffered from general paralysis of the insane, Mr. Justice Sankey gave judgment, saying that he was satisfied that the defendant was now of sound mind, and that he had led a perfectly exemplary life and had not suffered from syphilis at any time. No witness, however, had gone so far as to say that the plaintiffs on receiving the defendant into their house ought to have discharged him immediately, and in his lordship's opinion it would have been a gross breach of duty on their part if they had done so. This being the case, he held that the plaintiffs were entitled to succeed, and he gave judgment in their favour accordingly for £223.

The Costs of a Successful Litigant.

In the case of Ritter v. Godfrey, noted in THE LANCET of June 14th last, a medical man was the defendant in an action for damages for alleged negligence and want of care in attending a patient in childbirth. The defendant won the action, but Mr. Justice McCardie, in giving judgment in his favour, deprived him of his costs on the ground of certain letters written by the defendant to the plaintiff. The defendant appealed, and, appearing in person, obtained a judgment from the Court of Appeal by which he will receive the costs which in the ordinary course are paid to the successful party in litigation. Lord Justice Atkin, who delivered the principal judgment, held that the discretion to disallow costs was not absolute, but must be exercised in accordance with certain principles as to which he examined the authorities. In his lordship's opinion the judge must give the costs to a successful defendant unless he had either brought about the litigation or had done something connected with the institution or conduct of the suit calculated to cause unnecessary litigation or expense or had done some wrongful act in the course of the transaction of which the plaintiff complained. Applying these principles, more especially the first, his lordship pointed out that a very serious charge had been made against the defendant as an obstetrician—namely, that by negligence he had caused a child of a patient to be stillborn, and that this charge was formulated by the plaintiff (the husband of the patient) in his first letter. It was met by the defendant in one of the letters to which exception had been taken, which included detailed explanations of what had occurred, and these explanations were found afterwards by Mr. Justice McCardie to be accurate in fact and to negative the negligence complained of. It followed from this that there was nothing in the statements of fact in this letter which led the plaintiff reasonably to believe that he had a good cause of action, and so brought about the litigation. Mr. Justice Eve said that Mr. Ritter brought against Dr. Godfrey a most serious accusation, and that accusation having been proved to be unfounded it would be a negation of justice to hold that Dr. Godfrey was disentitled to his costs because he retaliated with some warmth, especially as the doctor in no way shirked reply to the accusations; his letters contained a detailed reply and an emphatic repudiation of liability and negligence, and were, in his view, an honest attempt to convince the plaintiff that there was no foundation for his aspersions. The apprehension of that by the plaintiff ought to have prevented the bringing of the action. Mr. Justice Eve did not feel called upon to express any opinion as to the phraseology in letters written in difficulties by a man smarting under unjust accusations. The Master of the Rolls accepted the views of Lord Justice Atkins and Mr. Justice Eve, and we congratulate Dr. Godfrey upon the issue.

CONTROL OF VENEREAL DISEASES.

The Society for the Prevention of Venereal Disease.

AT a meeting held at the Central Hall, Westminster, on Wednesday last under the auspices of the Faculty of Insurance, Sir Arbuthnot Lane in an opening address set out the aims of the Society for the Prevention of Venereal Disease. The consensus of intelligent opinion, he said, of those who had had unlimited experience, in the Navy, Army, and civil life, was that it was possible to avoid venereal disease by applying in a proper manner suitable germicides after exposure to contagion. Subsequent speakers contended that this claim was as well founded as anything in medical experience. The speakers were subjected to a close cross-examination by members of the audience in regard to the society's attitude to inquirers, and especially as to whether the actual details of disinfection should be issued to the novice with the imprimatur of men of high moral and scientific standing, without any indication that there were other considerations to be borne in mind. No resolutions were submitted to the meeting.

Privacy of Treatment at Clinics.

Some attention has been given to the question of "following up" patients who have ceased to attend at a venereal clinic. There is one factor especially which may cause patients to relinquish attendance, and that is absence of privacy. It should be regarded as an absolute necessity for interrogation and examination of patients to take place under conditions which secure privacy. It is neither seemly nor politic that questions of a pertinent nature should be put to the patient within the hearing of others. For the same reasons examination should be so conducted as to preclude any personal exposure in public. We realise how an insufficiency of staff may conduce to the infringing of proper conditions. To many patients publicity is in no sense a deterrent, but little imagination is required to realise its effect on others of more delicate temperament.

Legislation against Venereal Disease in Sweden.

We are indebted to the National Council for Combating Venereal Diseases for the following abstract of legislative reforms in Sweden, where, since the outbreak of the war, two far-reaching measures dealing with venereal disease have been placed on the Statute Books. A review of the principles and aims of these legislative measures appeared in THE LANCET for Sept. 27th this year, and the following notes may be regarded as supplementing various details concerning the laws of 1915 and 1918.

The Marriage Act of 1915 forbids patients suffering from venereal disease in an infectious stage to marry unless the Crown's permission has been obtained. In connexion with the publication of the banns of marriage, the prospective bridegroom must give a declaration in writing that he is not suffering from venereal disease in an infectious stage; but with the Crown's consent he may marry in spite of suffering from venereal disease. Again, annulment of the marriage may be secured if one of the contracting parties suffered, without the other's knowledge, at the time of marriage, from epilepsy, venereal disease in an infectious stage, leprosy, or incurable impotency. But annulment cannot be claimed on these grounds if the applicant has not been infected with venereal disease, if this disease is no longer in an infectious stage, or if any other disease from which the other party suffered has meanwhile been cured. If one party to marriage suffers from venereal disease in an infectious stage and, knowing or suspecting this fact, exposes the other party to infection by sexual intercourse, the other party is entitled to a separation provided he has not, with full knowledge of the risks, exposed himself to infection. Separation cannot be granted unless an application is made within six months of the date when the applicant learned of the exposure to infection, and unless the applicant was actually infected, and the disease in the offender was in an infectious stage at the time of application. If annulment of the marriage is secured by one party proving that the other had been guilty of deceit in regard to the marriage, the penalty for the offender is imprisonment for at least one year, or penal servitude for not more than four years. A person who knowingly gives false information as to freedom from obstacles to matrimony shall be liable to imprisonment or, if he has voluntarily withdrawn his testimony before the marriage, to a fine.

The Swedish Act of 1918.

The legislation of 1918 deals very thoroughly with the subject of venereal disease. A person who suffers from venereal disease in an infectious stage and who, knowing or suspecting this fact, exposes another person to infection by sexual intercourse or indecent conduct apart from sexual intercourse, is liable to imprisonment or, under extenuating circumstances, to a fine. If infection actually follows, the penalty is increased to penal servitude, not exceeding two years.

Any person who, in another way than the above, intentionally or by gross carelessness exposes another to infection, is liable to imprisonment or a fine. If infection occurs the penalty is increased to penal servitude for a maximum of two years.

The following paragraphs in the Act concern venereal disease:—

3. Everyone who contracts venereal disease must submit to the requisite treatment and measures designed to prevent further spread of the disease.

4. Anyone apprehending infection with venereal disease is entitled to a free medical examination, treatment in or outside a hospital according to the needs of the case, and to the necessary drugs, utensils, and certificates free of charge.

6. The State must bear the cost of serological, bacteriological, and other examinations, as well as of drugs and utensils.

8. If a medical practitioner observes venereal disease in a patient whom he examines or treats, the practitioner must acquaint the patient with the character and infectiousness of the disease, and must give instructions as to its treatment and the prevention of infection of others. The patient must be informed of the regulations dealing with venereal disease as an obstacle to marriage, and of the penalties attaching to acts calculated to promote the spread of the disease. The practitioner is, however, exonerated from this duty when he finds that the patient's health or other circumstances render it imperative that the character of the disease should be concealed. In the case of a patient under the age of 15, the guardian and not the patient should be informed of the nature of the disease and of the precautions to be taken.

9. If a practitioner has diagnosed venereal disease in the circumstances just referred to, and finds that the patient does not obey instructions, or has discontinued treatment without giving proof that another practitioner has undertaken to treat him, then the practitioner must notify this fact in writing to the proper authority.

10. If a practitioner has diagnosed venereal disease he must instantly report the matter in writing to the proper authority if it comes to his knowledge that the patient, while the disease is still infectious, intends to marry without the Crown's consent.

11. If a practitioner has diagnosed a case of venereal disease not already diagnosed by another practitioner he must inquire of the patient of whom and under what circumstances the disease has been contracted. The practitioner must, not later than the following day, notify the authorities of the nature of the disease, and the sex, age, and address of the patient, but not the patient's name. Information must also be given as to the circumstances under which infection occurred, and the name and address of the person accused of conveying the infection must also be notified.

14. A source of infection having been notified under sufficiently trustworthy circumstances, the authority notified shall inquire of the accused about the circumstances in which the disease was contracted. The accused shall also submit to a medical examination.

15. If the examination referred to in 14 shows the accused to be suffering from venereal disease, the authorities shall give instructions as to early treatment. If the patient cannot be treated outside a hospital without considerable risk of further spread of the disease, steps must be taken to secure the patient's early admission to hospital.

16 defines the powers of the authorities when a patient proves refractory in regard to the treatment found most suitable.

17. Should the medical authority receive a notification from a medical practitioner to the effect that a patient intends to marry without the Crown's consent, while the disease is still infectious, the medical authority must at once transmit this notification to the clergyman of the parish in the church books of which the patient's name is entered. If the marriage certificate has been, or is about to be, made out, the clergyman must at once forward the notification to the authority concerned with obstacles to marriage.

19. The injunctions concerning 14, 15, and 16 must be given in writing, and must include a reminder of the consequences entailed by their neglect.

20 to 24 inclusive deal with special circumstances, such as police assistance in refractory cases, venereal disease in the army and in prisons, overlapping of jurisdictions, &c.

25. No official concerned with the administration of this law must communicate to others information acquired in the pursuit of his duties. Documents dealing with these matters must be kept private and in a safe place. But in the course of certain legal proceedings, the court and prosecutor may demand information as to the result of a medical examination.

28 defines the penalties attaching to breaches of this law and the fines incurred by medical officials convicted of failing to comply with its enactments.

It is evident from this summary that the net for catching sources of infection early has been drawn very tight, and that, in pursuit of this object, the liberty of action of the medical profession has been seriously curtailed. It remains to be seen whether the bulk of the medical practitioners in Sweden accept their new duties as necessary and inevitable, or evade them as contravening the moral obligations existing between a patient and his medical confidant and adviser.

Brighton Hospital Sunday.—The Hospital Sunday collections in the places of worship in Brighton, Hove, and Preston still show an increase each year. The total collected this year comes to £1537 0*s.* 8*d.*, of which £1516 have been distributed as follows: Royal Sussex County Hospital, £720; Brighton, Hove, and Preston Dispensary, £180; Royal Alexandra Hospital for Children, £150; the Queen's Nurses, £130; Women's Hospital (West street), £120; Throat and Ear and Eye Hospitals, each £52 10*s.*; Provident Dispensary, £30; Royal Surgical Aid Society, £28 10*s.*; Sussex County Homœopathic Dispensary, Dental Hospital, and the Lady Chichester Hospital for Women, each £15 and the New Sussex Hospital (Ditchling-road), £7 10*s.*

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The Irish Public Health Council.

ALTHOUGH the constitution of the Irish Public Health Council has undergone a good deal of criticism in the columns of THE LANCET and elsewhere, it appears to have accomplished a fair amount of work, all of it in accordance with the declared demands of the profession. It is true that much remains to be done, but the council has decided on two important points, that whole-time medical officers of health should be appointed for every county area in Ireland, and that the administrative area for all health services should be the county. In the past the Poor-law union area has been the unit, and only a few matters concerning health were dealt with on a county basis. It is understood that the council has given consideration to the problem of the central machinery for health administration, but has not yet decided on any particular solution and similarly the question of the scope of the classes to which it is intended to give medical attendance has been discussed, and has been held over until a conference with representatives of the medical profession. It is clear that if the council is to frame an adequate scheme for the health administration of the country the several parts of the machine must be made to fit in with each other. The council is probably acting wisely in travelling by way of discussion over the whole ground before deciding finally on detailed points.

Dublin Hospitals.

The finances of the Dublin hospitals remain in a precarious condition. The voluntary system of maintenance is inadequate, and there is no likelihood that it will ever again provide security. The round of special appeals, fêtes, and flag days is wearisome and ineffective, and if the hospitals are to be maintained to perform their double duty of relieving the sick and providing material for medical study, some radical plan must be adopted. If the Irish Public Health Council is to frame an adequate scheme of medical treatment for the country, this must secure for the classes to be treated an efficient hospital system. It is not likely that either the State or the local authorities will wish to take over the responsibility of the voluntary hospitals, but either one or the other, or the two combined, may be quite willing to pay for the treatment of a large class of the community. Such a selection might include most of those unable to pay for hospital treatment, and a suitable capitation payment per day would then leave the hospitals in a position of fair financial security. But even if the council should frame a perfect scheme there is no certainty that the Government will carry it into execution. There has been much talk in hospital circles in Dublin this autumn of the possibility of amalgamating several of the smaller hospitals into one large institution. By such means the Dublin School of Medicine would gain enormously, and individual patients would be more efficiently treated than at present, with better results for the money spent. Moreover, such a bold undertaking would certainly appeal more strongly to the money-giving public, who are tired of the competing claims of a dozen small institutions. The difficulties in the way are, of course, considerable, and many interests must be reconciled before any progress can be made.

The Queen's University of Belfast.

At a meeting of the Senate of the Queen's University of Belfast, held on Dec. 10th, the Vice-Chancellor made an appeal in view of the increased number of students for further public money in order not only to provide for increased demands, but to make a claim for further Treasury endowments. He drew attention to the fact there were over 1000 students in attendance, and that Liverpool University, which is similarly circumstanced, had called upon the people of Liverpool for a sum of not less than £500,000; he mentioned further how 18 years ago the people of Belfast had provided a "Better Equipment Fund" of £100,000, which had at that time proved most useful. He instanced as pressing needs the provision of a hostel for men students (through the kindness of two Belfast ladies a hostel had been provided for female students), buildings for chemistry, anatomy, and zoology. The best claim on the people of Belfast and Ulster can be made on the medical side of the University, as the medical students (this year 590 out of a total in all faculties of 1024) attending the University so outnumber all others, and the medical school affords "the bread-and-butter" training for those who come to the University as a means of earning a livelihood. It is to be hoped that, if the public respond to this appeal, great changes will be made in the final subjects of the medical curriculum, so as to bring these departments up to modern scientific requirements, and to link up the University with the clinical hospitals.

Dec. 16th.

The Services.

THE HONOURS LIST.

THE following awards to medical officers for valuable services rendered in the several spheres of military operations are announced:—

C.B.—Lt.-Col. and Bt. Col. (temp. Col.) W. H. S. Nickerson, V.C., C.M.G., R.A.M.C.; Col. O. L. Robinson, C.M.G., K.H.P., late R.A.M.C.; Col. H. A. Hinge, C.M.G., D.S.O., late R.A.M.C.; Col. H. J. M. Buist, C.M.G., D.S.O., late R.A.M.C.

C.M.G.—Lt.-Col. (acting Col.) C. Garner, C.B.E., ret. pay, late R.A.M.C.; Lt.-Col. P. S. Lelean, C.B., R.A.M.C.; Col. D. J. Collins, late R.A.M.C.

C.B.E.—Temp. Lt. Col. C. S. Myers, R.A.M.C.; Lt.-Col. R. H. Walton, N.Z.M.C.; Dr. (Mrs.) A. M. Livingstone-Learmonth, R.A.M.C.; Temp. Lt.-Col. J. V. Blachford, R.A.M.C.; Lt.-Col. M. O'D. Braddell, R.A.M.C.; Lt.-Col. H. G. Cook, R.A.M.C.; Temp. Maj. H. D. Gillies, R.A.M.C.; Temp. Lt.-Col. E. Goodall, R.A.M.C.; Temp. Lt.-Col. W. Harding, R.A.M.C.; Maj. J. W. B. Hodsdon, R.A.M.C. (T.F.); Temp. Lt.-Col. J. Keay, R.A.M.C.; Temp. Lt.-Col. H. A. Kidd, R.A.M.C.; Maj. A. W. Ormond, R.A.M.C. (T.F.); Surg. Lt.-Col. and Bt. Col. E. N. Sheldrake, ret. pay; Temp. Lt.-Col. A. Simpson, R.A.M.C.; Maj. (temp. Lt.-Col.) A. B. Smallman, D.S.O., R.A.M.C.; Lt.-Col. and Bt. Col. S. J. Thomson, C.I.E., I.M.S.; Temp. Lt.-Col. W. J. N. Vincent, R.A.M.C.; Lt.-Col. and Bt. Col. H. J. Waring, R.A.M.C. (T.F.); Maj. and Bt. Lt.-Col. A. Wright, ret. pay, R.A.M.C.; Lt.-Col. (temp. Col.) S. R. Burston, D.S.O., Aust. A.M.C.; Lt.-Col. H. S. Newland, D.S.O., Aust. A.M.C.; Col. B. J. Newmarch, C.M.G., Aust. A.M.C.; Lt.-Col. (temp. Col.) J. M. Y. Stewart, D.S.O., Aust. A.M.C.; Lt.-Col. G. Home, O.B.E., N.Z.M.C.; Maj. T. McKebbon, O.B.E., N.Z.M.C.; Col. R. Tracy-Inglis, N.Z.M.C.; Temp. Lt.-Col. A. B. Ward, D.S.O., S. Afr. M.C.

Distinguished Service Order.

Lt.-Col. M. W. Cave, Austr. A.M.C.; Temp. Capt. J. E. Finlay, R.A.M.C.; Temp. Capt. H. E. Heapy, R.A.M.C.; Capt. G. M. Hetherington, R.A.M.C. (S.R.)

The Military Cross.

Capt. T. P. Inglis, R.A.M.C. (S.R.); Capt. J. G. Gow, N.Z.M.C.

The following are the official "statements of services" for the honours recorded in THE LANCET of April 12th last, p. 632. All the recipients are of the R.A.M.C., except where otherwise stated:

Distinguished Service Order.

Capt. (acting Major) William Barnsley Allen, V.C., M.C., attd. 1 3rd (W. Rid.) Fd. Amb. (T.F.).

For conspicuous gallantry and devotion to duty during the fighting west of Saulzoir for the Selle River line between Oct. 11th and 14th, 1918. He showed a very high degree of fearless initiative in organising the collection of wounded from ground under continuous hostile shell fire, and by his inspiring example, untiring energy, and contempt of danger he was able to move large numbers of helpless wounded from positions of danger before he was himself gassed.

Major Archibald Craig Amy, attd. 2 1st (High.) Fd. Amb. (T.F.).

For conspicuous gallantry and devotion to duty on Oct. 24th, 1918, at Douchy, when in charge of the advanced dressing station there. The town was shelled with H.V. guns for four hours, many shells bursting in the vicinity of the advanced dressing station, one shell causing 21 casualties. A large number of wounded were brought in, and by his coolness and energy he prevented any confusion resulting, and cleared his advanced dressing station successfully.

Major John Freeman Blair, Can. Army Dental Corps, attd. 4th Fd. Amb., Can. A.M.C.

For conspicuous gallantry and devotion to duty from Nov. 5th–11th, 1918, in the Valenciennes-Mons area, as liaison officer between R.A.P.'s and forward collecting posts. Keeping in close touch with the rapidly advancing infantry, he was continuously under fire, but ensured the rapid evacuation of the wounded. On several occasions he dressed the wounded in the open under fire, remaining to superintend their removal on the arrival of the stretcher-bearers.

Temp. Capt. (acting Major) Ronald Campbell Cooke, M.C., 134 Fd. Amb.

He was always equal to the occasion when, owing to considerable advances made by our troops, fresh organisation and alteration of schemes of evacuation were demanded to meet the conditions, and his unit was short-handed. His skill and fine devotion to duty over a difficult period were admirable.

Major Burnet Elmer Kelly, 9th Fd. Amb., Can. A.M.C.

For conspicuous gallantry and devotion to duty from Oct. 22nd to Oct. 30th, 1918, between Raismes and Bruay. In charge of the evacuation of wounded of the 9th Canadian Infantry Brigade, he personally went over the field, night and day, with his stretcher-bearers, collecting wounded, most of the time under machine-gun and shell fire. His energy was an outstanding example to all ranks.

Temp. Capt. John Hay Moir, M.C., attd. 17th Bn. R. Fus.

For conspicuous gallantry and devotion to duty on Sept. 27th, 28th, and 29th, 1918, near Noyelles. On the 27th, while a stretcher-party moving to the rear received [a direct hit, he rushed out to its assistance and attended to the survivors under intense shell fire, carrying them to a place of safety. On the 28th he worked his aid-post under concentrated fire, dressing the wounded in the open after the cellar was full. He was very badly shaken by a shell burst, but carried on his work into the night and assisted to pick up wounded in a counter-attack. Although utterly exhausted on the 29th, he continued attending the wounded with energy and determination.

Major George Willard Treleaven, M.C., 4th Fd. Amb., Can. A.M.C.

For conspicuous gallantry and devotion to duty from Nov. 5th to 10th, 1918, in the Valenciennes-Monsana, in charge of the evacuation of casualties from the forward area of the division. For five days he was continually under fire in the open, selecting aid-posts, and superintending the evacuation of the wounded. He frequently led stretcher parties forward across open ground fully exposed to enemy fire, and his disregard of danger was a splendid example to all ranks.

Capt. Robert Bell Stewart, M.C., attd. 55th Fd. Amb.

For conspicuous gallantry near Preux aux Bois and Hecq on Nov. 4th, 1918. He was in charge of a division of stretcher-bearers when, finding the attack held up, he went forward alone to reconnoitre. He organised the evacuation of wounded under heavy fire, and pushed on into the Forest de Mormal to reconnoitre roads for the purpose of getting wounded back. Throughout that day, by his energy and devotion to duty, all casualties were expeditiously got away.

Bar to Military Cross.

Capt. (acting Major) Joseph Herbert Bayley, M.C., Spec. Res., attd. 76th Fd. Amb.

For conspicuous gallantry and devotion to duty near Landrecies on Nov. 3rd, 4th, and 5th, 1918. Throughout this period he worked without rest, personally visiting R.A.P.'s and relay posts under heavy fire. The fine example he set inspired all who worked under him, and his efforts ensured the rapid evacuation of all the casualties of the division.

Temp. Capt. Eric Biddle, M.C., 91st Fd. Amb.

During the recent operations in the neighbourhood of Happegarbe-Ors and the crossing of the Oise-Sambre Canal he was continuously in charge of the R.A.M.C. bearers. On Nov. 2nd, 3rd, and 4th, 1918, his brigade attacked each day with many casualties. Throughout this time he kept in touch with all the regimental medical officers of his brigade, visiting them frequently, though the roads were continuously under heavy shell and machine-gun fire, and by his energy and disregard of danger effected rapid evacuation.

Captain (acting Major) Thomas William Clarke, M.C., Spec. Res., attd. 148th Fd. Amb.

For conspicuous gallantry and devotion to duty at the Canal du Nord in front of Moeuvres on Sept. 27th, 1918, when in charge of the evacuation of wounded of an infantry brigade. He took the bearers across the canal immediately behind the infantry, the while exposed to heavy machine-gun fire from an exposed flank. He was successful in relaying the wounded from the R.A.P. to the canal bank, and so enabling the wounded to be cleared from the field rapidly.

Capt. (acting Major) Henry Norman Goode, M.C., 1/1st (W. Rid.) Fd. Amb. (T.F.).

From Oct. 29th, 1918, till the morning of Nov. 3rd, 1918, he was in command of the bearers clearing the divisional front. He was under enemy shell fire daily, and was buried by a shell on Oct. 30th. Throughout the whole time he worked day and night with short intervals for rest, setting a fine example of fearless devotion to duty.

Temp. Capt. (acting Major) Charles Hope Haddow, M.C., 77th Fd. Amb.

For conspicuous gallantry near Basuel on Oct. 23rd, 1918, when he repeatedly brought up his bearers to the R.A.P. in face of very heavy shell fire, and managed to get away the wounded lying there. It was entirely due to his untiring efforts that the wounded of the brigade were cleared from the battle front. His fine work enabled many lives to be saved.

Capt. (acting Major) Clark Nicholson, M.C., Spec. Res., attd. 49th Fd. Amb.

For conspicuous gallantry and devotion at Neuville and Ghissingnies on Oct. 24th, 1918. Early in the morning he made his way through the counter-barrage to reconnoitre and establish relay posts, and throughout the day he worked unceasingly under fire, superintending evacuation, and at night he personally took the ambulance cars along the shelled routes, dressing the wounded himself. It was due to his unremitting exertions, great courage, and fine example that the evacuation of the wounded was successfully carried out.

Temp. Lieut. Thomas Gordon Playford, M.C., attd. 1/1st (North'bn,) Fd. Amb. (T.F.).

On Nov. 7th, 1918, he was at St. Remy Chaussee in command of bearers. Hearing that there was a large number of wounded in an aid-post he took two ambulance cars to the place, making three journeys in all, under heavy machine-gun and shell fire, and eventually cleared some 30 wounded. On the following night he again took cars and cleared seven loads of patients. As the aid-posts were only three or four hundred yards from the front line he showed great courage and devotion to duty.

Temp. Capt. (acting Major) Arthur Richmond, M.C., 19th Fd. Amb.

For conspicuous gallantry and devotion to duty near St. Aubin during operations on Nov. 7th and 8th, 1918. Hearing that another medical officer had become a casualty and that nearly 70 other casualties had occurred in the battalion, he led a party of stretcher-bearers through heavy shell fire and direct machine-gun fire to succour and remove them to a place of safety. Through his indefatigable efforts all casualties were brought back.

Capt. (acting Major) Arthur Leonard Shearwood, M.C., Spec. Res., attd. 33rd Fd. Amb.

For conspicuous gallantry and initiative when in charge of the evacuation of the wounded during the operations carried out between Nov. 3rd to Nov. 11th, 1918. During this period he worked day and night, frequently under shell fire, and by his energy and devotion to duty saved many lives.

Capt. (acting Maj.) Hubert Shield, M.C., 1/1st (North'bn.) Fd. Amb. (T.F.).

On Nov. 4th, 1918, at Fontaine au Bois. He worked continuously, healing and clearing wounded from forward area under heavy shell and machine-gun fire. Subsequently, up to Nov. 10th, in charge of bearers, he set a fine example to the men under his command, and brought in many wounded.

Capt. George Alexander Smith, M.C. 13th Fd. Amb., Can. A.M.C.

For conspicuous gallantry and devotion to duty in the operations south of Valenciennes on Nov. 1st and 2nd, 1918. Through heavy gas-shell and machine-gun fire he supervised the clearing of the battlefield, and much of the success of the rapid evacuation of the wounded was directly due to him. He showed a total disregard of personal danger and splendid energy, and was a magnificent example to all men under him.

Capt. (acting Major) Robert Alexander Stark, M.C., 1/3rd (W. Rid.) Fd. Amb. (T.F.).

For conspicuous gallantry and devotion to duty during the fighting west of Saulzoir for the Selle River, north-east of Cambrai, between Oct. 11th and 14th, 1918. He was charged with clearing the wounded from ground newly won, and the object of a heavy counter attack by the enemy. As a result of his devotion and total disregard of personal risk, it was possible to clear numbers of helpless wounded from positions of great danger, and he was directly responsible for saving many lives. He set a magnificent example to all ranks with him.

Capt. Richard Chapman Weldon, M.C., Can. A.M.C., attd. 2nd Motor Bde., Can. M.G. Corps.

While in action at Naves, on Oct. 10th, 1918, he had command of the R.A.P. established just west of the village. When a motorcycle scout had his legs blown off and was wounded in the chest on the road east of Naves, he went forward under heavy fire, dressed his wounds, and had him taken back in his car, thus undoubtedly saving his life. He has consistently shown marked devotion to duty.

Temp. Capt. (acting Major) Ivan Stuart Wilson, M.C., 9th Fd. Amb.

For conspicuous gallantry and resource on Nov. 4th, 5th, 6th, and 7th, 1918, between Ruesnes and La Longueville. He helped to organise the evacuation of all wounded from the divisional front. Though frequently exposed to heavy shell fire, and at times under machine-gun fire, his perseverance and initiative contributed largely to the quick evacuation of all wounded.

(The continuation of the list will be given next week.)

ARMY MEDICAL SERVICE.

Col. A. H. Waring is placed on half pay.

Temp. Col. J. F. O'Carroll relinquishes his commission and retains the rank of Colonel.

ROYAL ARMY MEDICAL CORPS.

Lieut.-Col. and Bt. Col. L. W. Harrison and Major R. F. M. Fawcett retire on retired pay.

Lieut.-Col. and Bt. Col. E. E. Powell to be acting Colonel.

Major R. C. Hallowes relinquishes the temporary rank of Lieutenant-Colonel.

The undermentioned relinquish the acting rank of Lieutenant-Colonel: Majors E. J. Kavanagh, T. E. Harty;

Capts. G. S. Parkinson, G. D'R. Carr; Temp. Capts. G. Jackson, R. Jamison.

Major A. B. Hinde, retired pay, relinquishes the acting rank of Lieutenant-Colonel on ceasing to command a Medical Unit.

Major and Bt. Lieut.-Col. R. B. Ainsworth, and Majors T. H. Gibbon, J. L. Wood, and A. S. Littlejohns to be temporary Lieutenant-Colonels whilst specially employed.

The undermentioned relinquish the acting rank of Major: Capt. C. E. L. Harding; Temp. Capts. K. Black, R. E. Cree.

Capt. J. B. Minch, from Special Reserves, to be Captain.

Capts. J. J. Molyneaux and R. H. Alexander relinquish the acting rank of Major on ceasing to be specially employed.

Capt. J. Biggam is seconded for service with the Egyptian Army.

Capt. S. M. Hattersley to be temporary Major whilst specially employed.

Capt. L. R. Shore is placed on the Half-pay List on account of ill-health caused by wounds.

H. T. O'Neill to be temporary Captain.

D. P. Fitzgerald and F. T. Allen to be temporary Lieutenants.

Officers relinquishing their commissions: Temp. Major H. Robinson (retains the rank of Major); Temp. Hon. Capts. W. R. Thomas, N. M. Keith; Temp. Hon. Lieut. T. S. Evans (retains the honorary rank of Lieutenant).

SPECIAL RESERVE OF OFFICERS.

Capt. D. Henegan relinquishes his commission and retains the rank of Captain.

Capt. V. Wiley relinquishes the acting rank of Major.

TERRITORIAL FORCE.

Capts. (acting Majors) L. Rawes and R. R. Powell relinquish the acting rank of Major on ceasing to be specially employed.

3rd Southern General Hospital: Major E. Mallam and Capt. G. R. Girdlestone are restored to the establishment.

1st Northern General Hospital: Capt. (acting Major) N. Hodgson relinquishes the acting rank of Major on ceasing to be specially employed, and remains seconded.

2nd Scottish General Hospital: Capt. (acting Major) R. A. Fleming relinquishes the acting rank of Major on ceasing to be specially employed.

1st London Sanitary Company: Lieut. G. Whittaker to be Captain.

Sanitary Service: Major (Bt. Lieut.-Col.) H. Stott relinquishes his commission and retains his rank.

TERRITORIAL FORCE RESERVE.

Major Sir B. G. A. Moynihan, from 2nd Northern General Hospital, to be Major, and is granted the honorary rank of Major-General.

Capt. H. Burrows, from 5th Southern General Hospital, to be Colonel.

ROYAL AIR FORCE.

Medical Branch.—Flying Officer J. Prendergast to be Flight Lieutenant.

Wing-Comdr. R. H. Mornement (Surgeon-Commander, R.N.) and Flight-Lieut. J. D. Bangay (Surgeon-Lieutenant, R.N.) relinquish the temporary R.A.F. commission on return to naval duties.

Flying Officer H. J. Swan relinquishes his temporary R.A.F. commission on expiration of contract.

The undermentioned are transferred to the unemployed list: Capts. F. C. Morgan, C. L. McDonogh, J. P. Doyle, T. M. Davies.

Dental Branch.—Capt. C. Murray-Shirreff is transferred to the unemployed list.

INDIAN MEDICAL SERVICE.

Lieutenant-Colonels to be Colonels: F. R. Ozzard, (Bt. Col.) A. J. Macnab, (Temp. Col.) C. N. C. Wimberley.

GREAT NORTHERN HOSPITAL PROGRESS FUND.—This fund was inaugurated at a festival dinner held at the Connaught Rooms, London, on Dec. 12th. The Prince of Wales presided, and in proposing the success of the fund he recapitulated the history of the Great Northern Central Hospital from its small beginning in 1856 to the present time, when there are 2800 in-patient and 123,500 out-patient attendances in the year. The Progress Fund contemplates the addition of a block of four wards containing 100 beds, new departments for out-patients and accidents, additional wards for contributing patients, larger observation wards, extension of the X ray department, additional operating theatres, and a nurses' home. At the conclusion of the dinner the secretary, Mr. G. G. Panter, announced that the fund had benefited by more than £25,000.

Correspondence.

"Audi alteram partem."

THE ECONOMIC SITUATION IN VIENNA.

To the Editor of THE LANCET.

SIR,—On my return from England I found that conditions here are growing worse from day to day. I travelled from Holland in a Dutch Red Cross train of 19 trucks with food and clothes for Vienna and Budapest. On passing the Austrian frontier, which is now a few miles only from Vienna, I heard that there was no flour in the city for next week's bread. Relief from Germany at the last moment prevented a terrible catastrophe. Starvation is more visible than it ever was, and it is now the middle class which is in the most terrible need. I give two instances from my own practice.

A Dutch engineer with a good income came to me (I am now regarded as the holder of all English food-supplies!) to ask some condensed milk for his wife, ill for three months with rheumatic arthritis and endocarditis; after having paid kr.35 for half a litre of milk, he could get no more for love or money.

A high official of the governmental department for instruction came to ask me, himself in deplorable bodily condition, whether his son of 13 years could be sent to my own hospitable country of Holland with one of the children's trains now running nearly weekly. He had not food enough for this boy. His eldest son came home two months ago from Poland, where he was for years a prisoner of war. His only clothes were a shirt and an old uniform, and his father was unable to buy him any more clothes.

I feel extremely happy that the little provision sent by some English friends of mine as supplies for my clinic permits me to help on a small scale such poor people. If my colleagues in England could send supplies of condensed milk, Quaker oats, and good biscuits, addressed to the I. Medical Clinic, Lazarettgasse 14, Vienna, they might be sure that their presents will go into the right hands only, and specially to such patients as are not in the hospitals and cannot obtain public support.

Dr. Harriette Chick and Dr. Elsie Dalyell, of the Lister Institute, are doing excellent work here. A short paper by Dr. Chick on the prevention of scurvy is appearing in the local newspapers to tell a larger public what to do against this disease, which is very common among the population. A medical inspector tells me that all of 450 children whom he examined had swollen glands in the neck. Miss Chick will soon send you some papers on her work and her experiences among the children here.

What will happen to this city I do not know, the need being so acute at the first beginning of winter. I fear myself that the measures which are being planned on a large scale to restore the possibilities of life to this country will come too late. In any case the conditions, governmental and social, of German Austria as a whole must soon compel the Allied Governments to take Austrian matters into their own hands.

Last week two young doctors, unable to gain a living in Vienna, committed suicide. The assistants in my clinic (one of them a woman) regularly leave the town on Saturday and Sunday to cut wood in the Wienerwald, and bring it home on their backs. But the supplies are now nearly exhausted.

My visit to England, which proved a success in many respects, will be all my life one of my most interesting and most touching experiences. You cannot realise how your kind help is appreciated by the whole Viennese medical profession.

I am, Sir, yours faithfully,

Vienna, Dec. 1st, 1919. K. F. WENCKEBACH.

THE NEED FOR SCHOOLS OF PSYCHIATRY.

To the Editor of THE LANCET.

SIR,—The paper by Dr. C. H. Bond published in THE LANCET of Dec. 12th once more draws attention to a strange deficiency in the curriculum of our medical schools. This need for adequate practical training in psychiatry was dealt with in a leading article in THE LANCET of April 6th, 1912, and in a letter of comment thereon by Dr. Bedford Pierce. With the actual needs of the alienist in this matter I am for the moment less concerned than with another aspect of the case for specialised training in psychological medicine, to which I drew attention in a letter published in THE LANCET of the same period (April 27th, 1912) from which I may be allowed to quote:

> "The statutory medical inspection of school children during the last four years has brought a large number of members of the medical profession into direct touch with the problem of the mentally deficient child and his psychology. The absence of any opportunities for definite preliminary training for this branch of the work stands in marked contrast to the ample facilities which exist for the acquisition of a knowledge of sanitary science and school hygiene, and the school medical officer is left to grope in the dark in that domain of knowledge 'where three empires meet'—i.e., those of the physician, the pedagogue, and the psychologist."

Since these words were written much has happened to intensify this need. The Mental Deficiency Act, 1913, the Elementary Education (Defective and Epileptic Children) Act, 1914, and the Education Act. 1918, have thrown still greater responsibilities upon school medical officers. It is now obligatory upon all local education authorities to seek out all those children and young persons who show presumptive evidence of mental defect and to make such provision for them as the circumstances warrant. Meanwhile, the war has made the public acquainted with all kinds of questions which were formerly looked upon as belonging strictly to the specialist—war neuroses, shell shock, conduct and mental instability, and the relation of these to the general mental make-up of the individual. At the same time it has become increasingly clear that intellectual capacity in children is not a matter upon which a judgment can be passed without considerable knowledge of mental processes or without continued and systematic observation. The recognition of this fact, and of the stigma which in the present stage of public opinion attaches to the fact of certification as mentally deficient, has led educationalists to look to the provision of "backward classes" as an avenue of discrimination between the "feebly-gifted" and the "feeble-minded."

But herein lies the need for observers with adequate training and experience. The work of Spearman and Burt, amongst others, has shown how abundant is the material available and how valuable the results of examination by psychological methods. It may, perhaps, be argued that for this purpose medical knowledge is not essential. There is an element of truth in this argument, but it is clear that there are so many causes of retardation of a physical or morbid character which may be involved in the problem that a combination of expert knowledge of both kinds is eminently desirable. Yet with a few notable exceptions we cannot claim that the medical profession has produced, or is producing, psychologists of this type, nor have we grounds of complaint if, having neglected to provide this specialised training, this branch of investigation becomes more and more attached to the pedagogic side of educational administration.

I am, Sir, yours faithfully,

Birmingham, Dec. 14th, 1919. GEORGE A. AUDEN.

THE "GRIDIRON" INCISION.

To the Editor of THE LANCET.

SIR,—Having performed appendectomy over 100 times (77 times in the Army, with only one death, and that a colonel's wife, 16 days after operation), and being especially interested in hernia, the paper on the above subject in your issue of Dec. 6th by Mr. St. George Griffiths at once attracted me. Although I have not come across a case of right inguinal hernia attributable to the injury caused by appendectomy, I have no doubt that Mr. Griffiths's explanation of the association is correct—that it is due either to avulsion or division of the nerves during the splitting of the internal oblique and transversalis, or to the inclusion of a nerve in a suture during that operation. Certainly, the nerves which supply the muscles ending in the conjoint tendon pass down in that part of the abdominal wall between the anterior superior iliac spine and the linea semilunaris. They course downwards in the deeper layers of the transversalis, or between it and its aponeurosis, and, especially in well-developed subjects (in whom this muscle is often surprisingly thick), may readily be injured by tearing or cutting during the gridiron operation. They cannot be so readily looked for as during other methods of getting through the abdominal wall. The splitting of the muscle has often or usually to be extended out to the iliac spine, and after this is done one must pierce the subjacent aponeurosis. This is usually incised, and often to get the necessary room the incision is carried into the rectal sheath. Thus, all the nerves which pass down in this lateral region of the belly wall are liable to injury.

There is another objection to the gridiron operation viz., that by it one does not always hit off the place where the appendix is most accessible. Sometimes the appendix is high up (near the gall-bladder), or low down (in the pelvis), and inaccessible by the gridiron operation performed in the usual position. In one case, after opening the abdomen in this way, I had to divide the linea semilunaris upwards to reach (and dig out) the inflamed part. I have therefore preferred to go through the inner muscle layer and its subjacent aponeurosis by dividing its muscle and fascial fibres by an incision lateral but quite close to the linea semilunaris. The incision made is small, and during the process nerves are looked out for. They generally run with vessels, and a little bleeding, sometimes troublesome, since it obscures the view, is often the first indication of their proximity. Running in relation with the aponeurosis, often strands of the latter simulate them and cause some anxiety as to division, but on examination the nature of these supposed nerves becomes clear. When found, nerves are hooked up out of the way, and the abdominal cavity opened by incising the aponeurosis deep to them, first by the knife and then with scissors.

The sewing up is important. After closing the peritoneum the incision in the aponeurosis deep to the transversalis is closed as a separate step. I always use mattress sutures of formalin catgut for this, and usually three, sometimes two, suffice. The gap caused by the retraction of the cut transversalis and internal oblique muscle fibres is next dealt with. It is closed by a continuous suture, which picks up first tissue on the inner side (on the anterior aspect of the rectal sheath, here deep to the external oblique aponeurosis), and then the superficial part of the muscle layer on the outer side, and so on—in the manner of making a peritoneal stitch, the raw edges of the cut muscle being turned in and buried. The external oblique is sewn up by a continuous catgut, and the subcutaneous tissue and skin in any way preferred.

The advantage of this method is that the incision can be extended upwards or downwards with impunity, according to the position of the appendix, and the ease or difficulty experienced in dealing with it. The nerves can usually be avoided, and even if one be cut only a part of the lower rectus is affected. Battle's incision offers certain advantages. On displacing the rectus inwards the nerves are much more easily seen and avoided; but the incision is sometimes too far inwards. By either of these methods one assures one's patient of a good abdominal wall—certainly in the region of the wound; and, according to Mr. Griffiths, a liability to a subsequent right inguinal hernia is not induced.

I am, Sir, yours faithfully,

Rugby, Dec. 11th, 1919. R. H. PARAMORE, F.R.C.S. Eng.

To the Editor of THE LANCET.

SIR,—Mr. St. George Griffiths, in his paper in your issue of Dec. 6th on the frequency of inguinal hernia after appendicectomy by the gridiron incision, does not appear to be familiar with the work previously done in this connexion. It was pointed out by Dr. A. MacLennan[1] that the important detail in doing the gridiron incision was to avoid cutting the ilio-inguinal nerve, which pierces the flank close to the anterior superior iliac spine. The transverse split in the parietes should therefore be above this level. The ilio-hypogastric nerve may be interfered with as it crosses the gap, but it is left to supply the muscle fibres above the gap.

---

[1] Practitioner, April, 1912.

Secondly, it is now the practice of some surgeons, having opened the abdomen by the gridiron incision, to palpate the internal abdominal ring from within, and in a surprising number of cases there is found a hernial sac which has never been occupied. In many cases the cure of this potential hernia can be completed with ease at the same operation. It is generally admitted now that oblique inguinal hernia is practically always of congenital origin.

The explanation would therefore appear to be that in the cases investigated the split in the internal oblique and transversalis muscles was faulty, leading to future atrophy of muscle around the ring and permitting the occupation of a congenital sac already present.

I am, Sir, yours faithfully,

Glasgow, W., Dec. 8th, 1919. R. TENNENT.

To the Editor of THE LANCET.

SIR,—The occurrence of right inguinal hernia appearing for the first time shortly after the removal of the appendix by the gridiron incision, to which Mr. C. H. C. St. G. Griffiths called attention in your issue of Dec. 6th, has attracted the attention of the surgeons at the City of London Truss Society for some years, and shortly before the war we began to keep a special record of the cases, but owing to war conditions this has not been kept up during the last five years, so that we have no accurate statistics. We saw, however, roughly between a dozen and 20 cases a year out of a total of about 6000 cases of all varieties of hernia.

I have personally never seen a hernia which had occurred after the rectus incision, nor have I seen a left-sided hernia after the gridiron incision. As right inguinal herniæ in men are to left as 6·6 to 3·8 and in women as 6·9 to 6·1 (Macready), this absence of left-sided herniæ following the operation seems to point to a definite connexion between the right-sided herniæ and the gridiron incision. I propose during the coming year to keep a record of the numbers of right and left inguinal herniæ and of the cases in which a previous appendicectomy had been performed.

I am, Sir, yours faithfully,

Harley-street, W., Dec. 15th, 1919. J. E. H. ROBERTS.

THE TREATMENT OF MALARIA.

To the Editor of THE LANCET.

SIR,—Dr. W. H. Willcox has written in THE LANCET of Dec. 13th giving his views on the treatment of malaria as the result of his service in Mesopotamia. There are a couple of paragraphs in that letter which I feel should not pass unchallenged. Par. 3 states: "Quinine in subcutaneous injection is liable to produce necrosis," and Par. 4 advocates intramuscular injections in preference.

For many years now I have treated malaria by subcutaneous injections, and during that time have given hundreds of injections without once producing necrosis or an abscess; but during that time I have met many patients who had suffered much from intramuscular injections with resulting abscesses. In the *Indian Medical Gazette* of December, 1917 (p. 126), Major MacGilchrist, I.M.S., demonstrated the local necrosis produced by intramuscular injection of quinine, dissecting out the abscess and track, which showed necrosis extending along the track of the needle.

I have followed the method advocated by Colonel (then Captain) C. A. Johnston, C.B., D.S.O., I.M.S., nearly 18 years ago in a memorandum written for the P.M.O., H.M. Forces in India, and published in the *British Medical Journal* of March 29th, 1902 (p. 793). It is along the following lines: The preparation of quinine is freshly prepared bisulphate, and for the average-sized man or woman the dose is 4 gr. This is dissolved in 20 minims of a 0·5 normal saline solution and injected into the subcutaneous tissue of the flank between the iliac crest and the last rib, using alternate sides. The main precautions are: thorough cleansing of the site of injection and the use of an all-glass syringe with a stout needle. The subcutaneous tissue should be broken up by the needle before injecting the fluid. The solution should be brought to boiling point in a test-tube and injected while at a temperature of 100° F. This for three reasons: (1) It is more easily absorbed at this temperature; (2) if allowed to cool the quinine will separate out and jam the piston in the syringe; (3) it is not felt so much by the patient as it is isotonic. Before injecting the needle should be dipped in 5 per cent. of carbolic oil, and after injection the side should be gently massaged with warm oil on wool for a few minutes, in order to distribute the fluid. The injection should be repeated for five days consecutively. The after-treatment is 1/20 gr. arsenious acid and 5 gr. quinine well diluted and by mouth in early morning daily for one month. This method of treatment was tried in East Africa with great success, and I have met medical officers who were converted to this simple plan by experience in their own cases.

Reformers in our conservative country have a very difficult fight, and it is only now being admitted in India that quinine is not a prophylactic, though Colonel Johnston has for years preached this fact as a result of extended experience in India and during tropical campaigns in Burmah, India, and China. A very important point, and one often overlooked in fever occurring in patients who have been abroad, is that the diagnosis should be established by a blood examination where possible, as patients are too apt to call all febrile attacks malaria. I might add that I contracted malaria in Mesopotamia in 1916 in spite of a daily dose of quinine.

I am, Sir, yours faithfully,

BRUCE BRUCE-PORTER.

Grosvenor-street, W., Dec. 15th, 1919.

DEXTROCARDIA.

To the Editor of THE LANCET.

SIR,—With reference to your annotation in THE LANCET of Dec. 13th on Dextrocardia and Dr. B. Parsons-Smith's paper in the same issue, I exhibited a case at a clinical meeting of the British Medical Association at Canterbury in May, 1905. It was a tuberculous woman of about 30 years of age. The apex beat was in the fourth right interspace. There was no transposition of other viscera.

I am, Sir, yours faithfully,

A. R. HENCHLEY.

National Liberal Club, Victoria-street, S.W., Dec. 13th, 1919.

THE PREVENTION OF VENEREAL DISEASE.

To the Editor of THE LANCET.

SIR,—In corroboration of Sir Archdall Reid's letter in your issue of Dec. 13th, concerning early prophylactic treatment of venereal diseases, a few facts in my small experience in Turkey may be of interest. I became attached to a battalion that had just come to Constantinople, and in the first month although only 400 strong, 13 cases of venereal disease occurred. At this point the prophylactic tubes and bottles were issued. I thereupon lectured the men and tried to impress upon them all the horrors and dangers, present and future, of venereal disease and finished up by explaining how to use these applications. I did not put them forward as a certain insurance but rather as a last hope.

During the next three months that I was with this battalion 600 of these tubes were used and *not a single case* of venereal disease occurred among those men so using them, while 6 cases occurred among men who did not, or could not, procure them. In one case I was able to obtain the fact that of three men who had been with the same woman within a short time of each other two had used the applications and escaped infection, while the third, who scoffed at treatment, got gonorrhœa.

Two points I deduced from this: (*a*) That in spite of my—as I thought—most stirring and impressive address a large number of these tubes became necessary, showing how little is the influence of words, whether spoken or written, on the men's conduct. (*b*) The extraordinary immunity gained by these simple early prophylactic measures in a highly infected district if properly carried out. I fortunately had an orderly who took great interest in this work.

I am, Sir, yours faithfully,
B. R. PARMITER, M.B., B.S.
Guy's Hospital, S.E., Dec. 13th, 1919.

SURVIVAL OF QUADRUPLETS.

To the Editor of THE LANCET.

SIR,—Some years ago I saw a lady, about 6 ft. high, who surprised me by saying that she was one of quadruplets, the other three being boys who all grew up to be strong and over 6 ft. in height and were serving in the same regiment in India. I am aware that "what the policeman said is not evidence," and the same applies to a patient's statements; but as there was no reason why the patient should state what was not true I think perhaps the survival of quadruplets may not be so rare as is supposed.

With regard to the influence of the male in producing multiple pregnancies, the case alluded to in the annotation in your issue of Dec. 13th is not so striking as the one mentioned by Charpentier. It was that of a Russian peasant, married twice, who had 87 children by his two wives. His first wife had quadruplets 4 times, triplets 7 times, and twins 16 times. His second wife had triplets twice and twins 6 times.

I am, Sir, yours faithfully,
Harley-street, W., Dec. 15th, 1919. HERBERT R. SPENCER.

GENERAL MEDICAL COUNCIL ELECTION: ENGLAND AND WALES.

To the Editor of THE LANCET.

SIR,—Will you allow me to express my sincere thanks to the 1636 doctors who voted for me? The result far exceeded my expectations. I had no committee nor funds to circularise all the electors.

I am, Sir, yours faithfully,
Blackpool, Dec. 12th, 1919. JNO. BROWN, M.D.

MYALGIC PAINS AND MANIPULATION.

To the Editor of THE LANCET.

SIR,—In his article on Myalgic Pains in THE LANCET of Nov. 29th Dr. Madison Taylor calls attention to the value of "really expert" manipulation in these cases. But where are the really expert manipulators to be found, and where are the regular practitioners who are competent to direct their operations? Such is the barrier of suspicion and prejudice that surrounds these methods of practice, it happens, that while no enlightened modern surgeon can deny the brilliant results obtainable in appropriate cases, the cures stand chiefly to the credit of the irregular practitioner or "bonesetter." Whilst in the field of physical therapeutics every other path is being mapped and explored and fully utilised for the benefit of humanity, this one—call it manipulative surgery, or bonesetting, or what you will—remains a no man's land, or is left to the operations of the franc-tireur.

The following illustrative case was throughout its course under my daily observation:—

The patient, a full-grown girl of more than average height, with no tendency to rheumatic or arthritic trouble, had for a year previous to her illness been in active work in garden and with car, and was in full health and strength. One night in February she woke with a rather severe pain in the sacral region. Next day, finding it had nearly gone, she continued her work. But she found the pain returned when she walked, and day by day was less able to walk or stoop on account of it. After a week she consulted me. I found evidence of fibrositis, the clinical signs being tenderness on deep pressure over the sacral spines and the left sacro-iliac synchondrosis. She felt most comfortable in a relaxed bent position, extension of the spine being painful. Walking, hitherto fast and free, could only be done at a crawl, and her carriage, usually erect, was a slouch. After two months of treatment by rest, massage, ionisation, and various local and general remedies, she was worse rather than better. Notwithstanding occasional remissions with improvement of a temporary character, she was changed from an active, free-striding girl to a semi-invalid, capable of only doing a few hundred yards at a crawl. At this stage I took her to a consulting surgeon of repute, who prescribed certain treatment which was followed for another two months, but with no more success than with my own.

Having fortified my own opinion by those of a general physician, and also a gynæcologist, that no intra-pelvic, tuberculous, or other organic disease was present, I determined that some form of "really expert" manipulation was required. Knowing no one within the ranks of the profession able or willing to give the treatment that was in my mind, I took her to a well-known "bonesetter." He at once stated that the condition was familiar to him, and proceeded to some manipulations. The two manœuvres he executed were both new to me, though I have had more than average experience of various forms of physical treatment both at home and in Sweden.

The first somewhat resembled that described in Anders Wide's medical gymnastics as "stretch leg-forward-lying side flexion," but with the difference that the operator did it alone with patient at full length prone on a couch, instead of the three gymnasts as directed by Wide. With one hand on the sacrum, the other under the left shoulder, the operator forcibly extended and rotated the trunk a few times in rapid succession while keeping the pelvis immobile on the couch. The second movement was done while patient was prone as before. One hand being on the sacrum keeping the trunk on the couch, the other hand was applied below both knees in such a way as to over-extend the hip and lumbo-sacral joints. Both movements require great muscular effort, and during each sounds as of giving way of adhesions were clearly heard. The patient was immediately relieved by the first treatment; it was repeated again at a week's interval, and she has remained quite well since.

In conclusion I can only express a hope that this plain tale of a personal experience may do something to dispel a prejudice too general in the profession, and encourage a study and practice of methods as old and historic as they are scientifically interesting and valuable.

I am, Sir, yours faithfully,
Dec. 3rd, 1919. NON QUIS, SED QUID.

CORRIGENDUM.—In Dr. J. Elliott's interesting paper on an Achondroplasic Skull, which we published last week, a date was inserted to make clear that the "Edwardian" walls of Chester meant walls built in the Plantagenet era. For immediately in front of the sentence came the date "1912 to 1914." Dr. Elliott points out that the interpolation, being the date of Edward II., might commit him to a definite statement on a matter which has been much in dispute—namely, the precise date of the building of the ancient walls.

URBAN VITAL STATISTICS.

(Week ended Dec. 13th, 1919.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at 16,500,000 persons, the annual rate of mortality, which had been 14·8, 13·8, and 14·4 in the three preceding weeks, fell to 13·9 per 1000. In London, with a population slightly exceeding 4,000,000 persons, the annual death-rate was 13·4, or 1·1 per 1000 below that recorded in the previous week, while among the remaining towns the rates ranged from 7·4 in Bournemouth, 8·1 in St. Helens, and 8·3 in Walthamstow, to 20·2 in Grimsby, 21·3 in Bath, and 22·0 in South Shields. The principal epidemic diseases caused 282 deaths, which corresponded to an annual rate of 0·9 per 1000, and comprised 76 from measles, 75 from diphtheria, 58 from infantile diarrhœa, 44 from whooping-cough, 27 from scarlet fever, and 2 from enteric fever. Measles caused a death-rate of 1·5 in Preston and in Sunderland, 1·8 in Tynemouth, 2·2 in Burnley, 2·7 in Barrow-in-Furness, and 2·9 in Carlisle; whooping-cough of 1·6 in East Ham and 1·7 in West Hartlepool; and diphtheria of 1·7 in Plymouth. The 81 deaths from influenza were 4 in excess of the number in the previous week, and included 17 in London, 7 in Manchester, 6 in Birmingham, and 4 in Stoke-on-Trent. There were 2947 cases of scarlet fever and 1796 of diphtheria under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, against 2990 and 1699 respectively at the end of the previous week. The causes of 28 deaths in the 96 towns were uncertified, of which 6 were registered in Birmingham and 3 in Preston.

Scotch Towns.—In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2,500,000 persons, the annual rate of mortality, which had been 18·6, 15·0, and 15·3 in the three preceding weeks, fell to 13·5 per 1000. The 284 deaths in Glasgow corresponded to an annual rate of 13·2 per 1000, and included 5 from diphtheria, 3 each from scarlet fever and infantile diarrhœa, 2 from measles, and 1 from whooping-cough. The 79 deaths in Edinburgh were equal to a rate of 12·2 per 1000, and included 1 each from whooping-cough, diphtheria, and infantile diarrhœa.

Irish Towns.—The 147 deaths in Dublin corresponded to an annual rate of 18·9, or 1·3 per 1000 above that recorded in the previous week, and included 3 from infantile diarrhœa, 2 from whooping-cough, and 1 each from measles, scarlet fever, and diphtheria. The 160 deaths in Belfast were equal to a rate of 20·8 per 1000, and included 14 from measles, 12 from scarlet fever, 3 from infantile diarrhœa, and 1 each from enteric fever and diphtheria.

Medical News.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—An ordinary meeting of the Council was held on Dec. 11th, Sir George Makins, the President, being in the chair.—A report was read from the Board of Examiners in Anatomy and Physiology for the Fellowship stating that at the recent examination 141 candidates were examined, including 53 who were admitted under the special war conditions, of whom 37 were successful, and 88 admitted under the ordinary conditions, of whom 30 were successful.—Sir Charters J. Symonds, as chairman of the Committee on the Special Primary Examination for the Fellowship, submitted a recommendation from the Committee that a special examination be held in November, 1920, in addition to the special examination to be held in May next. The recommendation was approved and adopted.—A report was read from the Court of Examiners respecting candidates found qualified for the Fellowship. The report stated that at the recent examination 71 candidates presented themselves for the final examination and 21 of these were successful. It was resolved to grant diplomas of Fellowship to the following successful candidates:—

Arthur Wilfrid Adams, Bristol Univ. and London Hosp.; Gerald Victor Wright Anderson, Univ. Coll. Hosp.; Margaret Mary Basden, Royal Free and London Hosps.; Rustam Nusserwanji Cooper, Univ. Coll. and St. Bart's. Hosps.; Alfred George Timbrell Fisher, Bristol Univ. and St. Bart.'s Hosp.; William Allan Hailes, Melbourne Univ. and London Hosp.; Rhys Trevor Jones, Cardiff and St. George's Hosp.; Thaddeus Julian, Otago Univ. and Middlesex Hosp.; Robert Kennon, Liverpool Univ. and London Hosp.; Frederick Buick McCarter, Dublin Univ. and London Hosp.; Frederick Arthur Maguire, Sydney Univ. and London Hosp.; Edward Thomas Campbell Milligan, Melbourne Univ. and London Hosp.; Charles Melton Ockwell, Guy's Hosp.; Martin Herbert Oldershaw, Univ. Coll. Hosp.; Alfred Bernard Pavey Smith and William Agard Pocock, Cambridge Univ. and St. Bart.'s Hosp.; Anbrey Radford, Edinburgh Univ. and London Hosp.; Tribhovandas Oghaddar Shah, Bombay Univ. and London Hosp.; Simeon Cyril Shaw, Middlesex Hosp.; Raghunath Dadoba Shirwalkar, Univ. Col. and St. Bart.'s Hosps.; and Alfred John Trima, Melbourne Univ. and London Hosp.

Diplomas of Member were conferred upon the following, who have now complied with the by-laws:—

G. Perkins, Oxford Univ. and St. Thomas's Hosp.; and H. H. Perry, Manitoba Univ. and London Hosp.

In accordance with a report from the Board of Examiners in Dental Surgery it was resolved to issue diplomas in Dental Surgery to the following successful candidates:—

R. D. Amin, Guy's Hosp.; H. E. Attkins, National Dental Hosp.; W. F. E. Badcock, Royal Dental Hosp.; V. H. Ball, London Hosp.; C. C. de A. Birch and I. Bitar, Guy's Hosp.; F. E. S. Brailsford, Middlesex Hosp.; F. Brazilier and E. G. Browne, Guy's Hosp.; A. E. Burt, Royal Dental Hosp.; A. J. Chiappa, National Dental Hosp.; B. P. Cousins, Guy's Hosp.; J. D. Crawford; Liverpool Univ.; S. W. Fisk, Royal Dental Hosp.; J. A. Gilbert and J. K. Grayson, London Hosp.; L. R. J. Hallett, Guy's Hosp.; R. Hawksworth, Manchester Univ.; J. J. L. Hollington and J. Lauer, Guy's Hosp.; S. G. Mace, Liverpool Univ.; C. B. Marsh, Manchester Univ.; Helen Patricia Clara Mayo, National Dental Hosp.; P. J. Morrison, F. J. Ordish, H. P. Parkes, and W. D. Penfold, Guy's Hosp.; E. Pitt, Royal Dental Hosp.; S. E. Pomeroy, London Hosp.; A. D. Ray, Manchester Univ.; J. W. Royston and R. F. Sievers, Royal Dental Hosp.; G. E. Smith, Liverpool Univ.; H. Muir Smith, Guy's Hosp.; C. W. Spendelow, Royal Dental Hosp.; H. A. Spouse, Guy's Hosp.; R. F. J. Sterwin, London Hosp.; L. H. Van der Pant, Royal Dental Hosp.; Enid Walker, National Dental Hosp.; G. A. O. White, Royal Dental Hosp.; C. A. Wilson, National Dental Hosp.; T. A. M. Wilson, Guy's Hosp.; E. E. Wookoy, Bristol Univ.; and H. M. Worth, Guy's Hosp.

Mr. H. S. Pendlebury was elected a member of the Court of Examiners.—Mr. John Murray was elected a member of the Board of Examiners in Dental Surgery.—A letter was read from Dr. Addison, Minister of Health, acknowledging the secretary's letter transmitting the resolution of the Council with reference to the shortage of anatomical subjects.—The President reported the delivery by Sir John Tweedy, on Dec. 3rd, of the first Thomas Vicary lecture on "The Surgical Tradition." The best thanks of the Council were given to Sir John Tweedy for his lecture.—The revised regulations for admission to the Museum were approved and confirmed.—A report was read from the Committee on the annual report of the Council. The report was received and entered on the minutes, and its consideration was postponed to the next meeting of the Council.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH.—At the annual meeting of the Royal College of Physicians of Edinburgh, held on Nov. 27th, Sir Robert Philip was unanimously re-elected President of the College for the ensuing year. The Council for the year was elected as follows: Dr. A. H. F. Barbour (Vice-President), Dr. F. D. Boyd, Dr. George M. Robertson, Dr. Robert Thin, Dr. Lamond Lackie, Dr. Harry Rainy.—At an extraordinary meeting on the same date Dr. Jonathan Campbell Meakins was admitted to the Membership of the College. The following distinguished and representative men, having accepted the offer of Honorary Fellowship, were unanimously elected Honorary Fellows of the College: Professor Hermann M. Biggs, M.D., M. Georges Clemenceau, Professor Kitasato. The office-bearers for the year 1919–20 are:—President: Sir Robert Philip. Vice-President: Dr. Barbour. Treasurer: Dr. Norman Walker. Secretary and Registrar: Dr. J. S. Fowler. Librarian: Dr. D. Berry Hart. Curator of Research Laboratory: Dr. J. J. Graham Brown.

UNIVERSITY OF LIVERPOOL.—On Dec. 12th Dr. A. Depage, Croix Rouge de Belgique, professor of clinical surgery in the University of Brussels, delivered the Mitchell Banks memorial lecture at the University of Liverpool before a distinguished audience. He took as his subject "L'Enseignement de la Guerre pour la Chirurgie du temps de Paix," and pointed out that the experiences of war had increased our knowledge of, and our means for dealing with, the "dirty" wound, lung injuries, and injuries to nerves, bones, and joints. The lecturer showed himself to be a man not only of resource but of vision and enthusiasm. A number of excellent lantern-slides added interest to the lecture, which was greatly appreciated.

LIVERPOOL MEDICAL INSTITUTION.—At a meeting of the Liverpool Medical Institution (Pathological Section), held on Nov. 27th, with the President, Mr. Thelwall Thomas, in the chair, Dr. J. G. Adami read a paper on Diphtheroids. He gave a historical sketch of the research work that had been done towards classifying the diphtheroid group, and pointed out that we were still in a transitional state of knowledge as regards these, in common with the dysenteric, choleraic, meningococcic, coliform, and other groups. Differentiation by the old-fashioned method of staining, after culture, on Löffler's blood serum was unsatisfactory; morphology did not safely differentiate the infinite range of variations found by other methods. So far as fermentation reactions could help it was best to employ only four or five (particularly dextrose, dextrin, saccharose, and lactose), but the results from these were suggestive and directive rather than definitive. The development of toxicity for guinea-pigs in a Dean's broth culture, more especially a hæmorrhagic adrenal lesion, was the only accurate test, and was recommended for all doubtful cases. He detailed an investigation, directed by himself, of diphtheroid wound infection occurring among Canadian soldiers. Of 306 open and infected wounds 2 showed true Klebs-Löffler bacilli and 56 diphtheroids; two of these latter gave all the reactions of Klebs-Löffler except the virulence test. It was demonstrated that a wound might yield no membrane and yet harbour virulent diphtheria or develop membrane and yet be merely diphtheroid. He considered it probable that true relationships would eventually be defined by complement-fixation tests, and suggested as a further method likely to clarify the field the adoption of sensitisation reactions—a weak form being used later to sensitise the guinea-pig to the inoculation of the strain under investigation.

On the evening of Dec. 13th the Institution held its dinner at the Exchange Station Hotel. As this was the first dinner of the society since 1913 there was an unusually large number of members and their friends present, nearly 200 in all. Mr. Thelwall Thomas, the President, occupied the chair, and he was supported by the Lord Mayor, the Bishop of the diocese, Lord Russell of Liverpool, the Vice-Chancellor of the University, and Professor Depage and Dr. Pechère, of Brussels. Among the other guests were the stipendiary magistrate, the city coroner, the presidents of the Manchester, Chester, Birkenhead, Southport, and St. Helens Medical Societies, Mr. Joseph Conrad, and Dr. W. T. Grenfell, of Labrador. Lord Russell proposed the toast of "The City and University of Liverpool," and spoke of the distinction and authority of Liverpool's physicians and surgeons during the long period of 60 years during which he had been associated with the city. He looked in the future for an even closer alliance between the city and the University than that which already existed, and he testified to the great expectations which had been excited by the appointment of Dr. Adami to the post of Vice-Chancellor. The toast was coupled with the names of the Lord Mayor and the Vice-Chancellor. In responding the Lord Mayor stated that so far as secondary education was concerned, Liverpool was ahead of any city in the country. He also bore generous testimony to the war efforts of the medical profession of the city. Dr. Adami said that he was determined to make the University realise what it could do for the community, and to quicken in all classes an interest in higher education. The University was the coping-stone of the city's educational system. The medical school had a glorious past, an active present, and a greater future. They must attract graduates from the colonies and the United States to take their post-graduate courses in the city. As a political move alone that was of prime importance. Liverpool had now the chance of becoming the medical and surgical Mecca of the Empire, because the hospitals, with their gigantic amount of clinical material, were all within a narrow radius. In tropical medicine, orthopædics, and pediatrics there were opportunities for study and research in Liverpool offered by few, if any, other University cities. The toast of "The Medical Institution" was in the hands of the Bishop of Liverpool, who made an eloquent speech which received a felicitous response from the President. Major-General Sir Robert Jones proposed the health of the guests in racy terms, and Professor Depage and Dr. Pechère, Professor J. W. Smith of Manchester, Mr. H. Wade Deacon, and Dr. Grenfell of Labrador responded appropriately. For the first time in its history the dinner was attended by more than 20 medical women.

BATH WAR HOSPITAL.—Since this hospital was opened, in the spring of 1916, the institution has received 10,318 stretcher cases and 8391 sitting cases. The hospital is situated in the beautiful district of Combe Down, and it has been suggested that the Royal United Hospital should be transferred there. In all probability a scheme for this purpose will be proposed.

REDRUTH MINERS' AND WOMEN'S HOSPITAL.—The Red Cross Society recently offered the sum of £4000 for the Redruth (Cornwall) Miners' Hospital conditionally on a similar sum being raised locally. Sir E. Nicholl, M.P., who was born at Redruth, has given the sum required, so the hospital will now receive £8,000 towards the projected extension.

PRESENTATION TO A MEDICAL MAN.—Mr. H. C. Nance, F.R.C.S. Eng., was recently presented with a gold watch, a chiming clock, and a gold and pearl scarf-pin, "on his retirement from practice in Norwich, by a few of his grateful patients." He also received a silver centrepiece for the table from his partners—Mr. Hugh Whitwell and Mr. Bernard B. Riviere.

THE RAISING OF MEDICAL FEES IN LIVERPOOL.—A post-card plebiscite of the medical profession on the question of raising medical fees by 50 per cent. has recently been taken by the local branch of the British Medical Association. The result of the canvass has not yet been announced, but it is generally believed that a very large majority have declared themselves in favour of the suggested increase.

UNIVERSITY OF BIRMINGHAM.—During the spring term a course of post-graduate lectures on venereal disease will be given. Dr. Douglas Heath will lecture on syphilis and soft sore on Jan. 6th, 8th, and 13th; Mr. Bernard Ward on gonorrhœa in the male on Jan. 21st and 28th and Feb. 4th. Mr. Beckwith Whitehouse will give two lectures on gonorrhœa in the female, and one on syphilis in relation to pregnancy on Feb. 11th, 18th, and 25th. All the lectures will be at 4.15 P.M. In conjunction with the lectures clinical demonstrations will be given at the General and Queen's Hospitals. Admission to the lectures will be free, but for the course of clinical demonstrations there will be a fee of 2 guineas.

BIRMINGHAM CRIPPLES' UNION.—The *Birmingham Daily Mail*, in connexion with their annual Christmas Tree Fund, is making a special appeal in aid of a new convalescent home for the Cripples' Union. The new home will have an ideal site near Tanworth-in-Arden, 11 miles from Birmingham, in the heart of Warwickshire. Seven acres of land have been acquired at an elevation of 500 ft. and with a southerly aspect. There will be accommodation for 80 children. It will be arranged upon a circular plan, two wings curving out from a main administration block. It will be built on open-air lines and the sleeping accommodation will be open to the south or south-east. The home will relieve the present congestion at the institution at Northfield, and will enable patients to make a prolonged stay under the best possible conditions.

EDINBURGH OBSTETRICAL SOCIETY.—At the meeting of this society held on Dec. 10th Dr. Lamond Lackie read a paper on Artificial Rotation of the Head in Persistent Occipito-Posterior Positions. Dr. Lackie pointed out that the frequency of occipito-posterior positions is greater than is usually taught, and stated that in his practice they constituted about 30 per cent. of the total. The majority of cases rotate forward spontaneously, and as long as progress is being made the case should be left to nature. If the head is obstructed manipulative rotation should be attempted. If impaction of the head occur at the brim, the hand should be introduced under anæsthesia, the cervix further dilated if necessary, and the position corrected by manual rotation. If this fails, rotation by means of the forceps is often easily accomplished, the handles being swept round in a large circle to allow of rotation of the blades within the pelvis. Various cases were described by way of illustration. In the discussion which followed Dr. A. H. F. Barbour was of opinion that interference should never be made until the cervix was fully dilated. Dr. J. W. Ballantyne referred to the rectification of posterior positions during pregnancy. Dr. Haig Ferguson had often found it possible to rotate the head by continued rotatory pressure on the blades of the forceps with the fingers in the pelvis, or by Fabre's method, in which rotation was exerted on the forceps by tapes passed through holes in the blades. Dr. D. R. Dobie described a method in which the forceps were introduced reversed so that after rotation had taken place they lay in the normal position. Dr. R. W. Johnstone quoted from Smellie's text-book and showed that this obstetrician practised rotation with forceps for posterior positions several centuries ago. Dr. Berry Hart and Dr. Oliphant Nicholson also spoke.

BRISTOL MEDICO-CHIRURGICAL SOCIETY.—On Dec. 10th this society held a meeting at the University under the presidency of Professor I. Walker Hall.—Major F. P. Mackie, I.M.S., gave an address on his experiences as a bacteriologist in Mesopotamia. He had been in charge of a central laboratory, first at Amara and later at Baghdad; and also of an attached mobile laboratory. This work had covered a period of more than three years and his review may therefore be regarded as representing a broad survey of disease in Mesopotamia. He spoke of the enteric group, of dysentery, malaria, cholera, typhus, relapsing fever, beri-beri, scurvy, plague, oriental sores, and other infections. One interesting experience was the discovery of a malaria-infested village population in the neighbourhood of Lake Van, encountered by Major Mackie in a search for a convalescent area. The enteric infections were, he said, much more prevalent in 1916 than later. A strain which was called *B. paratyphosus C* was found and apparently traced to a source in Asia Minor, whence it had been conveyed by refugees. After Major Mackie's address came a discussion on Post-War Problems of Malaria, introduced by Dr. D. S. Davies, medical officer of health of Bristol, who gave an account of the difficulties created by the return of malarial subjects to Britain, and of the incidence of the disease in Bristol. Dr. S. J. Kerfoot and Dr. Cecil Clarke gave an account of their experiences in the pathology and treatment of malaria in the Macedonian Campaign, and Dr. M. Nierenstein, lecturer on bio-chemistry in the University, touched upon a few points of the recent researches into the action of quinine in malaria. Several other members also spoke, two of them bearing witness to the value of Major Mackie's work in Mesopotamia, of which they had been eye-witnesses.

SHEFFIELD MEDICO-CHIRURGICAL SOCIETY.—The Section of Pathology of this society held a meeting on Dec. 11th, when Dr. A. E. Barnes read a paper on Malaria in Salonika, and gave an interesting account, illustrated by lantern slides of his experiences in the treatment and prevention of the disease during his medical charge of a hospital there. Mr. A. W. Cuff showed a specimen of Papillomatous Growth of the Cæcum excised on account of an abscess simulating appendicitis. Dr. Godfrey Carter showed a specimen of Multiple Adenomatous Growth of the gastric mucosa found in a man who had died suddenly from cardiovascular disease. He had not suffered from stomach symptoms during life. Mr. E. F. Finch showed specimens and lantern slides of a series of cases of simple Ulcer of the Cæcum. The cases had each given rise to obscure symptoms suggesting appendicitis and calling for operation. The pathology of these unusual specimens was discussed at length, but no very definite conclusion was arrived at. The President, Dr. Arthur Hall, Dr. Carter, Dr. Graham Simpson, Dr. E. F. Skinner, Dr. Garrick Wilson, Dr. T. B. Mouat, Dr. Ferguson Wilson, Dr. Townrow, and others took part in the discussion.

THE Sheffield Medico-Chirurgical Society recently had the opportunity of inspecting a collection of war trophies obtained by various members from the different seats of war. It formed a large and varied display, from German paper bandages to West African native weapons, and included many interesting curios. Amongst the items was a genuine literal translation of a Bolshevist proclamation containing orders relating to the "use of women in common," which had been posted in public places in a large Russian town. It can only be described as the most appalling and degrading inhuman document which it is possible to conceive of. It is well worth the careful perusal of anyone with leanings towards Bolshevism and should prove a very valuable "alterative" to their condition.

On Dec. 4th the first of two annual "clinical evenings" was held at the Royal Infirmary. There was a large attendance of members and, thanks to the energy of the staff, an excellent collection of cases of high interest was provided for them.

AT a recent meeting of the board of directors of the Aberdeen Royal Infirmary Dr. Arthur W. Falconer, C.B.E., D.S.O., intimated his resignation of the office of assistant physician on his appointment to the chair of medicine in the University of Cape Town. The clerk was instructed to convey to Dr. Falconer the directors' appreciation of the service which he had rendered to the infirmary, along with their congratulations on his appointment, and best wishes for his future success. Dr. Falconer is 39 years of age. He graduated M.B., Ch.B., of Aberdeen University in 1901, M.D. with honours in 1907, and in the same year M.R.C.P. Lond. He studied for one year in Vienna and Berlin, and later spent six months in London doing post-graduate work. After holding appointments in Bradford, Bristol, and Aberdeen, Dr. Falconer was appointed assistant physician to the Aberdeen Royal Infirmary in 1912 and assistant to the professor of medicine at the Aberdeen University in 1913. Dr. Falconer was mobilised on the outbreak of war, and in 1916 went to Salonika as officer in charge of the medical division of the 43rd General Hospital. In March, 1917, he was appointed assistant consulting physician to the British Salonika Force with rank of Lieutenant-Colonel.

LADY CHICHESTER HOSPITAL, HOVE.—Mrs. Lloyd George on the first day (Dec. 10th), and the Countess of Chichester on the second day, performed the opening ceremonies at an Olde Englyshe Fayre at Hove in aid of the Lady Chichester Hospital, Aldrington House, Hove. Mrs. Lloyd George, in the course of a speech, spoke appreciatively of the work of Dr. Helen Boyle, and dwelt on the special claims for sympathy and help made by patients suffering from mental disorders.

THE Grand Priory of the Order of St. John of Jerusalem in England have forwarded to Mr. Evelyn Cecil, Secretary-General, the sum of £1657 13*s.* 8*d.* as a contribution to the fund raised for reinstating and endowing the British Ophthalmic Hospital of the Order at Jerusalem, destroyed by the Turks on their evacuating Jerusalem.

THE next meeting of the Society for the Study of Inebriety will be held in the rooms of the Medical Society of London, 11, Chandos-street, Cavendish-square, W., on Tuesday, Jan. 13th, 1920, at 4 P.M., when Dr. Edward Mellanby will read a paper, illustrated by means of the epidiascope, on Recent Experimental Researches on Alcohol and Alcoholic Intoxication. Each member and associate may introduce a visitor.

THE LATE MR. W. F. SMITH.—Mr. W. F. Smith, Fellow of St. John's College, Cambridge, has died in his seventy-seventh year a genial and versatile scholar, whose researches had bearing in many directions on the course of medical studies. For Mr. Smith devoted many years to the study of the most prominent man of letters that the profession of medicine has produced. His translation of Rabelais, based on Urquhart, will long remain the standard English edition. His last work, "Rabelais in his Writings" (Cambridge University Press, 1918), contains an important chapter on Rabelais as physician and a carefully prepared list of the plants mentioned by him. In the course of his researches into the sources and references of Rabelais Mr. Smith read both widely and deeply in the volumes of mediæval and Renaissance medicine, and especially in the works of the "Arabists." He thus became an authority on this subject, and the skill and aptness with which he was able to quote from this recondite literature in illustration and comment on his favourite author was remarkable. His last public appearance was at a medical gathering and it was only a few months ago that he read before the Historical Section of the Royal Society of Medicine a very learned and humorous paper on the medical references in the works of Rabelais, a painstaking piece of work which merits publication. After this meeting Mr. Smith proceeded to Pau, where his death took place.

A DINNER of the staff (medical officers, sisters, and V.A.D.'s) of No. 14 General Hospital (Wimereux) will be held in London, at 8 P.M. on Monday, Feb. 2nd, 1920. Lieut.-General Sir John Goodwin will preside. Day dress will be worn. Application for tickets, price 12*s.* inclusive, should be made, together with remittance, to Miss Lawley, 9, Seymour-street, W. 1, when the address of the restaurant will be given.

KING'S COLLEGE HOSPITAL DINNER.—A dinner in aid of the funds of King's College Hospital was held at Prince's Restaurant on Dec. 10th, when Prince Arthur of Connaught, in submitting the toast of the evening, said there was a building debt of £50,000 to be defrayed, £50,000 was required for new nursing quarters, £15,000 for a massage school and department, and £60,000 for additional income. The hospital, he pointed out, was situated in the heart of a district in South London ministering to a million and a half of very poor people, and he entered a strong plea for public support. While fully admitting the difficulties of the moment, he said the money was in the country, it had only changed hands. Viscount Hambleden, who responded, said he had faith in the charitable instincts of the British public, who, if they realised what the voluntary system had done in the past for the sick and suffering and for medical education, would give their whole-hearted support.

RE-EDUCATION OF THE CRIPPLE AT ST. THOMAS'S HOSPITAL.—A demonstration was held by Miss Randall in the Physico-therapeutic Department of St. Thomas's Hospital on Dec. 12th, on the re-education in walking and jumping of one-limbed officers and their training in the use of artificial limbs. The object of the demonstration was to show the results achieved at St. Thomas's Hospital in this direction. The training is based on the assumption that for the true motions of walking the remains of the leg or stump must be able to lift the artificial limb naturally. The officer demonstrating was a man of 40 with no special athletic training, who was occupied during the day and had attended the hospital only as an out-patient, and whose stump was 6 in. long. The limb supplied him by the Pensions Ministry, worn with a shoe, weighed about 10 lb., made of wood, and was too heavy. The limb used in the demonstration with shoe complete was made of metal, weighed 5½ lb., and appeared equal to any strain put upon it. The exercises shown included Swedish drill, walking on a narrow bar, jumping blindfold to certain bars at varying heights from the ground, climbing and descending ladders one foot after another, and skipping. Visitors were obviously impressed at the magnificent results achieved, and cordial congratulations were offered to Miss Randall and her pupils.

INSURANCE PRACTICE: DEPUTATION TO DR. ADDISON. —Representatives of the Insurance Acts Committee of the British Medical Association met Dr. Addison in conference at the Ministry of Health on Dec. 4th to discuss the capitation fee for panel practice. The Minister was accompanied by Sir Robert Morant, Sir George Newman, Mr. R. W. Harris, Dr. H. M. Richards, Mr. G. F. McCleary, Dr. J. Pearse, Dr. J. Smith Whitaker, and others. The Insurance Acts Committee was strengthened by three nominees of the recent Representative Conference, Dr. J. D'Ewart (Manchester), Dr. J. Orton (Coventry), and Dr. Peter Macdonald (York). Sir Clifford Allbutt, who introduced the deputation, recalled the conditions of club practice when the capitation fee was 4*s.* a head, and emphasised the fall in the value of money, the longer time now required to examine a patient, the increased cost of medical training, and the need of a good standard of remuneration to attract the best type of student to take up insurance practice. Dr. H. B. Brackenbury recalled the resolution of the Conference of Representatives and its view that a capitation fee of 13*s.* 6*d.* was held to be a reasonable and irreducible amount. He stated that insured persons were increasingly asking panel doctors to visit them at home, and he regarded the present as a unique opportunity of setting the general practitioner service on a proper basis. Dr. H. G. Dain (Birmingham) spoke from his own experience of the high rate of disability among demobilised men, the early benefit of health from military training having, as the war went on, been more than wiped out by strain, and the improvement in the health of the civilian population having similarly been counterbalanced by overtime and continued stress. Dr. D. Ewart set out the striking figures showing how Manchester insurance practitioners had reduced their service rendered to represent a fair return for the remuneration received. Dr. A. Linnell (Towcester) spoke to the claims of rural practice. Dr. H. G. Cowie (London) and Dr. Macdonald showed that only a substantial increase in the fee would attract a good class of panel practitioner, the latter drawing a parallel with the standard of the Army Medical Service 20 years ago. Dr. Orton stated his experience in a munitions area.

Dr. Addison replied that no service, however dressed up with clinics and laboratories, could be a success unless the general practitioner was efficient and content. He proposed to secure for the fair-minded man with a proper professional standard what that man would recognise to be a fair remuneration. At present no measure was available of the extent of work in treating the demobilised man. Frankly, he thought the case for the 13*s.* 6*d.* fee was not made out. The Government were committed to extra expense in regard to old-age pensions, unemployed benefit, and extension of cash benefits under the Insurance Acts, and regard must be had to the state of public finance. In reply to a question, Dr. Addison said that impending legislation would substantially increase the weekly contribution of the insured person, and some adjustment of the cost of medical benefit between Exchequer and insurance funds would follow. He suggested the fixation of a standard capitation fee for a limited term of years, plus a temporary addition (subject to annual revision) on account of the present high cost of living. Dr. Addison suggested a further conference after the Government had considered his proposals.

WEST LONDON POST-GRADUATE COLLEGE, HAMMERSMITH, W.—The following lectures and demonstrations have been arranged:—Saturday, Dec. 20th, 12 noon: Mr. H. S. Souttar, Surgical Anatomy of the Abdomen. Monday, Dec. 22nd, 12 noon: Dr. J. Burnford, Pathological Demonstration; 5 P.M.: Mr. S. G. MacDonald, Genito-Urinary Surgery. Tuesday, Dec. 23rd, 12 noon: Mr. Tyrrell Gray, Demonstration of Fractures. The winter session will commence Monday, Jan. 12th, 1920.

THE first meeting of the new Welsh branch of the Association of Medical Officers of Health was held at Cardiff on Dec. 12th, when Dr. E. Walford (Cardiff) was elected President. The new branch, which promises to be one of great vigour, dined together the same evening, when representatives of the Welsh Board of Health and the Welsh National School of Medicine were present, and expressed the hope that the work of the new branch would be of great assistance to them in their respective spheres.

A MEETING of the medical profession of Bournemouth and district was held recently at which the following resolution was unanimously adopted:—

"That owing to the increased cost of living and of working expenses by at least 100 per cent. and to the general depreciation in the value of money, the profession feels justified in recommending that the pre-war rate of fees be increased by 50 per cent."

ROYAL MEDICAL BENEVOLENT FUND.—At the last meeting of the Committee held on Tuesday, Dec. 9th, 27 cases were considered and £343 voted to 23 of the applicants. The following is a summary of some of the cases relieved:—

Widow, aged 77, of M.R.C.S. Eng. who practised at Watton and died in 1893. Only income an annuity of £56 8*s.* 8*d.* She pays £16 a year rent. Now unable to do any work owing to loss of eyesight. Voted £12 in 12 instalments.—Daughter, aged 68, of M.D. Edin. who practised in London and died in 1874. Receives £52 from the firm where she used to work. Has recently been playing the piano at a cinema, but has been obliged to give it up on account of her health. Friends help to provide coal in the winter. Rent £44 a year. Voted £12 in 12 instalments.—M.D. Lond., married, who practised in London. Now entirely incapacitated and bedridden. Wife earns £2 2*s.* a week as a clerk, and obtains a little by selling personal belongings. Rent £1 1*s.* a week for six rooms, three of which are given to a man and his wife in return for wife's services during the day, when she looks after the applicant. Voted £26.—Daughter, aged 67, of F.R.C.S. Eng. who practised at Hull and died in 1887. Receives £25 from another charity and lives in a home where she has three rooms and receives £25 a year. Cannot manage owing to the high cost of living. Voted £12 in 12 instalments.—Daughter, aged 55, of M.R.C.S. Eng. who practised at Bideford and died in 1898. Received £25 from dividends and £13 from sister. Rent £44 for three rooms, shared by sister. Unable to earn own living owing to ill-health. Cannot manage owing to the high cost of living. Voted £5.—Widow, aged 58, of M.R.C.S. Eng. who practised at Yelverton and died in 1908. This year has received £140 from paying guests. Rent and rates £42. Cannot manage owing to lack of boarders. Relieved 13 times, £155. Voted £12 in 12 instalments.—Daughter, aged 46, of M.R.C.S. Eng. who practised at Blackheath and died in 1881. Receives £43 from other charities and £10 from dividends. Used to be a hospital nurse, but now unable to work. She boards with her half-brother. Suffers from ill-health. Relieved once, £10. Voted £10.—Daughter, aged 41, of M.R.C.S. Eng. who practised at Streatham and died in 1914. Only income £20 a year left by grandfather. Lives with mother who is an invalid. Applicant suffers from ill-health. Mother receives help from the Fund. Relieved five times, £25. Voted £5.—Widow, aged 73, of L.R.C.P. Edin. who practised at Cardiff and died in 1906. Only income £70 from other charities. Board and lodging £52 a year. Has two sons, both married, and unable to help. Relieved 14 times, £100. Voted £9 in 12 instalments.—Widow, aged 60, of L.S.A. Lond. who practised at Islington and died in 1905. No income. Keeps house for nephew, for which she receives board and lodging. Receives help from the Guild. Suffers from ill-health. Relieved 14 times, £178. Voted £18 in 12 instalments.—Daughter, aged 62, of L.R.C.P. Lond. who practised at Brierley Hill and died in 1872. Only income £26 from another charity and £6 from friends. Pays £13 a year for a furnished room. Relieved £12 times, £96. Voted £18 in 12 instalments.

Subscriptions may be sent to the acting honorary treasurer, Dr. Samuel West, at 11, Chandos-street, Cavendish-square, London, W. 1.

Parliamentary Intelligence.

HOUSE OF LORDS.

THE PREVENTION OF VENEREAL DISEASE.

Lord WILLOUGHBY DE BROKE called attention to the prevention of venereal disease by the method of immediate self-disinfection, particularly in view of the Note on Prophylaxis against Venereal Disease by the chairman of the Inter-departmental Committee on Infectious Diseases in connexion with demobilisation, and asked the Ministry of Health what steps they were taking to instruct the public in the proper application of immediate self-disinfection at the time of exposure to infection; what steps they were taking to provide for delayed disinfection at early treatment centres; and moved for papers giving information as to the yearly incidence of venereal disease in the Portsmouth area as compared to the rest of England; and for Colonel Keble's reports and for the Hilsea Hospital records, giving information as to the relative frequency in hospital of men who had used immediate and delayed disinfection respectively.

The Present State of Affairs.

He said he made no excuse for calling attention again to this extremely important subject, which was one which vitally affected the health and life of the race. Sir William Osler said it stood third or fourth in the great killing diseases of the world, and had effects not only upon those who ran the risk of infection, but also upon the innocent and unborn. Venereal disease had increased and was increasing, and it ought to be diminished. He brought forward the motion in order that the general public might know the truth with regard to immediate self-disinfection at the time of exposure to venereal disease. It seemed to him that apart from the lectures given by the National Council for the Control of Venereal Diseases, which were admirable in their way as far as they went, no real progress had been made in trying to stamp out this disease. The whole trend of Lord Astor's report was dead against the policy which he recommended to their lordships that afternoon—namely, the idea of immediate disinfection, although rather curiously it admitted that drugs and medical preparations might be relied upon to remove or destroy the germs of venereal disease. That was a valuable admission, but in spite of this the report appeared so incomplete, and so unsatisfactory from the point of view of some of the most prominent and learned venerealogists in the United Kingdom, that they had formed themselves into a new body called the Society for the Prevention of Venereal Disease, with which he was connected. That society was charged with recommending nothing but what was called the issue of prophylactic packets at the expense of the user. Prevention was better than cure. It was quite true that since the discovery of salvarsan the cure of syphilis had become more absolute, but at the same time the cure of gonorrhœa, in the sense of the complete sterilisation of the patient and rendering him or her innocuous to others, still remained a desperate public problem.

Delayed and Immediate Disinfection.

Even the most sanguine advocate of universal marital continence must admit that continence of that kind was not yet, and that it would take a good many generations before it operated to eradicate venereal disease. Disinfection was the acknowledged practice with all contagious diseases, and venereal diseases were contagious. The disinfection of women, in the sense of using disinfectants, in the way they recommended that men should use them, was difficult because woman was not structurally suited to receive the disinfectant with the same ease as man. But, so far as they knew, the results of the disinfection of women had been efficacious. There were two known methods of disinfection. No. 1 was slow, or delay disinfection; No. 2 was quick or immediate disinfection. The National Council for Combating Venereal Disease had apparently accepted the principle of disinfection, and the Ministry of Health had gone so far on the road to disinfection, after a considerable amount of hesitation, that they were prepared to advise the construction of a number of what were called early treatment centres, which meant the provision of ablution rooms at the public expense, where those who had exposed themselves to risks might repair as soon after having connexion as possible in order that they might be scientifically treated by a skilled attendant. He should be very anxious to hear what progress was being made with the provision of these early treatment centres. The whole case against early treatment centres had been well put by the medical officer of health for Portsmouth. He (Lord Willoughby de Broke) was informed that the London County Council had stated its inability to provide these early treatment centres. But supposing the County Council did provide them, who was going to use them, and how was everybody to know where these places were? Would patients repair there quickly enough after having connexion to do any good? It was a proved scientific fact that the micro-organisms of the disease began to get a much greater hold upon the organs every minute after they were deposited, and any delay after one hour very often was prejudical to success. For the first time in the history of venereal disease there was a danger, if it had not already reached beyond the point of danger, when men coming back from the war would bring these diseases into rural districts, and it was quite impossible to have an early treatment centre in a village in the country. He could well imagine that in urban districts people might easily be subject to espionage, and private detectives might be employed to watch people who were going to these centres, and it might very easily open the door to an elaborate system of blackmail. This question of early treatment centres required a great deal of careful examination before it was adopted. Time was the essence of the matter with regard to disinfection.

The Place of Moral Considerations.

He would put two questions to the school of thought which perhaps the Archbishop of Canterbury represented. Did they admit that exposure to risks of catching venereal disease was likely before universal continence prevailed to control the sexual instinct in such a way that there was no promiscuous intercourse between the sexes, or that while all this was going on the consequences of venereal disease were still likely to proceed? The second was this—if they answered this question in the affirmative, were they prepared to let their fellow-countrymen share in the latest teachings of science so as to protect them and their innocent and unborn descendants from these results? He submitted to their lordships, with great respect, that true morality ought to be free from and independent of the fear of catching venereal disease. The society of which he was a member intended to publish the fullest and latest scientific information by every means in its power.

Degree of Success achieved by Self-disinfection.

Lord SYDENHAM said that post-risk disinfection might be of two kinds. It might be carried out by skilled attendants or under skilled supervision, or it might be left to the care of the individual. He believed that medical opinion was quite unanimous that disinfection skilfully and vigorously applied within one or two hours would in all probability remove the risk of the disease. Medical opinion was also agreed that such disinfection might be carried out successfully when applied by exceptional people in exceptional circumstances. But the question really was whether an ordinary individual in special circumstances would be likely or not to disinfect himself effectively. That was not a medical question, but one which any layman was competent to judge on the evidence available. The American military authorities tried self-disinfection on a large scale, and abandoned it entirely in favour of disinfection by skilled attendants. The Australian evidence on this point seemed to him even more destructive of the views of Lord Willoughby de Broke. Obviously they could not apply self-disinfection to the civil population under such favourable circumstances as it was applied to the American army by whom it had been abandoned. He alluded to the fall of the incidence of venereal disease in the British army when the Contagious Diseases Acts were suspended, but thought it was a great pity that the Joint Select Committee, presided over by Lord Muir Mackenzie, was stopped when the last Parliament ended. He hoped that the Government would consider whether that Committee might not be set up again.

The ARCHBISHOP of CANTERBURY said that quotations had been made as if the medical authorities were chiefly on one side, but they should remember that the society which argued against the personal disinfection process and against the issue of packets and in favour of the other process—he was speaking of the civil population and not of the technically military question which concerned him less than the general population—the medical men on that side included the President of the Royal College of Physicians of London and the President of the Royal College of Surgeons of England, and such leading medical men as Sir Thomas Barlow, Colonel L. W. Harrison, and Sir Alfred Pearce Gould. It was trifling to say, therefore, that medical opinion was on one side. He earnestly hoped that no countenance would be given by the House to the recommendations put forward by Lord Willoughby de Broke.

The Earl of CLANWILLIAM supported the motion.

Earl RUSSELL said he was entirely inclined to support the campaign of Lord Willoughby de Broke, but he thought it needed caution in its administration.

Lord MUIR MACKENZIE asked the Government to state whether all the labours of the Joint Committee of which he was chairman were to be thrown away, or whether the Ministry of Health proposed to take any action on the subject.

The Government's Reply.

Viscount SANDHURST said he would consult the Minister of Health on the point raised by Lord Muir Mackenzie and inform him privately of the result. Lord Astor's Committee, to which reference had been made, was composed as follows: Viscount Astor, Chairman; Major W. C. Smales, D.S.O., M.R.C.S. (War Office); Colonel L. W. Harrison, D.S.O., K.H.P., M.B. (War Office); Surgeon-Captain D. J. McNabb, C.B., R.N., M.R.C.S. (Admiralty); Lieutenant-Colonel H. F. Horne, R.A.F., M.D. (Air Force); Dr. G. S. Buchanan, C.B., M.D. (Ministry of Health); Dr. F. J. H. Coutts, M.D. (Ministry of Health); Colonel A. L. A. Webb, C.M.G., C.B., M.R.C.S. (Ministry of Pensions); Mr. J. Smith Whitaker, M.R.C.S. (Insurance); and Sir Leslie Mackenzie, M.D., LL.D. (Local Government Board for Scotland). As regarded the question of self-disinfection, careful investigation had conclusively shown that even where disciplinary arrangements could be resorted to, and instruction could be definitely given, there were found among soldiers in venereal disease hospitals substantial numbers who stated categorically that they had used permanganate of potassium within a few minutes after exposure. It was thus clear that even under specially favourable circumstances the risk of venereal disease was by no means certainly avoided by this method. How much more would this be the case in regard to the civil population? As to the Portsmouth question, the information as to the number of soldiers admitted to hospital for venereal disease per 1000 of the total military strength in the United Kingdom and in the Portsmouth military area respectively showed that the incidence of venereal disease amongst the military in the Portsmouth area from 1912 to 1914 was approximately one and a half times greater than that amongst the military throughout the United Kingdom. In the years from 1916 to 1918 the rates for the Portsmouth area were approximately twice those of the United Kingdom; and in the year 1919 the rate in the Portsmouth area had been two and a half times that of the United Kingdom. He believed that he was right in saying that the policy advocated by Sir Archdall Reid was at its height in that area in the years 1918 and 1919. It was admitted that skilled disinfection very shortly after intercourse would usually prevent venereal disease, but inquiries at military hospitals showed that this was by no means the case when the disinfectant was applied by the man himself. In the venereal hospitals where this matter had been carefully investigated 7·3 per cent. of the patients stated that they had swabbed themselves with permanganate of potassium within ten minutes after exposure. A further 36 per cent. had similarly used calomel ointment, and a further 1·5 per cent. had used both calomel and permanganate. Thus in these two hospitals there were 12·4 per cent. of venereal patients who stated that they had disinfected themselves. In another hospital 11·2 per cent. stated that they had used one or other of the drugs or both within five minutes of exposure. This showed that to be effective instruction as to use of disinfectants must be given much more clearly and insistently than had been the case in the army. Instruction in the degree of detail necessary was a practical impossibility among the civil population. The Minister of Health was not prepared in the present position of the evidence to authorise a recommendation of any drug for these purposes. He would, however, be prepared to sanction the issue of advice in some such form as the following: "Those who have exposed themselves to infection are hereby advised that they have incurred great risk of venereal disease. Persons who have incurred such risk of infection will certainly diminish that risk, to some extent at least, by effectively cleansing themselves immediately. They are further advised to watch carefully for several weeks for the first signs of disease, and to seek medical advice at a clinic or elsewhere immediately such signs appear." In conclusion, the noble lord expressed his willingness to give Lord Willoughby de Broke the papers and figures asked for except Colonel Keble's report, which the Government had not got.

Lord RANKSBOROUGH regretted that nothing had been said in the debate about notification. He was convinced that if they were going to tackle and destroy this scourge they could only do it by the daylight of notification.

Lord WILLOUGHBY DE BROKE said that while he thought it was unfortunate that they had not proceeded further in combating venereal disease than a promise from the Minister of Health of a certain amount of soap-and-water, he would not put their lordships to the trouble of a division. He dare say they would hear a great deal more of this matter.

The motion before the House was by leave withdrawn.

Nurses' Registration Bills.

Viscount SANDHURST, in moving the second reading of the Nurses' Registration (No. 2) Bill, said he was glad to say that he was able to present it as an agreed measure. Those who had followed this controversy as he had done for a generation would be as pleased as surprised, and as surprised as pleased, with the result. Nursing was a noble profession.

He considered it the gentlest and most humane profession that existed. If without detriment to the public and within the four corners of this Bill the advantages which had been so constantly claimed for nurses' registration proved to be to the advantage of the profession he should indeed be glad.

Lord **AMPTHILL** offered his sincere and respectful congratulations to the Government and to the Minister of Health for having contrived to bring about an agreement in regard to this Bill.

Viscount **KNUTSFORD** said that nothing that could help nurses would be opposed by him, but he did not want the House to go away with the idea that this Bill could be of the smallest use to them. Nurses who belonged to the good training school to-day, when they obtained this registration would find themselves herded together with a lot of nurses who had had a very inferior training and whose only excuse for being on the register was that they had been bona fide nursing the public. There was no instance known of voluntary registration being of the smallest use, and under this Bill registration was voluntary and not compulsory. They had a very good example in the dentists' profession. The register was voluntary, and as a result the whole country was flooded with people who were not registered dentists.

The Bill was read a second time.

On the motion for the second reading of the Nurses' Registration (Ireland) Bill,

Viscount **SANDHURST** explained that the measure was practically the same as the Bill which had just been before the House, with the exception that the council, instead of consisting of 16 members, was to consist of 10.

The Bill was read a second time.

On the motion for the second reading of the Nurses' Registration (Scotland) Bill,

Viscount **SANDHURST** stated that it was identical with the other two Bills, except that the phraseology was different in order to meet what was customary in Scotland.

The Earl of **KINTORE** said he fancied that there might be some objection taken in Scotland to the provision that one of the examiners should be a registered female medical practitioner. However much they might wish that women should have an equal opportunity in the professions, he did not think that at the present moment women medical practitioners had any experience in teaching, lecturing, or examining.

Viscount **SANDHURST** said that that was a matter which might be gone into in Committee.

The Bill was read a second time.

HOUSE OF COMMONS

TUESDAY, DEC. 9TH.

Medical Boards Criticised.

The House went into Committee of Supply on a supplementary vote not exceeding £32,044,000 for the salaries and expenses of the Ministry of Pensions, &c., Mr. Whitley in the chair.

Mr. **HOGGE**, referring to the transference to the Ministry of Pensions of the National Service Medical Boards, said he remembered these boards more in sorrow than in anger. As a matter of fact, they provided the Minister of Pensions with more pension cases than he probably cared to think of. He was sure that the right honourable gentleman agreed with him that these boards sent into the army men who were unfit to serve, and who therefore became eligible for pensions much sooner than if the boards had done their duty to the country. Personally he felt that these boards were in most cases a gross scandal, and it was true to say that the National Service Department had contributed more to the necessity for this vast sum of money which they were voting than any other single organisation in the country. He thought it would have been better for the Minister of Pensions to have pensioned these boards. If their abilities to assess a man who was disabled were about as good as their abilities to consider a man's fitness to go into the army, then he had nothing more or less than the highest contempt for their particular rôle.

Major **MOLSON** endorsed what had been said about medical boards. He was personally acquainted with the work of the boards as he was a medical officer during the war and was on a medical board. He strongly urged on the Minister of Pensions that a great deal more attention should be paid to the staffs appointed to medical boards, and more especially to the presidents. He knew personally of very bad cases of men sent into the army who ought not to have been sent at all. Only recently he had had cases brought to his notice in which medical boards overlooked serious trouble. If a board had very much work to do it passed over the cases rather quickly and simply took a man's statement.

Sir L. **WORTHINGTON-EVANS**, the Minister of Pensions, said he could not assent to Mr. Hogge's criticism of the National Service Medical Boards during war time. He could not agree with him in calling them a scandal. Mr. Hogge forgot that at that time it was necessary to get every man into the army who could be of service to it. The army was not confined to A I men and it was not just because men who were not A 1 men went into the army to blame the boards. It was not their fault; it was a question of policy, which had been debated in the House over and over again and he did not propose further to refer to it. The Pension Medical Boards were not permanent. With regard to the remarks of Major Molson, now that the Pensions Ministry had at their command the services of so many medical men who had been overseas they were taking full advantage of them throughout the medical service both on the boards and as medical referees. Preference was being given to the medical men who served overseas, and subject to that, a preference was given to those who served in hospitals at home. In that way they were getting medical officers who were experienced in the actual work with the men in the fighting zone. He believed they were getting a sympathetic board competent to do the work entrusted to it.

The vote was agreed to.

WEDNESDAY, DEC. 10TH.

New Medical Benefit Regulations.

Lieutenant-Colonel **CLAUDE LOWTHER** asked the Ministe of Health in what way the Medical Benefit Regulations fo 1920 were intended to give an efficient medical service t the insured population; and whether his Department had considered the effect of restricting the freedom of the pane practitioner upon the production of a more efficien service.—Dr. **ADDISON** replied: The limits of an answer t a question do not permit of the various ways being se forth in which it is confidently believed that the new Regulations will fulfil the object with which they were framed o improving the efficiency of the insurance medical service In answer to the second paragraph of the question, I woul say that the general approval of the Regulations recentl expressed by the conference of panel committees in a resolution, to which there were only three dissentients out o 147 representatives present, affords evidence that thi result has been attained without undue restriction on th freedom of the insurance practitioner.

Colonial Officers and Venereal Disease.

Mr. **HOGGE** asked the Secretary for War whether colonial serving as officers in the Royal Air Force who were sufferin from venereal disease must, under a recent Air Force order at the expiration of three months be discharged from hospital, cured or uncured, or forfeit repatriation and pay.—**CAPTAIN GUEST** (Joint Patronage Secretary to the Treasury replied: The rule is that such officers are not discharge from hospital until fit for discharge, nor do they forfei repatriation, but their pay ceases if they continue incapac tated for duty for three months.

THURSDAY, DEC. 11TH.

Measles Notification.

Dr. **M'DONALD** asked the Minister of Health if he woul reconsider his decision to abolish compulsory notification o measles in consideration of the fact that the nation had no yet fully recognised the grave complications resulting from this malady.—Dr. **ADDISON** replied: The effect of the recen Circular and Order of the Ministry to which the questio refers is not quite that which is stated in the question. An local authority which thinks it expedient and makes effective provision to meet the circumstances can continue o adopt the notification referred to; but experience has show that a universally enforced arrangement does not hav any sufficiently beneficial results in the absence o such provision to justify the great expense entailed The change was adopted after full consideration and consultation with persons of wide experience of the problem and I am satisfied that the steps indicated in the circula will be more effective for the purpose which the honourab Member, like the Ministry, has in view than the alternativ which he suggests.

The State and the Public Hospitals.

Brigadier-General **COLVIN** asked the Minister of Healt whether His Majesty's Government intended to take ove the maintenance and administration of public hospitals and whether, in the event of their doing so, cottag hospitals would be excluded.—Dr. **ADDISON** replied: Th answer to both parts of the question is in the negative.

National League of the Blind.

Lieutenant-Colonel **ARTHUR MURRAY** asked the Ministe of Health whether his attention had been drawn to th recent activities of the National League of the Blind, an the dissatisfaction existing with regard to the present gran in aid of the blind; whether he had received resolution requesting early legislation on behalf of the blind; an what the proposals of His Majesty's Government were i the matter.—Dr. **ADDISON** replied: I am aware of th activities of the National League of the Blind referred to, and have received numerous resolutions as stated. As previously indicated to the House, the Goverment intend at an early date to introduce legislation, which will, amongst other things, include provisions for the amelioration of the condition of the blind; and I am in consultation with the Advisory Committee on the Welfare of the Blind, on which are representatives of the National League of the Blind, with regard to such provisions.

Lieutenant-Colonel MURRAY: Can the right honourable gentleman say that this legislation will be introduced at an early date next session?—Dr. ADDISON: I hope so.

Prudential Benefit Claims.

Brigadier-General CROFT asked the Minister of Health whether complaints were being received regarding approved societies worked by the Prudential Insurance Company; whether undue delay involving weeks, or even months, took place in settling claims for maternity and sickness benefit; and what machinery existed to prevent such delay in settlement of claims.—Dr. ADDISON replied: I have no reason to think that there is any unreasonable delay on the part of these societies in the settlement of claims for benefit, though from time to time cases occur in which some delay is inevitable owing to special difficulties in establishing the particular member's title to benefit. If the honourable and gallant Member can furnish me with particulars of any cases in which there appears to have been undue delay I will have them investigated.

MONDAY, DEC. 15TH.

Health Orders in Council.

Sir JOHN HARMOOD-BANNER asked the Minister of Health if he would state the date and short effect of all Orders in Council made under Section 11 of the Ministry of Health Act, 1919, appointing the days for the provisions of the Act to come into operation and of all the Orders in Council made under Section 3 of the Act transferring functions to or from the Minister.—Dr. ADDISON replied: Three Orders have been made under Section 11 dated June 25th, Sept. 22nd, and Nov. 25th. The effect of these Orders is that the whole of the Act has now been brought into operation except proviso (1) to Subsection (1) of Section 3 dealing with medical research; the date on which it is proposed to bring this into operation is not yet decided. No Orders have been made under Section 3. Three draft Orders have been laid before the House, but they cannot now be actually made till next session.

Remuneration of Medical Officers in V.A.D. Hospitals.

On a vote of £5,000,000 for Army Services,

Mr. WATERSON raised the question of the remuneration of medical officers in Voluntary Aid Hospitals, and protested against the latter part of the confidential circular which was issued stating that "it is not intended that payment should be made unless it is asked for, and hospitals should not be informed of this authority." That, he said, was not a nice circular for the War Office to issue. They thought it right and honourable that these gentlemen should be paid, but the men concerned must not be acquainted with that fact, as the circular was to be treated as confidential. In some cases men had lost a very great deal, and made application under this circular without effect. Was the Secretary for War prepared to honour such applications now? Some applications had been honoured and in a certain area more than £1000 had been distributed amongst the medical profession. Other districts had been ignored.

Sir D. MACLEAN said he trusted that the case that the honourable gentleman had just put forward was not typical of what was being done in respect of the medical profession. He was sure the appeal which the honourable member made would receive sympathetic consideration from the Secretary for War.

Mr. CHURCHILL, in reply, said he would suggest that Mr. Waterson should allow him to put him into contact with the responsible officials dealing with this matter and then let him have a report as to what were the outstanding points of difference.

The vote was agreed to.

TUESDAY, DEC. 16TH.

Release of Medical Officers in Egypt.

Major MOLSON asked the Secretary for War if he would state what were the numbers of Territorial Force and temporary commissioned medical officers with over three years' war service compulsorily retained in the Egyptian Expeditionary Force; and whether he could give any hope of early demobilisation to these medical officers, as they were suffering serious hardship by being away from their practices and families.—Mr. CHURCHILL replied: I regret that the information asked for in the first part of the question is not available. It could not be obtained without much labour and research involving reference to Egypt, and, if obtained, it would not be reliable, as the numbers are changing from day to day. With regard to the last part of the question, I can only say that every regular officer of the Royal Army Medical Corps who can be spared has already been sent out in relief of the Special Reserve. Territorial Force and temporary officers who wish to be released and further officers of these categories are being sent home as establishments are reduced.

Medical Service in the Air Force.

On a vote of £1,020,000 for stores, animal transport, &c., connected with the Air Ministry,

Mr. CHURCHILL said that the apparatus for testing air pilots was being made as perfect as the medical experts could make it. The medical services of the Royal Air Force, even if they should not be a completely separate service from the general medical service of the army, must be a highly specialised branch of that service, because the conditions under which airmen were tested and the temperamental effects produced on both officers and men in the Air Force, especially in time of war, were such as to make it necessary that medical officers should undertake extremely refined and specialised study in regard to those conditions. Therefore he fully recognised that it should be a separate branch of the medical service.

The vote was agreed to.

Communications, Letters, &c., to the Editor have been received from—

A.—Dr. G. A. Auden, Birmingham; Assurance Medical Society, Lond.

.—Dr. H. P. Bayon, Shenley; Mr. H. H. Bywater, Liverpool; Sir R. Bruce-Porter, K.B.E., C.M.G., Lond.; Dr. J. Blomfield, O.B.E., Lond.; Dr. A. E. Boycott, Radlett; Dr. J. P. Brennan, Dublin; Mr. E. S. Brentnall, Manchester; Dr. J. D. Benjafield, Lond.; Dr. E. C. Bond, Bournemouth; Dr. N. Bardswell, Lond.; Dr. G. Blacker, Lond.; Mr. H. W. Bayly, Lond.

C.—Dr. E. L. Collis, Cardiff; Mr. J. F. Colyer, Lond.; Dr. C. Coombs, Bristol.

D.—Dr. L. S. Dudgeon, C.M.G., Lond.; Messrs. Davis and Soper, Lond.; Dr. G. Dinolt, Vienna; Lieut.-Col. A. M. Davies, R.A.M.C.; Mr. J. D. Driberg, O.B.E., Lond.

F.—Dr. J. G. Forbes, Redhill; Mr. H. Frankling, Harrogate; Dr. A. S. Fullarton, Glasgow; Faculty of Insurance, Lond., Sec. of; Messrs. H. Frowde and Hodder and Stoughton, Lond.; Messrs. F. H. Faulding and Co., Lond.; Factories, Lond., Chief Inspector of; Rev. W. J. Ferrar, Lond.

G.—German Society for Education to State Citizenship, Berlin; Gaumont Co., Lond.; General Medical Council, Lond., Registrar of.

H.—Mrs. C. F. Hall, Lond.; Dr. Hondart, Bel-Air (Côtes-du-Nord); Mrs. E. Hallock, Lond.; Prof. R. T. Hewlett, Lond.; Mr. F. M. Hughes, Deal; Dr. C. W. Hutt, Dudley; Dr. J. M. Hamill, Lond.; Hoffman-La Roche Chemical Works, Lond.; Dr. C. T. W. Hirsch, Lond.

I.—Insurance Committee for the County of Ayr, Kilmarnock; Institute of Hygiene, Lond., Sec. of.

K.—King Edward's Hospital Fund for London, Hon. Secs. of.

L.—Dr. H. M. Leete, Edinburgh; Labour Co-Partnership Association, Lond.; League of Red Cross Societies, Geneva; Mr. N. C. Lake, Lond.; Mr. R. Lake, Lond.; London Hospital Medical College, Sec. of; Capt. T. S. Law, R.A.M.C.; Dr. C. E. Lakin, Lond.

M.—Dr. R. O. Moon, Lond.; Dr. R. J. Mills, Norwich; Metropolitan Hospital Sunday Fund, Lond., Sec. of; Dr. R. Morton, Lond.; Mr. F. Milton, Coonoor; Dr. A. B. MacLean, Glasgow; Dr. P. Manson-Bahr, D.S.O., Lond.

N.—Mr. H. C. Nanee, Wheathampstead; Mr. R. Nairn, Hastings, N.Z.; National Safety Council, Chicago.

P.—Pitman-Moore Co., Zionsville, Indiana; Dr. R. H. Paramore, Rugby.

R.—Dr. R. G. Rows, Lond.; Royal College of Physicians, Edinburgh; Mr. J. E. H. Roberts, O.B.E., Lond.; Royal Medical Benevolent Fund, Lond., Sec. of; Dr. R. R. Rentoul, Liverpool; Dr. J. S. Ross, Edinburgh; Sister M. Randell, Lond.; Dr. R. J. Rowlette, Dublin; Royal Institution of Great Britain, Lond.; Royal Statistical Society, Lond.; Royal Society, Lond.

S.—Col. R. P. Strong, M.C., U.S.A., Geneva; Dr. W. D. D. Small, Edinburgh; Dr. C. Singer, Oxford; Messrs. Straker and Crane, Lond.; Mr. R. M. Spittle, Colombo; Dr. C. W. Saleeby, Lond.; Mr. R. S. Sinclair, Glasgow; Dr. W. B. Sansom, Lond.

T.—Mr. E. T. Thompson, Lond.; Mr. R. Tennent, Glasgow; Dr. L. Thatcher, Edinburgh.

V.—Mr. R. M. Vick, Lond.

W.—World Trade Club, San Francisco, President of; Mr. C. M. Wenyon, Lond.; Dr. A. R. Waddell, Cambridge; Mr. H. Williams, Hastings; Dr. F. J. Waldo, Lond.; West London Medico-Chirurgical Society, Hon. Sec. of; Messrs. Watson and Sons, Lond.

Y.—Dr. M. Young, Chester; Mr. M. Yearsley, Lond.

Communications relating to editorial business should be addressed exclusively to the Editor of THE LANCET, 423, Strand, W.C. 2.

THE LANCET: SUBSCRIPTION RATES.

INLAND	One Year	£1 16 0
	Six Months	0 18 0
	Three Months	0 9 0
ABROAD	One Year	£2 0 0
	Six Months	1 0 0
	Three Months	0 10 0

Subscriptions may commence at any time, and are payable in advance. Cheques and P.O.'s (crossed "London County Westminster and Parr's Bank, Covent Garden Branch") should be made payable to Mr. CHARLES GOOD, THE LANCET Offices, 423, Strand, London, W.C. 2

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to The Lancet *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

Barrow, M., has been appointed Medical Officer for the Broadhembury and Plymtree District by the Honiton (Devon) Board of Guardians.

Herbert, A., L.M.S.S.A. Lond., Medical Officer for the Nether Stowey District.

Lock, Norman F., M.A., M.B., B.Ch., F.R.C.S., Assistant Surgeon to the Royal Devon and Exeter Hospital.

Lowe, A. L., C.B.E., and Wallace, Alice L., to be members of the Advisory Committee on the Welfare of the Blind.

Truman, C. A. B., L.R.C.S. Irel., L.R.C.P. Edin., Mental Specialist to the Devon Educational Committee.

Bristol Eye Hospital: Stack, E. H. E., M.B., B.C., F.R.C.S., Honorary Surgeon; Iles, A. E., M.B., B.S., F.R.C.S., Honorary Assistant Surgeon.

King's College Hospital and Medical School: Wiltshire, H. W., M.D., F.R.C.P., Physician in Charge of the Cardiological Department, Lecturer on Cardiology, and Vice-Dean of the Medical School; Tunnicliffe, F. W., M.D., M.R.C.P., Physician in Charge of the Therapeutics and Applied Pharmacology Department and Lecturer on Therapeutics and Applied Pharmacology; Firth, A. C. D., M.D., M.R.C.P., Junior Physician and Demonstrator of Clinical Medicine; Steen, R. H., M.D., M.R.C.P., Out-patient Physician for Psychological Medicine; Wilson, S. A. K., M.D., F.R.C.P., Junior Neurologist and Lecturer on Neurology; Walker, J. W. T., M.B., C.M., F.R.C.S., Senior Urologist and Lecturer on Urology; Fairbank, H. A. T., M.S., F.R.C.S., Senior Orthopædist and Lecturer on Orthopædics; Everidge, J., F.R.C.S., Junior Urologist and Junior Surgeon and Lecturer on Surgical Applied Anatomy; Marshall, C. J., M.D., M.S., F.R.C.S., Junior Orthopædist and Junior Surgeon and Lecturer on Surgical Applied Anatomy; Simpson, W. J. R., C.M.G., M.D., F.R.C.P., D.P.H., Lecturer on Tropical Medicine; Emery, W. d'Este, M.D., B.Sc., M.R.C.P., Pathologist, Director of Pathological Department, and Lecturer on General Pathology; Clayton, E. B., M.B., B.C., M.R.C.S., Physico-therapist and Director of the Physico-therapeutic Department; Moody, L. M., M.D., B.S., M.R.C.P., Bacteriologist and Lecturer on Bacteriology; Harrison, G. A., M.R.C.S., Biochemist and Lecturer on Medical Chemistry; Ingleby, H., M.B., B.S., M.R.C.P., Pathological Registrar and Lecturer on Morbid Anatomy; Burridge, H. A., M.B., M.R.C.S., Lecturer on Forensic Medicine and Toxicology; Sheldon, J. H., M.B., B.S., M.R.C.S., Sambrooke Medical Registrar and Medical Tutor; Wakeley, C. P. G., M.R.C.S., Sambrooke Surgical Registrar and Surgical Tutor; McAllister, A. C., M.B., B.S., M.R.C.S., Obstetric Registrar and Obstetric Tutor.

Certifying Surgeons under the Factory and Workshop Acts: O'Sullivan, D., F.R.C.S. Irel. (Kinsale); Thomas, G. M. A., L.R.C.P. & S. Edin., L.F.P.S. Glasg. (Porthcawl).

Vacancies.

For further information refer to the advertisement columns.

Aberdeen Royal Infirmary.—Asst. P.

Beckenham Education Committee.—Sch. Dent. £450.

Bethlem Hospital, New Bridge-street, E.C.—Res. H.P. £25 per qr.

Birmingham and Midland Free Hospital for Sick Children.—Radiographer. £40.

Birmingham City Education Committee.—Asst. Sch. M.O.'s £450.

Blackburn County Borough.—M.O.H.

Bradford City Education Committee.—Two Asst. School Dentists. £500.

Bradford City Infant Clinic.—Female Asst. M.O. £400.

Bristol General Hospital.—Cas. H.S. £175.

Bristol Royal Infirmary.—Hon. Skiagraphist.

British Honduras.—Asst. M.O. $1900.

Burnley County Borough.—Tuber. O. and Director of Municipal Laboratory. £600. Asst. Sch. M.O. £500.

Burton-on-Trent Infirmary.—Res. H.S. £200.

Buxton, Derbyshire, Devonshire Hospital.—Asst. H.P. £120.

Cambridge, Addenbrooke's Hospital.—Hon. Asst. S.

Cardiff, King Edward VII. Welsh National Memorial Association.—Asst. Res. M.O. for South Wales Sanatorium and Asst. Res. M.O. for North Wales Sanatorium. £300.

Chelmsford, Essex Education Committee.—Sch. Med. Inspec. £400.

Cheshire County Asylum, Parkside, Macclesfield.—Jun. Asst. M.O. £350.

Cheshire County Council.—District Tuberculosis Officer. £450.

Colindale Hospital, Hendon, N.W.—Med. Supt. £600.

Darlington General Hospital.—H.S. £250.

Derby, Derbyshire Royal Infirmary.—H.S. £200.

Dorchester, Dorset County Council Education Committee.—School Dentists. £400.

Dudley County Borough Education Committee.—Asst. to Sch. M.O. and M.O.H. £500.

Durham County and Sunderland Eye Infirmary.—H.S. £450.

East African Protectorates.—M.O.'s. £400–£20–£500.

Edinburgh Corporation.—Asst. Clin. M.O. £500.

Gloucestershire Royal Infirmary and Eye Institution.—Ophthal. S.

Grosvenor Hospital, Vincent-square, S.W.—Registrar.

Hospital for Women, Soho-square, W.—Registrar. £31 10s.

Hyde Borough.—Female Asst. M.O. £400.

Italian Hospital.—H.S. £150.

Leasowe, Cheshire, Hospital for Children.—Jun. Res. M.O. £150.

London Jewish Hospital, Stepney Green, E.—Sec. Cas. Officer. £50.

London Temperance Hospital, Hampstead-road, N.W.—Hon. Dent.

Manchester Children's Hospital, Gartside-street, Manchester.—Asst. M.O. £200.

Manchester Hospital for Consumption and Diseases of the Throat and Chest, Bowdon, Cheshire.—Res. M.O. £250.

Manchester Hospital for Consumption and Diseases of the Throat and Chest.—Asst. M.O. for Crossley Sanatorium. £250.

Manchester Royal Infirmary.—H.S. to Aural, Gynæc., and Ophth. Depts. £100.

Middlesbrough Education Committee.—Sch. Dent. £400.

National Hospital for the Paralysed and Epileptic, Queen-square, W.C.—H.P. £150.

Newcastle-upon-Tyne, Hospital for Sick Children.—Junior Res. M.O. £200.

Nottingham City Asylum.—Second Asst. M.O. £300.

Nottingham, Coppice Mental Hospital.—Asst. M.O. £300.

Peterborough Infirmary.—H.S. £150.

Plymouth Education Authority.—Asst. Sch. M.O. £400.

Plymouth, Udal Torre Sanatorium, Yelverton.—M.O. £350.

Portsmouth Borough.—Asst. M.O.H. and Chief Tuberc. O. £600.

Queen's Hospital for Children, Hackney-road, Bethnal Green, E.—Dent. Surg. £250. Also H.P. and Cas. H.S. £100.

Royal Free Hospital, Gray's Inn-road, W.C.—Res. Obstet. Officer.

Salford Royal Hospital.—Cas. H.S. £150.

Salop County Council, Medical Inspection of School Children, Maternity and Child Welfare.—Three appointments. £450.

Seamen's Hospital Society, Dreadnought Hospital, Greenwich.—S.

Sheffield Royal Hospital.—Ophth. H.S. £135.

Shoreditch Infirmary, Hoxton-street, N.—M.O. £600.

Singapore, Straits Settlements.—Med. Supt. Infectious Diseases Hospital. $7200 (£840).

South London Hospital for Women, South Side, Clapham Common, S.W.—Female Asst. Path.

Stockport Education Committee.—Dentist.

Straits Settlements.—Professor of Anatomy for Medical Department. $600 a month.

Sunderland Royal Infirmary.—Sen. H.S. £250. Also H.P. £200.

Surrey, Virginia Water, Holloway Sanatorium (Hospital for the Insane).—Female Jun. Asst. M.O. £300.

University of Birmingham, Faculty of Medicine.—Lecturer in Bacteriology. £450.

University of Liverpool.—Lecturer in Pharmacology. £500.

Ventnor, Isle of Wight, Royal National Hospital for Consumption and Diseases of the Chest.—Asst. Res. M.O. £250.

Wakefield, West Riding County Council.—School Oculist. £550.

West-End Hospital for Nervous Diseases, 73, Welbeck-street, W.—P.

West Ham Union Infirmary, Whipps Cross-road, Leytonstone, E.—Res. Asst. M.O. £300.

Worcestershire County Council.—Asst. County M.O. £450.

The Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Catrine, Ketton, Market Harborough, Shardlow, and Totnes.

Births, Marriages, and Deaths.

BIRTHS.

Boys.—On Dec. 13th, at The White House, St. Albans, the wife of Leonard Boys, M.B., B.S., Captain, R.A.M.C. (T.F.), of Woodhall Spa, Lincolnshire, of a son.

Egan.—On Dec. 5th, at Upper Fitzwilliam-street, Dublin, the wife of Major W. Egan, D.S.O., R.A.M.C., of a daughter.

Gabb.—On Dec. 11th, the wife of Harry Gabb, B.A., M.B., B.C. of a son.

Holmes.—On Dec. 10th, at "Snaresbrook," Mottingham, Eltham, S.E., the wife of R. A. Holmes, M.R.C.S., L.R.C.P., of a daughter.

Hurter.—On Dec. 9th, at Grassendale, Liverpool, the wife of Herbert R. Hurter, M.D., of a daughter.

Keir.—On Dec. 4th, at Beauacre, Melksham, Wilts, the wife of Ivan C. Keir, M.D., of a son.

Kennedy.—On Dec. 12th, at Crescent Villas, Plymouth, the wife of C. M. Kennedy, F.R.C.S., of a son.

Phillips.—On Dec. 13th, at Bloomfield, Caterham Valley, the wife of P. G. Phillips, L.R.C.S., L.R.C.P., of a daughter.

MARRIAGES.

Braimbridge—Southwell.—On Dec. 2nd, at Baxter Church, Kidderminster, by the father of the bridegroom, Captain C. V. Braimbridge, R.A.M.C., to Jane Murray, daughter of Mr. and Mrs. E. Southwell, of Mazoe, Southern Rhodesia.

Feiling—Hawkins.—On Dec. 10th, at Holy Trinity Church, Brompton-road, Anthony Feiling, M.D., M.R.C.P., to Helga Hope, only daughter of Geoffrey Grahame and Inga Hawkins.

Isaac—Williams.—On Nov. 26th, at All Souls' Church, Langham-place, London, W., by the Rev. Prebendary Webster, M.A., Major C. Leonard Isaac, B.A., M.B. Cantab., F.R.C.S.E., to Dorothy Margaret, elder daughter of Mr. and Mrs. Fred. Williams, Sunnyside, Gnoll Park-road, Neath.

Sear—Voss.—On Sept. 3rd, at St. Paul's Cathedral, Rockhampton, Herbert Roy Sear, M.B., Ch.M., to Dorothy Muriel Voss, M.B., Ch.M., eldest daughter of Dr. F. H. V. Voss and Mrs. Voss, of Rockhampton, Queensland.

Thomson—Batson.—On Dec. 11th, at Christ Church, Mayfair, Wm. Brown Thomson, M.D., to Ethel Amelia Batson, youngest daughter of the late Cornelius Batson, Sherborne, Dorset.

Willmore—Skinner.—On Dec. 9th, at Egdean Parish Church, James Graham Willmore, M.R.C.S. Eng., L.R.C.P. Lond., to Mary Dorothy Dury Skinner, daughter of the late Colonel T. H. Skinner, King's Liverpool Regiment, and of Mrs. E. C. Deering of Gorehill, Petworth.

DEATHS.

Grose.—On Dec. 12th, at Teign View, Bishop's Teignton, Samuel Grose, M.D., F.R.C.S., Staff-Surgeon, R.N., retired.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

SYNTHETIC DRUGS.

Abstracts of Second and Third Cantor Lectures, delivered at the Royal Society of Arts.

BY Professor J. T. HEWITT, F.R.S.

II.

The Aromatic Series.

IN his second lecture Professor Hewitt commenced with a detailed account of the members of that great family of synthetic drugs belonging to the aromatic series. Phenol and its derivatives were first considered, the lecturer remarking that these are largely used as antiseptics and disinfectants, whilst salicylic acid and its compounds are used extensively in the treatment of rheumatic affections. Phenol, as is well known, is a constituent of coal tar, but it is interesting to learn that during the last few years it has been synthetically prepared, on an important scale, from benzene for the production of picric acid explosives. This achievement is of importance considering the number of synthetic drugs of which benzene and phenol are the parents. The chief derivatives (esters and halogen compounds) were then mentioned, including, amongst others, guaiacol, resorcin, pyrogallol, and phenolphthalein (purgen). Next was described, as the most important of the group of phenol-carbocylic acids, salicylic acid, and the methods of production were given. Aspirin (aceto-salicylic acid) falls into this category, and salicylic compounds used externally, such as mesotan. The aromatic amines and their derivatives include phenacetin, antifebrin, and other related compounds. The lecturer referred to the distinct effect in lowering the temperature of the body shown by aniline and homologous amines, but unless their composition is modified they prove toxic. The motor centres of the mid-brain are paralysed and vertigo results, and in addition the hæmoglobin is attacked. By acetylating the aromatic amines, substances are obtained which are more resistant in the circulation, but which still possess antipyretic properties. The observation that acetanilide is oxidised in the body and hydroxyl introduced in the para-position, and that para-aminophenol, whilst a strong antipyretic, is much less toxic than aniline, points to the use of this substance protected in such a way as not to attack the red blood corpuscles. Acetylation effects this protection, but even better results are obtained if the hydroxyl group is ethylated. Phenacetin is the result. Coming to the aromatic acids, it was pointed out that many derivatives of benzoic acid and amino-alcohols have been introduced as local anæsthetics. We may, in a sense, the lecturer continued, include cocaine as a synthetic drug; ecgonine can be produced which, when methylated and benzoylated, yields cocaine. It is desirable, however, that a local antiseptic should stand boiling in solution, under which condition cocaine is apt to hydrolyse and its toxicity and irritant action are also against it. Some of the synthetic drugs, with constitutions resembling that of cocaine, are more reliable in these respects—alpha- and beta-eucaine form examples. The benzoylating of open chain amino-alcohols, again, produced stovaine and novocaine.

The Quinoline and Acridine Series.

Passing over the quinoline group—a nucleus of quinine itself—the members of which have little medical interest except, perhaps, atophan, which is said to promote the secretion of uric acid, Professor Hewitt next referred to the acridine derivatives, which include the trypanocides, trypaflavine, flavine, acriflavine, and proflavine. The steps in the preparation were illustrated in the closed-chain diagrams. Most antiseptics, it was pointed out, act more powerfully in water than in blood, but the reverse holds for flavine, *Staphylococcus aureus* being killed at a dilution of 1 in 20,000 of water containing 0·7 per cent. of peptone, but at 1 in 200,000 in blood serum. For *Bacillus coli* the respective figures are 1 : 1300 and 1 : 100,000. Flavine has, moreover, a low toxicity. The lecture concluded with a description of the pyrazolone derivatives, of which the most important is phenazone or antipyrin, the synthetic formation of which was illustrated. The group includes pyramidone, the physiological action of which resembles that of antipyrine, but it is three times as powerful, while its action develops more slowly and lasts longer.

III.

Alkaloids.

The constitution of the alkaloids formed the opening subject of the third and final lecture. The valuable therapeutic properties, Professor Hewitt remarked, of many alkaloids rendered them indispensable, since in many cases no suitable synthetic substitutes have been prepared. Thus the desirable properties of quinine and morphine are not found fully associated with any artificial drug. Such natural compounds remain essential, though they may have drawbacks as well as advantages. And it is a matter for the chemist, the lecturer said, to make derivatives eliminating the disadvantages whilst preserving the valuable properties. A few examples were then given of modified alkaloids in regard to the methods adopted in making constitutional variations. Tasteless quinine compounds were cited, and more particularly that known as euquinine (quinine-ethyl-carbonate) and hydroquinine, a reduction compound with a trypanocidal action said to be superior to quinine itself. The modifications of morphine were next referred to—for example, dionine, peronine, diamorphine (heroin), and apomorphine. Before leaving alkaloidal substances mention was made of adrenalin, the basic substance which is the active principle of the suprarenal gland. Compounds allied to it have been synthesised, having much the same action as adrenalin.

Organo-metallic Compounds.

Metallic salts of organic acids, said Professor Hewitt, are largely employed in medicine, frequently with the object of combining the specific actions of the base and acid. But there is, he added, a further class of compounds in which metal is directly combined with carbon, and these compounds are frequently of very considerable use. The organo-metallic derivatives were then described, including the colloidal preparations and their proprietary names were given. It was shown how the metals could be made to enter into organic combination, the best examples of which, from a medical point of view, are probably silver, mercury, bismuth, and arsenic. The group discussed naturally included the salvarsans, and their constitution and formation were outlined.

Professor Hewitt in these lectures gave the most complete survey of synthetic drugs which we know of, and much time and labour must have been spent in the exact and copious references to the literature of the many substances described.

PUBLIC HEALTH IN NEW SOUTH WALES.

THE report of the Director-General of Public Health, Dr. Robert T. Paton, for 1917 (Sydney: W. A. Gullick, Government Printer, 1919) is divided into five parts, dealing with (1) general matters of administration throughout the State; (2) special reports on the Metropolitan and adjacent sanitary districts; (3) an account of an outbreak of mild small-pox; (4) hospital reports; and (5) laboratory reports. In an introductory letter to the Minister of Public Health, Dr. Paton draws attention to the need for legislation to give the Board of Health increased powers and greater elasticity of administration. This body should have power to advise the proclamation of any illness as a "dangerous, infectious, or contagious disease," with consequent authority for compulsory removal to and detention in hospital of such cases; the examination and control of carriers; powers for the destruction of disease-carrying animals—e.g., the snail in bilharziosis, hookworm disease, &c. With regard to venereal affections, a considerable advance was made at the Sydney Hospital by the opening of a night clinic in April to relieve pressure at the Royal Prince Alfred Hospital, where a similar mode of treatment had proved to be of very great service, nearly 800 male patients having been treated there in 1916. During 1917 there were 1413 cases treated (outdoor) at the night clinics, the total number of attendances being 16,777. There was less prevalence of notifiable infectious disease generally in 1917 than in recent years. This applies especially to typhoid and scarlet fevers, from which the deaths were only 103 and 27 respectively for the whole State. Diphtheria was still prevalent. There were more notifications of this one disease than of all the other infectious or contagious diseases reported on, taken together. The diphtheria cases numbered 5805, with 247 deaths. It has been prevalent since 1903, and since 1910 has been much the most prevalent of the zymotic group; also, with the exception of tuberculosis in the last two years, much the most fatal. Of typhoid and scarlet fevers, infantile paralysis, malaria, cerebro-spinal meningitis and tuberculosis, there were in all 4695 cases and 829 deaths, 584 of these being from tuberculosis and 103 from typhoid.

Appended to the Director-General's report is the Eighth Report of the Government Bureau of Microbiology for 1917. The greater part of this is concerned with the outbreaks of acute polio-encephalo myelitis, or "X disease," that have occurred in New South Wales (also in Victoria, Brisbane, and Western Queensland) in 1917 and 1918. In the former year the cases mostly occurred in March and April, disappearing during May. Cases again occurred from January to April, 1918, being most numerous in February and March. Convulsions, rigidity, coma, and fever were the chief symptoms; the characteristic pathological condition was the presence of "cellular sheaths, often marked, round the veins in various parts of the central nervous system. These occur not only in the grey matter, but also to a less extent in the white matter, and in the pia mater." There was no prevalence of ordinary acute poliomyelitis (infantile paralysis) in New South Wales generally, nor in the districts affected. "The disease is a distinct entity. The virus responsible for it is evidently closely related to that causing ordinary acute poliomyelitis, but is either specifically distinct or a more recent irritant breeding true." Full details of the clinical and pathological conditions are given, with some very finely reproduced coloured illustrations, the whole report being an important original research in pathology and preventive medicine. It is the work of Dr. J. Burton Cleland, principal microbiologist, assisted by Dr. Alfred W. Campbell and Dr. Burton Bradley.

PUBLIC HEALTH IN SOMALILAND.

No reliable information is available as to the Somali population, but 300,000 is generally quoted as an approximate figure. It is estimated that the Berbera population varies from 10,000 in the hot weather (May to September) to 25,000 or 30,000 in the trading season. Bulhar has a somewhat smaller floating population, while Zeyla varies from 5000 in the hot weather to 7000 during the cooler season. A census of the alien community, excluding Europeans, was taken in the three coast towns in 1911, the return then being as follows: Indian, 741; Arabs, 1857; and mixed population, 798. The general public health during 1917–18 was satisfactory, and the amount of sickness appears to have been much the same as in the previous year. A wave of malignant malaria seemed to pass over the whole Protectorate from March to June, 1917. The cases seen were all of the subtertian type, with cerebral and sometimes intestinal symptoms. Very few of the tribespeople have recourse to the Government hospitals until they are *in extremis*, believing that recovery or death is determined by fate alone; and consequently this outbreak of malaria resulted in many deaths among the native population, despite the efforts of the medical staff, who sought out the sick in the towns and treated them with quinine. Relapsing fever was more prevalent than usual in the Hargeisa district, where the *Ornithodorus moubata* tick is found. The natives believe the Congo floor-maggot (i.e., the larva of the *Auchmeromyia luteola*, which is common at Hargeisa but is seen nowhere else in the Protectorate) is the causative agent; and this seems quite possible, although the medical authorities have not yet been able to satisfy themselves that this maggot can transmit the spirillum. An intramuscular injection of salvarsan or an intravenous injection of galyl seemed to be efficacious in all cases so treated, and to prevent a further relapse. The prevalent diseases are tuberculosis, venereal diseases, chronic rheumatism, bronchitis, conjunctivitis, and ulcers. Scurvy is very much on the decrease, but in 1917 there was an outbreak of this disease among a detachment of Indian troops at Las Khorai, one death resulting. In Somaliland it is found that milk, especially camel's milk, is a good antiscorbutic, but lime-juice has not proved of much service. From April to July, 1917, plague was prevalent in Aden, but, thanks to the preventive measures taken by the Medical Department, the disease did not spread to Somaliland. Many useful sanitary measures have been taken in Berbera, and mosquitoes, which usually abound from November to June, were scarcely noticeable during 1917–18. In 1917 526 patients were admitted to the Berbera Hospital and 5927 out-patients were treated in the dispensary. The number of patients treated in other hospitals of the Protectorate were: Bulhar, 2647; Zeyla, 3580; Burao, 2095; Hargeisa, 2892; Las Durch, 1417; and Las Khorai, 734. The total number of deaths reported from all Protectorate hospitals was 59. Camp hospitals, consisting of mat huts erected on wooden framework, are in use in each of the coast towns as isolation hospitals.

GOVERNMENT EMPLOYEES AND THE FINE ARTS.

IT must not be supposed that the exclusion of the public during the last three years from many of the museums and picture galleries of the metropolis has been unattended with compensations. It cannot be doubted that the civil servants who have frequented them will take back to their more formal environment a wider culture and a juster appreciation of beauty wherever it may be found. 781 members of the staff of the Pensions Ministry are still in the National Gallery of British Art; the National Gallery itself has 250 workers from the Ministry of Munitions; 1290 War Office employees enjoy the wider atmosphere of the Imperial Institute; the Victoria and Albert Museum impresses its treasures yet upon 729 officials of the Board of Education; 193 servants of the War Office Medical Research Department still have the British Museum to stimulate their imagination. Sir Alfred Mond told the House of Commons on Monday that these 3243 happy people were being banished from their Olympian homes in the course of the next few weeks. The careful student of blue-books and official correspondence should be able to trace therein the effect of a brief contact with the greatest treasures of humanity on the bureaucratic mind.

ST. DUNSTAN'S HOSPITAL.

To the Editor of THE LANCET.

SIR,—You will, I am sure, favour me with space sufficient to thank the large hearts who, through my hands, have contributed to the above fund, and to say to those my appeal has failed to reach that I will promptly despatch to them such quantities of our special adhesive St. Dunstan's Fair stamps in sheets of 72 as they will retain or can dispose of. The cause is the after-care of the men who have been blinded in the defence of the Empire, and each and all of us, great and small, should endeavour to place St. Dunstan's Hospital on a firm and permanent basis, a worthy aim of Sir Arthur Pearson and his coadjutors in a truly noble work.

Let me also add a hope that there will be a quick response, as I am anxious to considerably augment the fund before the close of the present year. Proceeds of collecting boxes, &c., which are ready for transmission will be warmly welcomed. I am, Sir, yours faithfully,

C. E. TOWN,
Hon. Asst. Organising Secretary.

City Office of St. Dunstan's Hospital, 13, Walbrook, n/r Mansion House, London, E.C. 4, Dec. 11th, 1919.

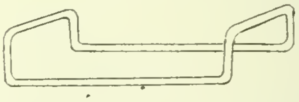
THE MENTAL AFTER-CARE ASSOCIATION.

THE Mental After-Care Association for poor persons convalescent or recovered from institutions for the insane has issued an appeal for help to continue and extend the work. This is the only association of the kind in Great Britain, and cases are assisted from all parts of the country. During the past year about 700 people have been helped by sending them to convalescent homes at the seaside or in the country, by gifts of clothing or tools, or by finding work for them. Further particulars will be given and contributions gratefully received by the secretary, Miss Vickers, Church House, Dean's Yard, Westminster, S.W. 1. Bankers, National Provincial and Union, Limited, 117, Victoria-street, S.W. 1.

A CONVENIENT DESK DIARY.

WE have received a specimen of Pettitt's Folio Diary, 1920 (Straker and Crane, 4, Bishopsgate-avenue, London, E.C., price 15*s.* interleaved with blotting paper, or otherwise). The diary is arranged on the plan of a page to a day, the time of the day, from 9 to 6 in half-hours, being printed down the left-hand side of each page, thus making the diary a convenient appointment book. Space is provided for a cash account, and the usual information in regard to stamp duties, customs tariffs, postal regulations, and so forth is given.

A SIMPLE METHOD OF DEALING WITH FRACTURE OF A METACARPAL BONE.



FRACTURE of a metacarpal bone is perhaps in itself not a very great matter, but, inasmuch as the method described below provides a simple and effective way of dealing with it, it may be of interest to record it. The injured hand is placed palm down on the cradle (see figure) so that the metacarpo-phalangeal row of finger-joints falls in the line of its long axis. A bandage, run through the ends of the cradle, is tied over the knuckles to fix it and to prevent undue flexion at these joints. It will be seen that all the joints of the wrist and hand—except four of the metacarpo-phalangeal row—are free, but a successful result depends less upon this fact than upon the patient's appreciation of it; the primary importance of voluntary movement through the maximum range at all the joints of the limb should therefore be explained to him at the outset, and the performance of these with the eyes shut supervised daily until the danger of the development of a disability has passed.

F. A. HORT, M.D., M.R.C.S., L.R.C.P.

Bessborough-gardens, S.W.

CENTRAL ASSOCIATION FOR THE CARE OF THE MENTALLY DEFECTIVE.

COMMENCING on Jan. 20th and ending on March 16th, a course of lectures on Mental Deficiency and the Care of Defectives will be given on successive Tuesdays, at 5.30 P.M., in the Fabian Hall, 25, Tothill-street, Westminster, by Dr. Letitia Fairfield, Mr. Kenneth Richmond, and Miss Lucy Fildes, holder of the Board of Control Research Studentship at the Psychological Laboratory, Cambridge. The lectures, which are intended for public health visitors, infant-welfare workers, teachers, and those engaged in the care and training of defectives and social workers, deal with the types and varieties of mental deficiency and its diagnosis and physical training and the psychological study of the individual. The fee for the nine lectures is 17*s.*, or 2*s.* for a single lecture. Further particulars may be obtained from the Honorary Secretary, Queen Anne's Chambers, Tothill-street, Westminster, London, S.W. 1. It is also announced that the first number of "Studies in Mental Inefficiency," a new quarterly, will be ready in January, 1920.

The Savill Memorial Lecture

ON

MENTAL PERSONALITY: ITS INTEGRATION AND DISINTEGRATION.

By HARRY CAMPBELL, M.D.,
F.R.C.P. Lond.,

PHYSICIAN TO THE WEST END HOSPITAL FOR NERVOUS DISEASES.

After expressing his appreciation of the honour in being asked to deliver the first of the lectures instituted in commemoration of his friend and colleague, Dr. T. Dixon Savill, Dr. Campbell said:—

It is necessary at the outset to define certain terms. By a *mental personality*, or, more briefly, a *self*, I mean a being capable of consciousness. The term consciousness is used by some in a much more comprehensive sense than that in which I am employing it. In its simplest form consciousness, as I understand it, implies sensation, such as that of cold, warmth, or pain. A being incapable of feeling of any kind—sensation, appetite, or emotion—has for me no consciousness, no mental self, no mind. As thus defined, consciousness does not exist in plants. At what stage of evolution it makes its appearance in the animal world we cannot say, probably not until a brain of considerable complexity has evolved.

By an *integrate* I mean a coördinate system of activities, as manifested, for example, by a football team in play or an army in action. Integration consists in the building up of an integrate, and may proceed indefinitely in the direction of increased complexity. It advances from the simple to the complex: A battalion is more integrated than a company; an army corps more integrated than a battalion. Disintegration proceeds in the opposite direction to integration. It is the changing from a more complex to a less complex integrate.

Proceeding now with my lecture, let me first point out that the only things of which we have any immediate knowledge are our mental states. These are of two sharply contrasted orders—the objective, in which the mind is engaged in perceiving, and the subjective, in which it is not thus engaged.

Everyone understands what is meant by a sensation. A sensation may be purely subjective, as in the case of a vague pain; on the other hand, it may be "projected" on to an object, which is then said to be perceived. Objects thus perceived constitute the phenomenal world, but observe that when an object is perceived the perceiving mind has only knowledge of the perception, i.e., of a mental state. That which may be behind a *phenomenal* object—the phantom, *noumenal* object—is unknowable. Sense-perceived objects are popularly thought of as consisting of "matter," and the attributes by which they are known—ponderosity, hardness, impermeability, configuration, motion, colour, warmth, and the rest—are supposed to inhere in them. All these attributes, however, are perceptual (states of mind), and no more reside in the objects perceived than pain resides in the needle which produces it. The attributes known as ponderosity, hardness, rigidity, impermeability pertain to muscular and pressure sensibility. What we term configuration is likewise purely perceptual. Among other perceptual attributes perception involves the category of space, which is acknowledged by all philosophers to be a mode of perception. Motion also is perceptual, involving as it does the categories of both space and time: we have no more right to predicate motion of the noumenal world than hardness, form, colour, or any other perceptual attribute.

The Scope of Science.

The one thing we seem justified in postulating of this unknown world which we assume to underlie phenomena is that it is a world of activities, capable (as I shall argue) of being integrated in various ways. A formula of this kind does not, as far as I can see, involve us in any contradictions. Matter and the force which is supposed to be inherent in, or act upon, it, are purely metaphysical conceptions which throw no light on phenomena, and can accordingly be dispensed with by science. The province of science is limited to the knowable. Its range cannot extend beyond the contents of mind; and so far as concerns the phenomenal world—as displayed in the objective sciences, such as physics, chemistry, and biology—it deals with sense-percepts, actual or potential.

In this study of the phenomenal world the scientist has to content himself with observing the sequences of phenomena (sense-perceptual experiences), and with the task of formulating generalisations or laws, embracing wide ranges of such sequences. Such laws are purely descriptive—no *a priori*, no logical reason can be given for the sequences of phenomena; it is simply found as a matter of experience that under such and such conditions such and such results always follow, and this is all we can say of causation.[1]

The Perceptual and the Sub-perceptual (Potential) World of Phenomena.

By perceptual phenomena I mean phenomena as ordinarily understood—i.e., actual perceptions, either by means of the unaided senses or with the aid of instruments. By sub-perceptual or potential phenomena I mean existences which are conceived of as potentially perceptual—as lying beyond the threshold of human perception, but as capable of being perceived by beings endowed with adequate powers of perception. Such conceptions as electrons, atoms, and molecules belong to this category; they are regarded as potentially phenomenal. As such they are carefully to be distinguished from noumenal activities which can never be known.

Note carefully that phenomena are mere symbols of noumenal activities. Not only so, but there is no detailed parallelism between phenomena and the noumena they symbolise. This is obvious from the following considerations: (*a*) Not only are we shut out from the noumenal world, but it has also to be noted that the nature of the phenomenal world is determined by that of the perceptive organs and nerve centres, and that, inasmuch as the selective responsitiveness of these to the noumenal activities of the external world differs for every species of animal, the phenomenal world differs for every such species. (*b*) It has further to be remembered that there is no immediate relation between the activities of the objects perceived and the perceiving brain. It is not, for example, the noumenal activities of the external world—activities symbolised phenomenally as ponderosity, heat-waves, light-waves, sound-waves, &c.—which are translated by the brain into perceptions; they are transmuted by the sense-organs into an entirely different mode of activity—i.e., nerve impulses, which before they reach the cerebral cortex, traverse at least three successive series of neurons, undergoing change at each synaptic stage; and it is these triply modified nerve-impulses, not the activities pertaining to the objects of perception, which initiate in the mind-organ those specific integrations of activity which issue in perceptions. Due reflection on such considerations as these will help to bring home to the mind how entirely symbolical is our phenomenal world of the spectral world of noumenal activities.

---

[1] Karl Pearson in his "Grammar of Science" emphasises the fact that scientific laws are purely descriptive, that they merely describe the how and not the why of happenings without in any way explaining, clearing up, the mystery of them. I am doubtful, however, whether the human mind in its attempt to explain phenomena can in the last resort get beyond this descriptive stage. I find it difficult to conceive any stage beyond this.

One particular perceptual attribute engrosses the attention of the physicist beyond all others. I refer to motion. By means of his sense-organs he perceives the phenomenal world to be in a state of constant movement, and he accordingly seeks to formulate phenomenal laws in terms of motion. On analysis it is found that the only motion which has a precise meaning is the abstract conceptual motion of geometrical points, and it is in terms of such conceptual motions that the physicist endeavours to interpret the perceptual universe. In this endeavour he travels beyond the threshold of perception into an imaginary world of sub-perceptual phenomena. He supposes the phenomenal world to consist of whirling systems of electrons integrated in an infinite variety of ways.

DEFINITION OF AN INTEGRATE.

I have said that by an integrate I mean a system of coördinated activities. A mere aggregation of activities does not constitute an integrate; there must be a coördination, a unification of them.

In the case of the non-conscious world integration may be thought of from two standpoints, the noumenal and the phenomenal (perceptual), and, in the case of conscious beings endowed with a brain, from the further standpoint of the conscious personality.

When I speak of a noumenal integrate I have in mind one resulting from the integration of the unknowable activities of the noumenal universe. Such integrates manifest themselves to our senses as phenomenal integrates, and these constitute the phenomenal world—the world as perceived. The brain as perceived by the anatomist and histologist is such a phenomenal integrate, possessing weight, shape, structure, and other perceptual attributes. Behind the phenomenal brain is the noumenal or real brain, of which the phenomenal brain is the symbolic counterpart.

The third type of integrate is that constituted by the conscious personality associated with the brain. Thus the activities of the noumenal brain, in themselves unknowable, are consciously revealed in a twofold way: perceptually to the anatomist and histologist as the phenomenal brain, and subjectively to the individual of whose organism the brain forms a part as a conscious personality.

Of these three aspects of cerebral integrates the phenomenal contrasts sharply with the other two, in that it can be described in sense-perceptual terms, while they cannot. Thus we picture the phenomenal brain as having weight, shape, structure, and as consisting of a vast integrate of whirling electronic systems, but it is manifestly impossible to think of, or define, either the noumenal brain, or the associated mental personality in perceptual terms, devoid as they both are of spacial or other perceptual attributes. For this reason it is easier to think of the brain as an integrate from the perceptual standpoint than from either the noumenal standpoint, or that of the associated personality.

It may, indeed, be argued that it is not permissible to postulate an integration of noumenal activities, seeing that these are not immediately knowable. Yet if phenomena symbolise noumena, such a postulation seems justifiable. Thus, if we regard the phenomenal brain as symbolising perceptually the noumenal brain, we seem justified in figuring to ourselves this noumenal, phantom brain as a vast system of integrated activities which manifest themselves on the one hand as a phenomenal brain, and on the other hand as a mental personality.

That the mental personality constitutes an integrate in the strictest sense of the word is certain, even though it cannot be described in perceptual language, as having weight, length, &c. There is an unmistakable parallelism between the degree of integration of the phenomenal brain and the associated personality: Integration and disintegration of the two proceed pari passu. We have abundant opportunity of studying the integration and disintegration of mind in health and disease, and of showing that these processes are paralleled by corresponding changes in the phenomenal brain integrate. The parallelism can, of course, only be established in a general way, seeing that mental processes, devoid as they are of phenomenal (perceptual) attributes, cannot be correlated with phenomenal processes. I shall recur to this point later.

GRADES OF PHENOMENAL INTEGRATION.

Let us now consider integration from the phenomenal (perceptual and sub-perceptual) standpoint. Starting with the assumption of an all-pervading something, call it ether or what you will, the physicist supposes this to give rise to electrons. These he conceives as charges of negative electricity, in a state of rapid motion, and as constituting the fundamental units from which they are built up, by an infinite variety of integrations, all the different forms of matter. The most elementary electronic integrates are the atoms, which he supposes to consist of systems of whirling electrons, the atoms of every element differing in regard to the number, mutual relations, and motions of its constituent electrons. Molecules, again, are regarded as made up of individual atomic systems, different kinds of molecules differing from one another in regard to the kind and relative number of their constituent atoms. Passing now from the world of sub-perceptual to perceptual integration we arrive at the primitive bio-integrate, by which I mean the most elementary form of life. This is a multi-molecular integrate. It is a true integrate, inasmuch as it consists of a number of coördinated activities working towards definite ends.

The complexity of the atomic integrates increases with the number of their constituent electrons, that of the hydrogen atom being the simplest. Similarly the complexity of the molecular integrates increases with the complexity of their constituent atoms, the most highly integrated molecules being the organic compounds. It is by an integration of such highly integrated organic molecules among themselves that the multi-molecular, primitive bio-integrate is formed.

Note carefully that the mere accretion, massing together of molecules, does not constitute integration. A whole ocean of water is no more integrated, in the sense here meant, than any one of its molecules, since there is no coördination of activity between them. The primitive bio-integrate, on the other hand, does constitute an integrate—one, indeed, of an infinitely higher order than any one of its constituent molecules. It will be observed that atoms, molecules, primitive bio-integrates, constitute so many integrates or systems of activities. "Matter" must not be thought of as inert.

Passing from the primitive bio-integrate upwards through the ascending animal scale a steady advance in vital integration may be traced, culminating in the highest known integrate—the nervous system of man. The primitive bio-integrate leads by a series of increasingly complex integrates up to a well-defined cell possessing a discernible organisation (nucleus, nucleolus, centrosome, &c.), and the matured cell in its turn exhibits many grades of integration. This is well shown in the case of the nerve cell or neuron, of special interest in this place, associated as it is with the manifestation of mind. Beginning with the most primitive neuron met with in the invertebrates, we can, as we ascend the scale, trace a series of increasingly complex integrates until we arrive at the acme of neuronic integration. Some mammalian neurons are amazingly complex in structure, attaining a length of several feet and exhibiting innumerable branches for establishing relations with other neurons.

Nor does the march of integration, as displayed phenomenally, end here. Individual neurons may themselves be integrated into still more complex integrates—for example, nervous systems; and as with individual neurons, so with individual nervous systems, an ever-increasingly complex grade of integration is traceable from the most primitive invertebrate type to the most complex integrate known to us—that, namely, represented by the nervous system of man.

To summarise: between the simplest integrate —the hydrogen atom—and the most complex integrate—the human nervous system—an unbroken series of increasingly complex integrates can be traced. Electrons integrate into atoms, atoms into simple inorganic molecules, and these into more complex organic molecules. These, again, integrate into primitive bio-integrates. By a further specialised integration of bioplasm the primitive nerve cell or neuron is formed, and starting from this primitive neuron a long series of more and more highly integrated neurons can be traced. Neurons, again, integrate together so as to form multi-neuronic integrates, or nervous systems, and these, as the animal scale is ascended, becomes increasingly integrated, partly by the specialisation and partly by the multiplication of individual neurons, until finally there is reached that most complex of all known phenomenal integrates, the nervous system of man.

THE COMPLEXITY OF THE NERVOUS INTEGRATE.

I wish to lay special stress on the significant fact that the individual neuron is not only much the most complex type of cell, but that neurons are integrated together in a way not met with in any other cellular system. Cells such as muscle and gland cells have no functional relations with one another beyond that established through the medium of the plasma bathing them. Hence, all the muscle cells of a muscle taken together are no more integrated than a single muscle cell, nor all the gland cells of a gland than a single gland cell. The coördination of the activities of the individual muscle-fibres within a muscle—that is, the integration of their activities—is brought about by the nervous system, each muscle-fibre being a mere passive agent in regard to it. The like is in large measure true of gland cells also.

In the case of the nervous system, on the other hand, the individual neurons are, by means of their synaptic junctions, brought into definite relations, anatomical and functional, with one another, so that they are able to influence their mutual activities in special ways, and thus to coöperate in bringing about purposive end-effects. When we reflect that the human cerebral cortex alone contains some 9000 million neurons, each of which performs its individual specialised part in the coördinated play of activities constituting the cerebral integrate, it becomes obvious that as regards complexity of integration no known integrate can remotely compare with the nervous system, as met in all but the most primitive animals. This is a fact of special significance, for it is in association with the nervous system that mind evolves.

Another feature of the nervous system is significant. The synaptic relations between individual neurons confer upon the nervous integrate the ability to undergo constant integrations and disintegrations. The synaptic jointings between individual neurons, by the junctions and disjunctions which they can establish among one another, not only enable all the neurons to act coördinately, and thus to constitute one single vast integrate of activities; they further permit portions of the nervous system to be, as it were, switched out of, and again into, the general circuit, thus bringing about disintegrations and integrations within the total system of neuronic activity. I shall argue that such disintegrations and integrations occurring within the brain are associated with corresponding disintegrations and integrations of the mental personality.

Perpetual Integrates Symbolical of Noumenal Integrates.

I have already said that phenomena (perceptual or sub-perceptual) are to be regarded as mere symbols of the happenings of the noumenal world of activities. Behind the sub-perceptual atomic and molecular integrates, and behind the perceptual bio-integrates (unicellular and multicellular) compounded of them, I postulate corresponding noumenal systems. Thus we may speak of phenomenal and noumenal atoms, molecules, neurons, and brains.

It is of the utmost importance that we should distinguish carefully between the brain as perceived—i.e., the *phenomenal* brain (as constituted, namely, of sub-perceptual atoms and molecules, and of perceptual neurons and naked-eye structures) and the *noumenal* or *real brain*, of which the phenomenal brain is a mere symbol. Failure to recognise this distinction has led to much confusion.

PHENOMENAL ACTIVITIES ARE MANIFESTATIONS OF THE PSYCHE, OR SPIRIT.

Phenomenal integrates symbolise, as I have said, corresponding noumenal activities. We may suppose that the behaviour (attributes) of these phenomenal integrates depends upon the particular way in which the corresponding noumenal activities are integrated. In this way we may account for the phenomenal activities of the inanimate and animate world. Thus, taking an ascending scale of integrates, we may explain the perceptual attributes of such integrates as hydrogen, sulphuric acid, starch, and the living cell, all of which symbolise corresponding noumenal integrates; and proceeding a step farther we may suppose that mental activities similarly depend upon that supremely complex integration of noumenal activities, symbolically revealed to us as a phenomenal brain.

Now, just as these phenomenal integrates symbolise noumenal existences, so do their constituent electrons. In like manner that phenomenal something (call it ether[2] or what we will) from which electrons are derived symbolises a noumenal existence. Let us agree to call this noumenal counterpart of the sub-perceptual ether "psyche," or "spirit." We may then regard all the activities of the universe, be they physical, vital, or mental, as manifestations of one ultimate reality—psyche or spirit. On this view the birth of life and the birth of mind depend not upon the introduction into "matter" of any new nature, of something which was not present before, such as the *élan originel* of Bergson, but upon an advance, specific in kind in the integration of the psyche, phases of integration which reveal themselves phenomenally in the form of living organisms and neuron systems. By assuming otherwise not only do we needlessly multiply causes, but, incidentally, we render it impossible to bring the scheme of evolution under one comprehensive generalisation. This psyche reveals itself subjectively by integration into conscious personalities. Consciousness is indeed the *most immediate revelation of the psyche.* The psyche also reveals itself indirectly to conscious personalities as the phenomenal world—that is, objectively. The most complex of all integrates, the phenomenal brain, is the perceptual symbol of the correspondingly complex noumenal integrate, the noumenal brain; and consciousness is the outcome of its activities. It is the result of an integration of the non-conscious psyche into a conscious personality. Consciousness can thus only be experienced in connexion with a particular integrate; it cannot link itself on to another personality—feel the feelings, think the thoughts, pertaining to another integrate.

> "Each in his hidden sphere of joy or woe
> Our hermit feelings dwell and range apart."

We should, therefore, speak of individual or particular minds rather than of mind, just as we speak as atoms, molecules, and cells, rather than of atom, molecule, and cell.

The noumenal brain thus constitutes an integrate of the psyche which manifests itself subjectively as a conscious personality, and objectively as a phenomenal brain. In short, the phenomenal brain and the individual mind associated with it are different aspects of the same thing, the noumenal brain. This is the doctrine of Monism as I understand it.

EVOLUTION INTRODUCES NO NEW NATURE.

The fact that the constituents of bioplasm are ultimately derived from the inorganic world suggests that all the activities displayed by bioplasm exist potentially in that world, and that the differences in the behaviour of the atomic and molecular integrates in the animate and inanimate world are to be ascribed to no other cause than differences in integration. The assumption of a "vital" directive force—an *élan originel*—in no way advances our knowledge.

That conscious mind—by which I mean a self capable of feeling—is not a form of activity distinct from, and wholly unrelated to, non-conscious activities, that its appearance introduces no new "nature," as some philosophers assume, but that, on the contrary, it is the outcome of a specialised integration of non-conscious activities, is suggested by several considerations.

1. Many inanimate substances exhibit sensitiveness—i.e., they respond to stimuli in different ways.

2. It has been shown that such substances may be fatigued and even poisoned.

3. The ability to discriminate and to choose is not confined to the conscious self; it is displayed in the chemical affinities of inanimate bodies.

4. Purposive activities—i.e., activities organised for the attainment of definite ends—are displayed by bio-integrates, in which there can be no question of consciousness in the sense I attach to the term.

5. All organisms, unicellular as well as multicellular, are educable.

The two last characters—purposiveness and educability—are displayed by individual cells as well as by integrated systems of cells (such as nervous systems). The purposive activity of the individual cell is adapted to maintain the bio-integrate intact, and in the case of the multicellular organism it may be displayed both egoistically and altruistically, not only on behalf of the cell itself, but also on that of the organism at large: witness the phenomena of leucocytosis and phagocytosis. As to the educability of individual cells, consider the striking phenomena of immunity and the extraordinary powers of acquisition displayed by neurons.

As regards the purposiveness and educability of non-conscious multicellular integrates, it will suffice to instance the mammalian vaso-motor system.

8. The fact that the mental personality, or self, develops from the faintest glimmerings, by a continual process of integration of consciousness, suggests that it may actually *arise* by an integration of the non-conscious.

9. Conversely, the fact that the mental personality dwindles by disintegration, until, finally, consciousness ceases (as in deep sleep, when the cerebral integrate suffers functional disintegration from synaptic dissociation), the conscious imperceptibly merging into the non-conscious, suggests that, contrariwise, the first glimmering of consciousness results from the integration of the non-conscious into the conscious.

10. The question of the occurrence of unconscious mentation is of interest in the present connexion. So eminent a psychologist as W. James denies its occurrence. For him all mental processes are conscious. On the other hand, many modern psychologists, prominent among whom are the psycho-analysts, contend that "processes certainly occur which present all the attributes of mental ones except that the subject is not aware of them" (Ernest Jones), and that consciousness is only one attribute of mind, and not an indispensable one. If such is the case, the fact may be adduced in favour of the view that consciousness evolves out of the non-conscious; and the question may well be asked whether it is possible to draw a sharp line of demarcation between conscious mentation and such unconscious mentation; between the latter and the complex coördinated processes which take place in sub-thalamo-cortical centres; and, again, between these and the activities displayed by individual cells, all of which show a discriminative purposive activity of the most complex order.

11. Consciousness dawns gradually like daylight out of darkness, so that it is not possible to say

---

[2] Ether, like the electron, atom, and molecule, is not, of course, phenomenal in the sense that it has actually been perceived, but only in the sense of being potentially phenomenal. It is sub-perceptual.

exactly when it first makes its appearance. This is true both as regards philogenesis and ontogenesis. There is no reason to suppose that in the process of animal evolution consciousness suddenly appeared like a bolt from the blue. So also as regards the development of the individual; there is no moment in the course of development which can be said to mark the birth of consciousness. A similar dawning of consciousness takes place in the transition from dreamless to dreamy sleep. At first the barest possible integration of the personality occurs, represented by a vague dreamy state; as integration proceeds the dream experiences increase in vividness and complexity, until the state between dreaming and waking is reached; finally, this passes into the state of complete awakeness. There is, in short, a progressive integration from the non-conscious to the conscious, and then a further integration of the conscious until the stage of complete awakeness is reached.

THE GENESIS OF CONSCIOUSNESS.

All these considerations, I submit, point to the conclusion that consciousness (the mental personality) arises by an integration of the non-conscious. That this implies a high degree of integration is suggested by the striking fact, already referred to, that the mind-organ, even in the simplest form, is infinitely more complex than any other phenomenal integrate. Did time permit I might also attempt to show, on purely psychological grounds, that the most rudimentary consciousness implies a complex mental integration.[3] It must suffice to say that in some way or other the non-conscious psyche becomes integrated into a mental personality—a self capable of feeling—and that this integration is symbolised phenomenally by the phenomenal brain.

Mind, though capable of sense perception, is found, when examined introspectively, to be itself devoid of perceptual attributes; it cannot be handled, weighed, or tested chemically. Hence the integration of mind cannot be described in the same perceptual terms as the integration of the phenomenal brain, which is known by its perceptual attributes. We need to bear this fact in mind when using the term brain. In popular language we mean by this term the phenomenal brain; and it is apparently in this sense that metaphysicians employ it when discussing the relation between mind and brain. They lose sight of the fact that the phenomenal brain, the brain as perceived,[4] is the mere perceptual symbol of that complex of activities which constitute the real or noumenal brain; and that for the reason just given at best it can only symbolise those activities in a vague, imperfect way. It is certain, however, that the mental personality is an integrate—that it develops by integration and decays by disintegration, like the phenomenal brain by which it is symbolised, and that this integration and disintegration of the mental personality is perceptually symbolised by integrative and disintegrative processes in the phenomenal brain.

It may be argued that all this talk offers no "explanation" of the relation of mind and brain—that it in no way clears up the "mystery" attaching to that relation. My reply is that we must be content to accept the evolution of consciousness in association with the mind-organ as an observed fact, and that we have no greater reason to be staggered by the mystery of it than by that of any other observed fact, for mystery attaches to all things. There is neither more nor less mystery about the evolution of consciousness in connexion with the mind-organ than there is about the smashing of a window by a sledge-hammer. We know, as a fact, that a blow delivered with sufficient force against a window-pane results in the breaking of the pane, and equally, as a fact, that a conscious personality arises in association with a normally acting brain. We do not know the *why* in the one case any more than the other. As I have already said, causation resolves itself in the last resort into a bare statement of observed sequences.

DISINTEGRATION OF THE PERSONALITY.

Having considered the integration of the personality, we have now to consider its disintegration. We have abundant opportunity of studying the disintegration of the mental personality in health and disease, and there is ample evidence that this is paralleled by a corresponding disintegration of the phenomenal brain, either as the result of functional synaptic disjunctions (as in sleep), or of organic disease. Time only permits me to touch on this immense subject very briefly.

When the brain is working at its best the whole of its synapses, some billions in number, are available. Then it is that the field of consciousness is widest, that the self can call up, and bring to bear upon a situation, the largest number of past experiences. Then it is that the intellect is most penetrating, judgment most sound. With the diminution in the number of available synapses there takes place a corresponding disintegration of the personality, which may proceed even to the point of complete unconsciousness. To what extent the mind-organ could be split up into functionally isolated areas without consciousness disappearing we do not know. We do not even know what would be the result of the functional isolation of the two cerebral hemispheres. Instances have been recorded of perfectly sane persons who (as shown after death) have been devoid of a corpus callosum. We may be quite sure, however, that in cases of this kind an efficient commissural connexion must have existed between the two hemispheres. It may be presumed that the splitting up of the cerebral cortex and thalami into, say, half a dozen areas of equal size, functionally isolated from one another, would cause a complete dissolution of the personality and consequent disappearance of consciousness, even though each isolated area continued to functionate in its normal fashion.

In order that consciousness shall be maintained dissolution must not proceed beyond a certain limit. What we want to know is how much, and what part of, the mind-organ must remain intact in order that some glimmering of consciousness shall be retained. One is tempted to postulate a central core of the personality, capable of assimilating to itself all the various mind states which the self can experience, and a corresponding nervous core destruction of which would bring about complete loss of consciousness. It would be a great gain if we could point to some definite part of the mind-organ as constituting such a core. If such exists one would expect to find it in those basal collections of grey matter in which the nerve-strands from the sense-organs terminate—i.e., portions of the optic thalami and corpora geniculata.

---

[3] Primitive consciousness presenting as it does the fundamental problems of mind in their simplest aspect has not received from the psychologist the study it demands.

[4] I am here assuming the ability to perceive the inner workings of a living brain.

Disintegration from Organic Causes.

Interruption of the commissural or association fibres connecting different parts of the cerebral cortex is now known to produce many different kinds of mental disintegrations, even though the cortex itself remains intact. Word-deafness (the inability to recognise spoken words) may, for instance, result in this way. Now memory implies not only the recurrence of a past mental state, but its identification—i.e., the recognition of it, the realisation that it resembles a past mental state. This involves a complex process of association. Consider such a case as the following. We are greeted by a person whom we fail to recognise, though we may have some faint notion of having seen him before. In the course of conversation we discover where we have met him, and having put him in his proper setting we recognise him immediately. It is evident that the process of recognition in such a case involves complex association processes implicating widespread cerebral tracts. All recognition implies free synaptic interplay between extensive cortical areas, and any interference with this interplay interferes with the normal process of recognition, and constitutes a disintegration of the personality.

Disintegration from Functional Causes.

I have already referred to the mental disintegration which takes place in sleep. It can hardly be doubted that this is paralleled by a corresponding synaptic dissociation within the mind-organ.

The phenomena of dreams are of great interest in this connexion. In dreaming the synaptic dissociation is not sufficient to lead to complete unconsciousness. Nevertheless, large tracts of neurons are, as it were, "thrown out of the circuit"; this leads to a mental disintegration which reveals itself in a number of different ways. One of the most remarkable is the readiness with which the dreamer accepts the most impossible occurrences as real. We may, for instance, see in our dreams and converse with a person long since dead, and yet believe him to be alive, in spite of the fact that we have seen him laid in the earth. We have entirely forgotten the many impressive circumstances which led up to and followed upon his death, and the many ways in which, perhaps, our own lives have been affected by it. This is obviously due to the failure of the normal association processes, resulting, we may suppose, from the interruption of free synaptic interplay within the mind-organ. Directly the dreamer awakes and the entire synaptic system of the brain is available he realises that it was "all a dream."

We learn from this that any mental experience, no matter how absurd, will, unless corrected by normal association processes, be accepted and believed in. Thus the dreamer is the victim of hallucinations and delusions as genuine as any experienced in the insane. And the explanation is the same in each case—failure of the normal association processes owing to curtailment of synaptic interplay. Thus insanity, like the dream state, is a disintegration of the personality assotiated with a disintegration of cerebral activities. It is probable that in functional insanity the interference with synaptic interplay is due to a vitiated state of the blood.

Hysteria, a disorder in which Dr. Savill took a special interest, affords another remarkable instance of disintegrated personality. This disorder is now generally recognised as essentially mental, and Janet has brought forward a long array of evidence to show that the defect lies in a deficient synthetising-integrating-power on the part of the self, and a corresponding narrowing of the mental field; in short, a disintegration of the personality, due, I would suggest, to interference with normal synaptic interplay.

The prescribed limits of this lecture are now reached. I have presented my subject in a bald, and I fear not very interesting, though I trust intelligible, fashion. I hardly dare to hope that my efforts can have any great interest for the professional philosopher, save as showing how one educated in the modern scientific school, and untrammelled by traditional metaphysics, regards certain problems—problems which must ever fascinate and puzzle the thoughtful.

A CASE OF
PRIMARY HYDATID DISEASE OF THE BRAIN
WITH INTERESTING EYE SYMPTOMS.

By N. B. B. FLEMING, M.B., CH.B. ST. AND.,
CAPTAIN, R.A.M.C.; EYE SPECIALIST, BOMBAY BRIGADE;
AND
G. W. BURY, M.D. MANCH., F.R.C.S. EDIN.,
CAPTAIN, R.A.M.C.; SURGICAL SPECIALIST, BOMBAY BRIGADE.

A STUDY of the literature available in Bombay indicates that hydatid disease of the brain is far from common and that a primary case is rare; in fact we can find no record of the latter. We think therefore that the following case merits publication, particularly as it presents certain other remarkable features. The eye symptoms are interesting; the case presented many difficulties in diagnosis; the preservation of the power of appreciating music after the destruction of so many other functions is very striking; and the persistence of life for such a long period after the cessation of voluntary respiration is unequalled by any case we have found recorded.

W. K., a private in the R.A.M.C., had done three years' service, of which he had spent two months in Mesopotamia and 27 in India. His family history contained nothing of interest; his habits were temperate and he was an accomplished musician. He had been invalided from Mesopotamia for debility and had several times suffered from P.U.O. A few men who were with him in Mesopotamia state that he was a little peculiar then, and in India he has always been of a nervous temperament, but nothing definitely abnormal was found till February, 1918; at this time he reported sick, and I (N. B. B. F.) found him to be in a nervous state. He was fretful, his speech was tremulous, and he had a fine rapid lateral nystagmus and persistent blinking.

Inquiries showed that his efficiency as a clerk had been falling off of late, though his energy and willingness to work were unabated; there was no alimentary disturbance. He was given general tonic treatment and improved considerably. His work was changed, and by June he was thought sufficiently fit to be put on night duty. He did this work for a month without complaint or causing dissatisfaction; later it was elicited from him that he had been in the habit of doing physical exercises at night when he had time, and that he noticed that his right arm was weaker than his left; normally he was right-handed and fairly strong. On July 19th he was given one month's leave in Darjeeling; on the 22nd he was thrown from a pony, the fall resulting in an angular cut embracing the outer angle of the right orbit; the wound was dressed the same day, and he was admitted to hospital. He was discharged on the 27th; report shows nothing of interest. On August 5th he was seen by the M.O. prior to departure, and was ordered to report sick on arrival in Bombay. This he did, and was admitted to hospital forthwith.

Condition on Admission.

At this time (10/8/18) he was regarded as a case of neurasthenia. He had a dirty tongue and was suffering from dyspepsia; he was certainly highly neurasthenic, and on this account was treated with bromides. He had his eyes examined on 18/7/18, and was reported on as follows: Vision, R.E., 6/18 with + 0·5 D. cyl. ax. vert. 6/12; L.E., 6/9 with + 0·25 D. cyl. ax. vert. 6/6; both eyes, nystagmus, fundi normal, fields of vision uncontracted, no scotoma. R.E. slightly divergent. The condition gradually got worse, and the question of organic disease had to be considered; a Wassermann reaction proved negative. On 15/9/18 he was sent to me for eye examination, and I found his condition to be as follows:—

General condition: Fairly intelligent and very much annoyed at being kept in hospital and confined to bed; nevertheless, he looked ill and very much changed since the last time I had seen him in June (his face was covered with bromide acne); he was apt to wander, and would laugh suddenly for no apparent reason, and appeared to be much fatter, more flabby, and consequently lacking in expression; no glandular enlargement; temperature normal.

Alimentary system: Constipation, flatulence, epigastric pain; no vomiting; tongue heavily coated and bad taste in mouth.

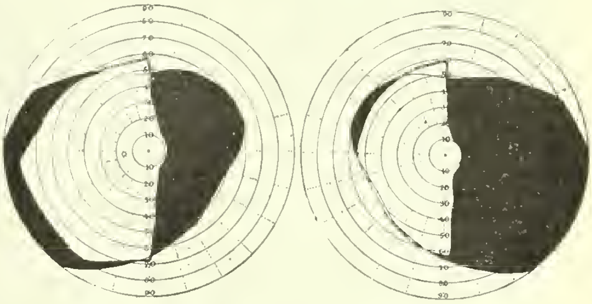
Circulatory system: Nothing subjective or objective; blood examination and previous Wassermann revealed nothing.

Respiratory and urinary systems: Normal.

Nervous system: Patient complains of reduction of power in right arm and leg, something wrong with his sight, loss of memory, and of inability to read and write; also of occipital headaches. The history of reduction of power in his arm is recorded above; that of his leg has developed since his admission to hospital; all the other causes for complaint were first appreciated whilst on leave, and shortly after his fall from a horse. He is fairly intelligent, but suffers from considerable loss of memory, particularly for the less common words, names of places, and incidents he particularly desires to relate, and which were apparently clear in his mind a moment previously. He is sleepy, dozes a good deal, and is very startled when aroused; sleep at night is considerably interfered with by headaches. There is nothing suggestive now of staccato speech, his sentences being said quite rapidly till his memory fails and he is compelled to stop.

Cranial nerves: *First:* Apparently unaffected, but owing to loss of memory he seldom remembers the name of the substance employed, and often gives the name of something entirely different, which he immediately appreciates to be wrong. *Second:* Ophthalmoscopic examination: Acute optic neuritis in both eyes, with much swelling of the papilla and great fullness of the vessels. Hæmorrhages and exudates for about two disc-diameters around the disc; L.E. slightly worse than R.E. Acuity of vision: This is difficult to determine owing to patient suffering from incomplete alexia combined with loss of memory; tested by counting letters and dots it appeared to be R.E. 6/12 and L.E. 6/9, and he could see, but not read, J.1 print quite easily; central colour sense normal. Field of vision: Examination with the perimeter showed a complete right homonymous hemianopia, macular vision remaining intact, as shown in accompanying chart. The slightly increased field above and below is explained by the fact that his eyes were slightly prominent. Refraction: Practically emmetropic. *Third:* Extrinsic division normal; pupils unequal, the right being larger than the left; both contract to light, accommodation, and consensually, but contraction is not sustained. Wernicke's hemianopic pupil reaction was not elicited to my satisfaction. Both pupils regular in outline; no paralysis of accommodation. Nystagmus: The fine lateral nystagmus, which was spontaneous, has now disappeared and is replaced by a left vestibular nystagmus. (This point was investigated by Captain D. L. Sewell, R.A.M.C., ear, nose, and throat specialist.) *Seventh:* Slight weakness of right orbicularis palpebrarum; tendency to blink much less marked. *Eighth:* Left vestibular nystagmus as noted above: tinnitus in left ear. *Ninth:* Palate moves with slight drop to the right side. *Twelfth:* Slight weakness on right side. Other cranial nerves: All normal.

Motor function: General muscular weakness of right side; right grip is much weaker than left, and there is a tendency to drag the right leg; there is no tremor, intention-tremor, or incoördination; Romberg's sign negative. There is occasional twitching of the right quadriceps and calf muscles; muscular tone is good.



Sensation: Sensation over the whole of the right side—touch, pain, epicritic, protopathic, heat, and cold—is quite definitely blunted; sense of orientation is normal.

Reflexes: Right side: Superficial, abdominal, epigastric, and cremasteric reflexes absent; conjunctival and palatal normal; pupil already noted; plantar response variable. Deep: Triceps, biceps, and supinator, knee and ankle, all exaggerated; ankle clonus present. Organic: Normal. Left side: Normal. No vaso-motor changes.

Alexia: The alexia is much complicated by loss of memory, but is definitely present; word-blindness is greater than letter-blindness. Occasionally, if he looks at a word for a long time, he suddenly appreciates what it is, sometimes after a few random attempts.

Agraphia: This also is complicated to a small extent by muscular weakness of his right hand; he is quite incapable of writing a word, any effort he may make being quite unrecognisable as such.

Progress of the Case.

16/9/18: Lateral stereoscopic radiographs of skull taken; blood again taken for Wassermann and patient ordered pot. iod. to eliminate any parasyphilitic lesion.

17/9/18: X ray report by Captain T. W. Barnard: "Two or three small opaque bodies are present on right side in frontal lobe about one inch deep, near the middle convolution.

23/9/18: No improvement with pot. iod. General weakness of right side increasing, deep reflexes further exaggerated; right facial paralysis almost complete; optic neuritis much the same, but a few more hæmorrhages. Agraphia is complete, alexia nearly so, and memory still failing. Headache is increasing, and patient is much more drowsy. Still no vomiting. Wassermann result again negative; there is a tendency to fall to the right side. Pot. iod. stopped.

24/9/18: Lumbar puncture performed; cerebro-spinal fluid found to be under normal pressure, and a detailed pathological examination revealed nothing abnormal; abdominal reflexes now absent on the left side.

25/9/18: Complains of great pain in back and head since lumbar puncture, and thinks it ought not to have been done, also that it may cause his death. After a little persuasion he admitted that his headache was distinctly better, and I found that the swelling of both discs was diminished. The question of a decompression operation was discussed, but the surgeon did not feel justified in operating until the possibility of the case being one of disseminated sclerosis had been entirely eliminated.

28/9/18: Further weakness of right side; marked facial paralysis; tongue protrudes to the left side; palate droops much more; speech somewhat muffled; tongue very dirty; no vomiting; constipated; alexia complete; marked tendency to fall to the right side, and persistent twitching of the left leg; the left knee and ankle-jerks are increased; eye condition unchanged; complains of noise in left ear being louder.

30/9/18: Patellar-clonus right and ankle-clonus left. Again radiographed, but nothing further seen. Patient always lies on his right side.

2/10/18: All deep reflexes on the left side increased; flexor response; sleeping nearly all day and perpetually yawning when awake; optic neuritis again increasing, and now more accurately styled neuro-retinitis. The inequality of the pupils is more marked, the right being larger. He is unable to stand, and, if unsupported, falls to the right side, this being chiefly due to weakness of the right leg.

5/10/18: Patient vomited twice, vomiting apparently effortless, but on both occasions occurred after meals; complains of slight gastric pain and sickness; headache is apparently worse, and weakness of the right side practically amounts to paralysis.

6/10/18: Still vomiting after meals.

7/10/18: Vomiting continues; patient very fretful and irritable, but expressed great pleasure at having heard a piano well played in the next ward.

8/10/18: Patient hopelessly depressed and certain that he is going to die; he is now quite helpless. Neuro-retinitis more extensive and further hæmorrhages towards the periphery.

9/10/18: Surgeon satisfied that case is one of cerebral tumour, and patient prepared for operation.

Operation.

10/10/18: The operation was performed by Captain G. W. Bury, R.A.M.C., and the anæsthetic administered by Captain J. H. B. Holroyd, R.A.M.C. The anæsthetic used was C.E. 1:15, and anæsthesia induced without any struggling or cyanosis. A preliminary injection of morph. sulp. gr. 1/6th and atrop. sulph. gr. 1/150th had been given three-quarters of an hour previously.

Immediately after induction, and as the operation was about to commence, breathing ceased, but the pulse and all reflexes remaining normal, artificial respiration was resorted to, and the operation proceeded with. A left subtemporal decompression was performed, and a piece of bone about 2 in. by 1 in. removed. The membranes were congested. There was no pulsation in the brain. The dura mater was incised crucially. No excess of cerebro-spinal fluid noted. The surface of the brain was not congested, but bulged considerably through the opening. There was no sign of cerebral œdema.

The condition of the patient remained good, but no attempt at spontaneous respiration was made. The lateral ventricle was aspirated, and fluid under very great pressure escaped, three test-tubes being filled; the fluid appeared like normal cerebro-spinal fluid. The next hour was devoted to efforts to bring about normal respiration; for that purpose artificial respiration, tongue traction, hot packs, hypodermics of strychnine and camphor, and electrical stimulation to the diaphragm and respiratory muscles generally were all tried but in vain. Pulse still good, and all reflexes brisk. A fine lateral nystagmus was now very noticeable, similar to that noted when the patient was first seen in February. The ventricle was again aspirated and fluid under high pressure escaped, two test-tubes being filled; this time the fluid was blood-stained. Realising that the respiratory failure was due to paralysis of the respiratory centre, and that ventricular aspiration might not relieve this pressure owing to a possible block in the iter, it was decided to perform lumbar puncture. This was then done, and one and a half test-tubes of clear fluid under pressure were withdrawn. By this time the patient had not breathed voluntarily for three hours. It was decided to do a decompression over the X ray shadow on the right side, and this was quickly performed, 1½ by 1 in. being removed; there was no sign of pressure until the dura had been incised, when the brain bulged a little. All efforts were again directed to bringing about spontaneous respiration; at intervals the patient had become slightly cyanosed, but improved with oxygen; corneal reflexes brisk, and movements of the eye suggestive of consciousness were noticed; the only sign of inspiration on the part of the patient had been an occasional slight movement of the mandible. It was noticed during the third hour that the cessation of oxygen, though causing cyanosis, in no way reduced the briskness of the reflexes. During the second decompression the heart was found to be failing and the reflexes to diminish; very shortly after it was completed the heart ceased beating altogether. The patient had thus been from 11 A.M. to 3.30 P.M. (four and a half hours) without taking a normal breath and without the administration of any anæsthetic whatsoever.

We do not think that death can be attributed purely and solely to the anæsthetic; if this had been so, the reflexes would have quickly disappeared and not returned, and cardiac failure would not have been so long delayed. The condition of increased intracranial pressure had existed for a considerable time before the operation, and we think that the anæsthetic had further increased the pressure and so paralysed the respiratory centre beyond recovery; such an increase, however, might well have been brought about before the operation by straining at stool or any analogous act.

Post-mortem Examination.

The calvarium was separated without difficulty and the brain removed for examination; no excess of cerebro-spinal fluid was noted. The surface of the brain was congested, due, no doubt, to the artificial respiration; no inflammatory exudate on the meninges.

On slicing the left brain a unilocular cyst, equal in size to a large orange, escaped from the ventricle. The cyst had apparently no attachments to anything in the ventricle; the appearance of the cyst was typical of a hydatid. The cyst was found to have bulged into and and greatly distended the left ventricle, causing pressure on the surrounding parts, particularly the internal capsule, lenticular nucleus, and optic thalamus. Apparently it had lost its attachments to the ventricular wall, whatever they may have been originally, and it is our opinion that the parasite had come via the choroid plexus. The cyst had been punctured twice, and contained 6 ounces of blood-stained fluid similar to that withdrawn at the second aspiration.

On dissecting the right brain three calcified nodules one-sixth of an inch in diameter were found embedded in the middle frontal convolution. Nothing else abnormal could be found in the brain.

Heart, lungs, liver, kidneys, spleen, pancreas, spinal cord, and vertebræ were thoroughly examined and found to be normal.

The fluid in the cyst and the fluid from both the aspirations of the left ventricle were found to contain hooklets and scolices, proving it to be due to *Tænia echinococcus*; the fact that the cyst collapsed on removal and was punctured in two places indicates that it was the cyst that had been aspirated and not the ventricle, as had been thought at the operation.

The calcified nodules were examined and a report of "amorphous calcified material" returned. In spite of this, however, we beg to submit that they were calcified nodules of *Tænia cysticercus*, the parasitic origin of the cyst on the other side inclining us to this view.

Remarks on Diagnosis.

The original diagnosis of neurasthenia was amply justified, and seemed to cover all the facts; the man was of a highly nervous temperament, had had some rather upsetting experiences, and improved remarkably under tonic treatment. The cyst afterwards found was, in our opinion, too small at this time to give rise to any localising symptoms, and it was only later that a careful examination of the patient revealed sufficient evidence to demonstrate the existence of a more grave condition. So long as the cyst was sufficiently small and adaptable for its presence to be compensated for by variations in the amount of cerebro-spinal fluid, the symptoms caused were bound to be indefinite; with its increase in size beyond such dimensions symptoms of intracranial pressure would commence, but would continue to be variable owing to the fluid nature of the tumour.

Disseminated sclerosis was considered as a possible diagnosis, and colour was lent to this view by the nystagmus, staccato speech, tremor, and disordered reflexes. All these symptoms, however, could be covered by a diagnosis of neurasthenia, the speech being tremulous rather than actually staccato, and the "tremor" being better described as "unsteadiness" of the hands. Moreover, while optic neuritis might possibly occur in disseminated sclerosis, the chances of its being bilateral in this disease are remote, and the localisation of symptoms to one side of the body, coupled with the intense and persistent headache which occurred in this case, seemed to point to an organic brain lesion, even though the absence of vomiting was rather against this view.

The rapidly progressive nature of the symptoms soon put the diagnosis of disseminated sclerosis out of court in favour of that of cerebral tumour, which was later established beyond all question by the onset of typical cerebral vomiting.

Reference.—Brain, vol. xxvi., 1903, p. 603. Dr. Caley, "Hydatids of Brain."

A STUDY OF

EPIDEMIC INFLUENZA IN AUSTRALIA.

FOUNDED ON TWO HUNDRED AND FOURTEEN CASES SEEN AT THEIR HOMES IN GENERAL PRIVATE PRACTICE.

BY H. LEIGHTON KESTEVEN, D.SC., M.D., CH.M.SYD.

FROM my experience as a general practitioner who has kept sufficiently detailed records for general review purposes of 214 consecutive unsorted cases of influenza I have arrived at the following typical picture of a simple uncomplicated case of epidemic influenza.

Course and Symptoms.

On the first day patient "out of sorts"; on the second day he takes to bed. Symptoms include headache, more or less severe, pain in loins, back of the neck and of the legs, and often on movement of the eyes. Cough is either entirely absent or slight. There is usually giddiness, anorexia, and much general malaise. Stiffness, amounting at times to soreness of the throat on swallowing, is commonly present, though seldom complained of. Constipation is frequent. The temperature may rise on the third and fourth days to 104° F. in severe cases, though usually the highest temperature, about 102·5° F., is recorded on the second or even first day. The temperature falls by lysis and the symptoms gradually subside, the disease running its full course in four to six days. I propose to call this algesic type "Epidemic Influenza Vera" or "Influenza Vera Simplex," and have used these terms in the present discussion.

Of this simple uncomplicated algesic type I saw 19 cases in my first series and 103 cases in the second series. The common complications are definite lesions in organs and regions directly connected with the naso-pharynx, in the following order of frequency: (1) larynx and trachea; (2) large and small bronchi; (3) stomach; (4) lung alveoli; (5) peri-nasal air sinuses; and (6) the middle ear. We may thus conclude that the seat of invasion is the naso-pharynx.

The earliest and commonest symptom of an impending complication is a cough. Without presenting any tangible pulmonary symptoms the patient complains of a hacking cough without expectoration. The temperature commonly ranges higher than in the algesic type, the headache is aggravated by the cough, prostration is more marked, and convalescence more protracted. The most careful examination fails to detect any physical signs of disease in the lung, nor is the respiratory rate increased. I group these cases together for convenience as the "tussive" type. It is probable that the cough is due to irritation of the larynx or trachea. Further extension of the trouble gives rise to pneumonia, usually of the lobular type.

Coryza, formerly regarded as an integral process in the disease, has been remarkable for its absence from my series. I have seen only 11 cases. Moreover, it appears probable that a coryza may confer a degree of immunity. I have several times noticed that in families visited by influenza, one or two members with coryza escaped. Two of the cases of this that I noted in the first wave, however, came under my care during the second wave. In neither case were any other members of the family reinfected. Both sinus disease and otitis media may occur without previous naso-pharyngeal catarrh. I have seen one case of the former and two of the latter follow otherwise uncomplicated algesic cases. Epistaxis was common, particularly in the algesic type. It usually calls for no treatment and almost invariably gives prompt relief to headache if present.

Gastric influenza, familiar in literature and interepidemic times, proves to be of rare occurrence if guarded against by feeding often and in small amounts, and by the most meticulous care in the avoidance of fat and flavourings. I have seen only five cases of vomiting (omitting one case of pernicious toxæmic vomiting of pregnancy) in the last 161 cases, and in two of these I had reason to believe that mutton broth had been given by the cupful and without previous cooling to remove the fat. I am of the opinion that the vomiting arises primarily as a nausea accompanying the general malaise, and that it is started by pressing nourishment in the presence of this nausea, and the complete absence of appetite. These conditions, Pawlow has shown, entail long-delayed digestion, retained food and nausea together setting up a condition of gastric irritability. Thrombosis of the long saphenous vein occurred in two of my cases. In both the thrombosis appeared without previous warning, late in the case when the patient appeared to be making a good recovery. Acute dilatation of the heart occurred in three cases. Two were in pregnant women, both about mid-term; one died as a result; the third case was in a man, aged 65, and this also resulted in death. All three cases were, up to the appearance of the dilatation, mild cases, two were algesic in type, and the third (female who died) tussive.

Treatment.

1. *Vaccine therapy.*—The common occurrence of the disease in persons inoculated during the previous three to six weeks caused me to become

sceptical at the outset as to the value of vaccine therapy. Fourteen cases were treated by similar medication and diet, but alternately with the "Commonwealth" vaccine containing *M. catarrhalis* pneumococcus, streptococcus, and a "Gram-positive diplococcus (not the pneumococcus) isolated from all the cases examined." (The quotation is from the Commonwealth laboratories leaflet accompanying the vaccine.) This series is admittedly too short to be of much comparative value, but the inoculated cases compared so unfavourably with the others that I was discouraged from proceeding further with this comparative series and abandoned the vaccine. I can offer no opinion as to their value in pneumonic cases.

2. *Intoxication with soluble salicylates.*—I had previously observed that intoxication with soluble salicylates appeared to cut short attacks of influenza and dengue in addition to its well-known efficacy in polyarticular rheumatic fever. The treatment was at first adopted in a few cases only, and being in the presence of a new disease, or at least a new manifestation of an old disease, I naturally gave trial to the various remedies advocated by the Commonwealth and State health authorities, and the quarantine medical officers. Following these authorities quinine, calcium lactate, oleum eucalypti, hydrarg. perchlor., ferri. perchlor., and simple fever mixtures were tried. Salicylate intoxication appeared productive of the better results, therefore this treatment was early adopted for alternate cases. Of my first 87 cases 53 were treated by various methods, and 34 by salicylate intoxication. These latter showed an average duration of the illness definitely shorter than that of the former.

At this stage I adopted the following prescription as a routine mixture in every case seen before complication had set in:—

Quinæ salicylatis	gr. v.
Sodæ salicylatis	,, x.
Sodæ bicarbonatis	,, xx.
Infusi gent. co.	ad ℥ss.—Misce.

I do not add mucilage as that tends to cause the disagreeable taste to hang in the mouth. When intoxication is reached, I order the dose at such intervals as will maintain a slight buzzing for 24 hours or until the temperature falls below 101·5° F. or the development of insistent cough, when the intervals are lengthened, or the dose decreased. The whole aim of this treatment is to cut short the progress of the disease before complications set in; that it apparently does so is borne out by my figures (see table below). When complications intervene it should be abandoned.

3. *Treatment by creosote and creosotal.*—Since pneumonic resolution is associated with increased expectoration, it was thought possible that the early indication of expectoration might have a favourable influence in this disease. In the endeavour to produce increased expectoration as the result of definite bronchial reaction creosote was selected because (1) it is a disinfectant; (2) it is known to be eliminated, in part at least, in the breath; (3) post mortem in cases of phenol poisoning there is commonly found, among other signs, intense injection of the bronchial membranes; (4) it is less liable to upset digestion than phenol itself.

Method of administration.—Whenever in a tussive case the cough became insistent and distressing or pyrexia was unusually prolonged creosote was administered in 5-minim doses, usually with sp. ammon. aromat. ♏ xxx., suspended in equal parts in mucil. acaciæ and syr. simp., four-hourly at first and later on hourly. In the majority of cases bronchial reaction is prompt, as evidenced by the rapid development of expectoration. Should the development be slow or a scanty tenacious sputum be already present, tincture of ipecacuanha ♏ iv. and squills ♏ x. to xv. is added to the mixture. It is not contended that this treatment is a cure for epidemic pneumonic influenza, but I submit that the analysis of my statistics (vide table) justifies my belief that it does serve to prevent the development of pneumonia in some cases. I have found that vomiting in the few cases where it has occurred is promptly controlled by a single dose of chloretone gr. v. and 24 hours' starvation. At times impossible to abolish, sleeplessness should be treated heroically if treatment be called for at all. When morphine is used, not less than gr. ¼ and repeated in half an hour if the first be not effective. I am of the opinion that if the drug fails to produce narcosis, it rapidly has the opposite effect; especially does this appear to be the case in the presence of sthenic delirium.

Comparative Table.

—	Epidemic influenza vera.		Epidemic influenza vera complicata.				
	No. of cases.	Algesic type.	Tussive type.	Pneumonic.	Coryza.	Septicæmia.	Fulminating.
First series	53	19	16	13 (3 dths)	2	2 (both died)	1 (died)
Second ,,	161	103	42	7 (1 dth)	9	0	0

An analysis of this table reveals: 1. That the proportion of serious and complicated cases was considerably smaller in the second epidemic than in the first. 2. Assuming that every tussive case is a potential pneumonia (and I regard the assumption as justifiable) then in the first series 29 cases yielded 13 pneumonias, whilst in the second 49 cases yielded only 7. 3. As a result the death-rate fell from 5 in 53 (the fulminating case is omitted) to 2 in 161. (One algesic case died from acute dilatation of the heart.)

General Discussion.

My description of influenza is at variance with that given in text-books and recent journals, in that I have not included coryza and cough as initial symptoms. (The single exception that I am acquainted with is Strümpel's description in his text-book (Vickery and Knapp, translators, 1911).) Such cases as I have here described as the algesic type are recognised by practically all writers, and are by them termed "mild" cases. Furthermore observers are agreed that the disease commences with the symptoms which I have described as proper to an uncomplicated case. My series of cases is thus in no way peculiar, but the prominence of the respiratory symptoms has unduly impressed most recorders, because their cases have included a larger proportion of serious cases.

It is in contributions from general practitioners and army medical officers, whose cases undergo no sifting process, that the most notice is taken of the milder cases. It seems reasonable to assume that the mild cases described by Burnford[1] include my algesic and tussive types.

---

[1] THE LANCET, 1919, i., 794.

Theories of Causation.

In view of the variety and inconstancy of the organisms found in pneumonic and other complicated forms of influenza, and their presence of similar varieties in pathogenic conditions not associated with influenza, it seems reasonable to conclude that in epidemic influenza the toxæmia so lowers tissue resistance that double infections become common and are the chief cause of the mortality.

A further fact which lends support to this conclusion is that the overwhelming majority of the complications involve definite gross infections of surface exposed to double infection. This of course is significant only when coupled with the fact that in the algesic type of case there is no apparent lesion or inflammatory process, whilst in all the other varieties inflammations play a leading part.

I have perhaps not made it sufficiently clear that an apparently mild algesic attack may have been gravely toxæmic as manifested by sequelæ of late and usually sudden development. Among my 122 cases which ran their course as apparently mild algesic cases there were 2 cases of acute dilatation of the heart with 1 death, 1 case of thrombosis of the long saphenous vein, 1 case of melancholic insanity still in an asylum, and 1 case of myalgia, right deltoid (still under treatment).

If, as here contended, epidemic influenza vera is a toxæmia without local lesion, it follows that the causative agent should be sought for in the uncomplicated cases. The resistance of the great majority of the public attacked by the disease is so lowered that they are liable suddenly to develop some other disease. The most abundant pathogenic organisms are those capable of causing pneumonia (apparently they are always present in the naso-pharynx of healthy individuals), and next in order of abundance are the pyogenic organisms and *Micrococcus catarrhalis*. Hence pneumonia is the outstanding complication of gravity, and amongst these septic or pyogenic pneumonias are common. Next in order of frequency are septic processes in and around the naso-pharynx. Gastro-intestinal disturbances are less frequent probably on account of the antiseptic properties of gastric juices.

The varied nature of the cases in any series, and at times even in the same family, seems to point to the mixed nature of the disease. All complicated cases of influenza pass through an algesic stage of about three to six days. One is at a loss to comprehend the subsidence of the aches and pains, whilst other symptoms take their place and come into prominence, if the newer symptoms are due to graver infection and intoxication by the same organism. The duration of the aches and pains is, on the average, the same as that in uncomplicated algesic cases, and it therefore appears more probable that the initial disease runs its course and the later symptoms are due to a transcurrent or superimposed malady. Salicylate intoxication appears to be of value if resorted to before the complications; it is useless after they have set in. If the same organism is at work this would be difficult to explain.

If the algesic and graver forms are manifestations of a common disease, then epidemic influenza is remarkable for the very high percentage of "abortive" cases. If endemic and pandemic influenza are caused by the same organism we must seek some explanation of the following differences.

Pandemic Influenza.	*Endemic Influenza.*
Highly contagious.	Not highly contagious.
Mortality high.	Mortality low.
Complications and sequelæ common and grave.	Complications and sequelæ rare and not grave.
Seldom begins as a nasal catarrh.	Nearly always begins as a nasal catarrh.

If, on the other hand, it be assumed that there are really two diseases, and that the pandemic disease confers immunity for a span of years, it should persist during that inter-epidemic span of years as a children's disease, attacking those born since the last epidemic. Though there is no evidence of this, it appears more reasonable to suppose that the two diseases are distinct. It must be remembered that the only method by which, as far as we know, a pathogenic organism can achieve periodical virulence is by conferring an immunity over a span of years on the populations attacked. If the organism remains in our midst causing endemic influenza, then at the expiration of the period of immunity it should flare up throughout the world, whereas we have conclusive evidence that the pandemic has been carried round the world.

It is therefore probable that pandemic and endemic influenza are distinct diseases, and that the organism responsible for epidemic influenza vera has not yet been isolated. It should be theoretically possible to discover an immunising vaccine or serum once the organism has been isolated.

It has been suggested that the periodicity of influenza pandemics is due to virulent new strains of the organism, and that the populations attacked rapidly develop a partial immunity to the new strain, so that it becomes responsible in inter-epidemic periods for the mild endemic disease of low mortality. This hypothesis is open to two grave objections. First, it involves the assumption of the possibility or even actuality of the prompt and complete inheritance of an acquired character—namely, immunity to the new strain. Secondly, it lacks the confirmation of any parallel periodical virulence in any other of the many known and unknown (e.g., measles) pathogenic organisms.

In conclusion I wish to point out that my contention as to the double nature of complicated epidemic influenza vera might perhaps be tested by comparing the resistance to pneumococcus and streptococcus in experimental animals inoculated with the saliva and nasal mucus of patients suffering from the uncomplicated algesic type of the disease with that of control animals.

Though I have consistently regarded the disease as a toxæmia, I do not overlook the possibility of the condition being a septicæmia caused by a filter passer or other undetected organism, and the double infections therefore due perhaps to symbiotic affinities as much as to lowered tissue resistance. This possibility has been deliberately kept out till now in order not to complicate the argument by alternative phrases.

Sydney, New South Wales.

THE METROPOLITAN HOSPITAL SUNDAY FUND.—The annual meeting of this Fund was held at the London Mansion House on Dec. 18th, when the Lord Mayor presided. Mr. Robert Martin Holland-Martin, vice-president, in moving the adoption of the report, said that the total receipts for the year were £86,232, the second largest on record. In 1918 there was a total of over £92,000, but this sum included £5000 from the American Red Cross. The donations for the year amounted to £11,271 and the church collections, which showed a slight decrease, to £40,307. The collections, he said, had been a little difficult in view of the general uncertainty of the outlook and the future of hospitals. Hospital Sunday, 1920, was fixed for June 27th.

BOILED VEGETABLES FOR THE USE OF DIABETICS.

BY P. J. CAMMIDGE, M.D. LOND

PURELY starchy foods are not, as a rule, well borne by diabetics, and they are consequently replaced to a large extent in the modern diabetic diet by vegetables. When the carbohydrate tolerance of the patient is low many vegetables cannot be taken without glycosuria resulting, and the range of the diet therefore becomes very restricted. It was pointed out by Von Noorden that boiling vegetables in water removes some of the carbohydrate, so that a much larger bulk of a boiled than of a raw vegetable can usually be taken by a diabetic without harm.[1] He showed that raw spinach containing about 2·97 per cent. of carbohydrate will when cooked in water yield only about 0·85 per cent., also that 100 g. of ripe peaches containing 9·5 g. of carbohydrate contain only 1·8 g. after boiling and changing the water. Carrying the idea further, Allen has suggested[2] that thrice-boiled vegetables might be even more useful, especially in instances where ordinary boiled vegetables are not well tolerated, for he states that by boiling through three waters and throwing away the water nearly all the starch can be removed. It is claimed that vegetables prepared in this way are taken gladly by most severe cases of diabetes and without glycosuria. Very little experimental work appears to have been done on the composition of the material resulting from the treatment of vegetables with three changes of boiling water. It has been generally assumed that any vegetable of low carbohydrate value is rendered practically carbohydrate-free, while vegetables of high carbohydrate content, and particularly root vegetables, should not be used. With a view to throwing some light on the question and discovering which are the best vegetables to employ for the purpose, a number of experiments were carried out in my laboratory.

Sixteen varieties of commonly used vegetables were investigated. The root vegetables were cut into slices about an eighth of an inch thick and then into strips about half an inch wide, the others were cut into convenient lengths about half an inch long. They were soaked in cold water overnight, then put into a large excess of fresh cold water, brought to the boil, and boiled for a quarter of an hour. This water was drained off and they were again boiled for a quarter of an hour in a fresh supply. A further boiling in fresh water for a quarter of an hour completed the process. After each boiling a sample was taken for analysis. The reducing sugar was estimated by the process I have described,[3] and the "total carbohydrate" was determined by the same procedure after hydrolysis with a mineral acid. The figures obtained are summarised in Table I.

It will be seen that the number of boilings required to secure a carbohydrate-free residue varies considerably and is not directly related to the amount of carbohydrate originally present: moreover, that comparatively a small proportion of the vegetables investigated were entirely freed by three boilings. Celery, rhubarb, and spinach were free from carbohydrate after the second boiling, sliced turnip and sliced carrot still retained some starch, but were free after the third change; all the other vegetables retained more or less carbohydrate even after three boilings. It is noteworthy that cabbage, which contained only 3·3 per cent. of carbohydrate originally and is generally regarded as a safe vegetable for diabetics, especially in the thrice-boiled condition. retained 0·5 per cent. after the third boiling, whereas a sample of carrot, containing 8·5 per cent. of carbohydrate in the first instance, was free from starch and sugar after three boilings. Again, beetroot, with 12 per cent. of carbohydrate when purchased, did not contain more after three boilings than cabbage similarly treated. Thus showing that some root vegetables can be made quite as harmless as the green vegetables usually prescribed.

TABLE I.—*Thrice-boiled Vegetables.*

A, Total "carbohydrate" per cent. B, Reducing sugar per cent.

—	Raw.		After 1st boiling.		After 2nd boiling.		After 3rd boiling.	
	A.	B.	A.	B.	A.	B.	A.	B.
Celery	2·0	0·7	0·5	0·0	0·0	0·0	0·0	0·0
Rhubarb	2·0	0·9	0·8	0·0	0·0	0·0	0·0	0·0
Spinach	4·0	0·0	1·4	0·0	0·0	0·0	0·0	0·0
Turnip, sliced	5·5	4·0	3·5	3·0	1·5	1·0	0·0	0·0
Carrot ,, ...	8·5	2·5	4·5	0·5	2·0	0·0	0·0	0·0
Onion, Spanish ...	5·0	0·9	3·0	0·7	1·0	0·5	0·1	Tr.
Beetroot, sliced ...	12·0	0·8	3·0	0·4	1·5	0·0	0·4	0·0
Cauliflower, stalk ...	9·0	1·2	8·3	1·1	3·3	0·7	0·4	0·2
Cabbage	3·3	0·7	2·3	0·0	1·5	0·0	0·5	0·0
Sprouts	4·5	1·5	3·2	1·0	2·1	0·5	0·6	0·1
Parsnip, sliced ...	11·0	3·0	8·0	2·5	4·0	1·0	0·6	0·0
Seakale	4·0	1·2	3·0	0·3	2·0	0·1	0·6	0·0
Cauliflower, flower	4·0	1·2	3·0	1·0	2·0	0·6	0·8	0·3
Artichoke, sliced ...	18·4	1·1	10·0	0·8	5·0	0·4	1·0	0·0
Potato ,, ...	15·0	0·9	10·0	0·7	5·0	0·5	1·0	0·2
Swede ,, ...	6·5	3·5	4·5	2·0	2·5	1·5	1·0	0·5

From these experiments it is clear that three boilings are not sufficient to render all vegetables carbohydrate free, and that the amount of carbohydrate originally present is no guide in selecting those best suited for the preparation of a starch and sugar-free product such as may sometimes prove useful instead of actual fasting for children or severe cases of diabetes. It would seem that celery, rhubarb, spinach, sliced turnip, and sliced carrot can probably be relied upon and are the best to use for the purpose. It should be noted that swedes cannot be employed in place of white turnips, for although they contain nearly the same percentage of total carbohydrate they part with it much more slowly and may contain one per cent. after three boilings, about half of which is reducing sugar. Even when thrice-boiled vegetables are not quite free from carbohydrate the percentage is so much reduced that from 4 to 30 times as much of the thrice-boiled as of the once-boiled material will contain the same amount of carbohydrate. The use of the former, therefore, permits of a much greater bulk of food being taken. As reducing sugar is removed much more rapidly than the "total carbohydrate," and some of the reduction given by the latter is probably due to pectins and indigestible bodies of a similar nature in some instances, the proportion which can be safely allowed is often larger than these figures would suggest.

Repeated boiling considerably impairs the flavour and appearance of vegetables, and although their lack of taste can be masked to some extent by serving them with condiments, clear broth, bovril, lemco, and in some instances by sweetening with saccharin, they are not very attractive to most patients. Experiments by Ruth. A. Wardall[4] suggest that a more tempting and equally carbohydrate-free product may be prepared from some by repeated extraction at a temperature considerably below the boiling point of water. The vegetables are finely shredded, covered with an excess of water at 60° C. (140° F.) and allowed to soak. At intervals of 10 to 15 minutes the water is drained off and fresh water at 60° C. added. When this process is repeated at regular intervals the time required to free certain vegetables from available carbohydrate was found to be as shown in Table II.

---

[1] Die Zuckerkrankheit, 1912, p. 306.
[2] Boston Med. and Surg. Journ., 1915, clxxii., p. 241.
[3] THE LANCET, 1917, i., p. 613; 1919, i., p. 939.
[4] Journ. Amer. Med. Assoc., Dec. 1st, 1917, p. 1859.

For comparison the number of extractions with boiling water required to produce the same results are given in Table III.

TABLE II.
Extraction at 60° C.

Beet	1 hr.
Parsnip ...	1 ,,
Carrot... ...	1½ hrs.
Egg plant ...	2 ,,
Pineapple ...	3½ ,,
Cabbage ...	Little affected.

TABLE III.
Extraction at 100° C.

	A.	B.
Beet	2	Trace.
Parsnip ...	6	0·4
Carrot ...	6	0
Egg plant...	7	0
Pineapple...	9	—
Cabbage ...	8	Trace.

A, Highest number of extracts showing carbohydrate.
B, Carbohydrate in residue per cent.

These experiments are only of a preliminary character, but the effectiveness of the extraction at 60° C. in the case of beetroot and carrots, for instance, and the better appearance and flavour secured than when boiling water is employed suggest that an agreeable extension of the often limited range of vegetables open to severe cases of diabetes may be obtained by this method of preparation. The extracted vegetables can be preserved for future use by desiccation in a current of air from an electric fan for 3½ hours. Stored in a dry place they keep indefinitely, and may be prepared for use when required by soaking in water and reheating.

Nottingham-place, W.

A CLINICAL STUDY OF THE

TREATMENT OF TUBERCULOUS ABSCESS BY ASPIRATION.

BY Z. P. FERNANDEZ, B.A., M.B., CH.B. LEEDS,
LEEDS CITY ASSISTANT TUBERCULOSIS OFFICER; LATE RESIDENT, LEEDS CITY SANATORIUM.

GIVEN early diagnosis, treatment by aspiration will frequently arrest the course of a tuberculous abscess and effect a complete cure. Delay in diagnosis and treatment by incision not infrequently end in disaster. The following cases are taken from the wards of the Leeds City Hospital Sanatorium during my tenure of office for over two and a half years. French authorities quoted by Gauvain[1] maintain that 50 per cent. of patients with spinal abscesses treated by incision end in sinus formation, and that 70 per cent. of cases of sinus formation in spinal disease die.

Returning to our own cases, two interesting post-mortem examinations made by me are worth recording.

One case was that of a patient who had been in a moribund condition and who succumbed almost at once. At the post-mortem it was found that he had suffered from what appeared to be a primary laryngeal tuberculosis—admittedly a very rare condition. A cervical abscess had made its way down along the planes of tissue in the neck, and pus had appeared in the axilla. Tubercle bacilli were found in the pus.

The second case, one of spinal caries, had been admitted in an exhausted condition, and an abscess had been found dorsally. At the autopsy simple broncho-pneumonia was found.

It appeared to me that aspiration might have greatly delayed the fatal termination in both cases, and possibly have saved the life of one.

A man, aged 42, admitted with extensive ulceration of incised sacro-iliac abscess, remained under our observation till death three months later. Another case, similarly admitted, died five months after incision from lardaceous disease and cachexia. Three girls, aged respectively 16, 12, and 16, died eight, ten, and five months after admission with incised lumbar abscess of spinal origin. In these cases extensive ulceration and lardaceous disease terminated with cachexia. In a boy aged 9 a spontaneously opened neglected lumbar abscess, in spite of aspiration, did not arrest the original lesion, and death followed a year after admission. Recently a case of incised multiple abscesses of six years' duration was seen by me in a dying condition, terminating fatally soon after.

In cases treated by aspiration the result has been more satisfactory in a shorter period, as the following cases illustrate.

1. *Cases of Spinal Abscess.*

A cleaner, aged 43, with dorsal abscess, was aspirated eight times with arrest in three months. Eighteen months later recurrence in the same site, arrested after six aspirations in two and a half months, and his prognosis now is very good. In an ex-soldier (21) a lumbar abscess was aspirated 20 times during four months with improvement of paraplegia. In a female (20) a right suprascapular abscess was cured with four aspirations in three weeks without recurrence for over 18 months. Against these may be recorded cure in two cases admitted with incised lumbar and dorsal abscess resulting in sinus after 22 months and 7 months respectively.

2. *Hip-joint Abscess.*

In a girl aged 16 abscess of lateral thigh arrested after six weeks with four aspirations. Gluteal abscess in two ex-soldiers, aged 29 and 32 respectively, with 10 and 12 aspirations, was arrested after two months and four months. In a soldier admitted with incised gluteal abscess and sinus cure was effected only after 13 months. A boy (17) with a similar incised abscess was cured after seven months, whilst a re-formation was arrested by two aspirations in two weeks. No recurrence has taken place in any of the cases for over a year. Two girls, aged 15 and 16, admitted with incised abscess about Scarpa's area are still in an unsatisfactory condition after one and a half and three and a half years respectively. In one of these reaccumulation near the original site was arrested after 12 aspirations in three and a half months.

3. *Abscess of Abdominal Origin, no Joint Implicated.*

In a child (4) abscess in lumbar area subsided with three aspirations in two weeks. In a boy (16) arrested tuberculous ascites was followed by abscess in the thigh. This was aspirated six times and cured in six weeks. On resuming work he received a knock with re-formation. The site of the puncture was probed by a doctor, and the condition has not improved for over a year, with a resulting sinus and discharge. A right groin formation in a tuberculous ex-soldier was cured with 12 aspirations in two months. In another four aspirations in three weeks arrested a similar condition. In a tuberculous girl (16), admitted very ill, a swelling in the epigastric area was successfully aspirated four times with recovery in 71 days. Macdonald in THE LANCET, Feb. 17th, 1912, recorded a similar case successfully incised, and considered it on the authority of Savariand as a primary infection. In our case there was a previous infection of the lung. In a girl (15) tuberculous ascites was arrested by tapping. Later an umbilical abscess formed and arrested in six weeks with four aspirations. Though a sinus resulted later her condition remarkably improved soon after. Male (20) admitted with incised left groin abscess, developed one in the right which, with four aspirations, was arrested in two months, and a right lumbar one with three aspirations arrested in two weeks. The original site, however, continued unsatisfactorily, ending fatally a year after the incision. An incised groin abscess in a girl (4) developed abscess in the other groin, which, though aspirated, resulted in a sinus, and her general condition was not satisfactory after two years (has died since).

---

[1] THE LANCET, August 10th, 1912, p. 356.

4. *Other Joints.*

A knee abscess in a boy (15) incised before admission healed in five months, and a re-formation whilst under treatment was aspirated twice and arrested in two weeks. A tuberculous ex-soldier developed abscesses in left knee, and left and right shoulder. These were aspirated four to five times in each case, and arrested in three to four weeks. He has now been working for over a year, and his general condition is very satisfactory. In another pulmonary case after incision of an abscess of the elbow multiple abscess resulted, and the prognosis is unsatisfactory after three years (has died since).

5. *Other Abscesses.*

In 2 cases of chest wall abscess in pulmonary cases one was arrested in four months after six aspirations, whilst the other admitted with spontaneously opened abscess resulted in sinuses, which after a year showed a healing tendency. Ellis's brass-paste has been used in this case recently with apparent benefit.

In 6 cases of massive cervical abscess continued aspiration with diluents 10 to 15 times effected a cure in two cases in two months, in three in four months, and in one previously incised in nine months. The majority of gland cases have been treated by aspiration and diluents as out-patients at the tuberculosis dispensary, under the direction of Dr. H. de Carle Woodcock with good result.

Of abscess of epididymis 3 cases have been arrested in three, four, and eight weeks, with three to six aspirations. To these must be added 2 cases of ischio-rectal abscess arrested in two weeks, and also a peri-nephritic abscess with T.B. in the pus in a tuberculous ex-soldier, admitted very ill, but now doing well after three aspirations in two weeks. A similar incised case developed a sinus which lasted two years before being arrested.

In all the above cases the general treatment has been carried under sanatorium conditions on conservative lines. In aspiration a stout needle with a good bore is essential; one also avoids inflamed area and prefers an oblique puncture. An attempt should be made to arrest an abscess without modifying fluid. In some of the above cases simple aspiration has been found effective. A great many diluents have been advocated—trypsin, lactic acid, bipp, cinnamic acid, essential oils like garlic, cajaput. Personal experience of the nature of the abscess will be an asset in the choice. Saline, iodine, colloidal solutions have also been used. In certain types solution of ether, camphor, and thymol, first advocated by Menard, Koch, and Risacher, and followed by Gauvain, has been found effective.

The conclusion reached from the above consecutive cases was that sinus formation frequently follows incision, whilst it is an exception in the aspiration method. The mortality and the time factor in the former also do not compare favourably. In pulmonary cases avoiding anæsthesia is an additional advantage. With early diagnosis and efficient continued aspiration tuberculous abscess is arrested sooner than by incision and complication prevented. In THE LANCET of Dec. 21st, 1912, Openshaw and Roth in treatment of Pott's disease by conservative method preferred aspiration to incision. In certain cases they found arrest was secured by non-interference.

I am greatly indebted to Dr. H. de Carle Woodcock, visiting physician to the Leeds City Sanatorium, and Dr. A. E. Pearson, the medical superintendent, for their help in the preparation of this paper.

ON THE

REMOVAL OF LARGE CERVICAL TUMOURS OCCUPYING THE VAGINA.

BY J. F. PEART, F.R.C.S. IREL., L.R.C.P. & S. IREL.,
HONORARY SURGEON-GYNÆCOLOGIST, BATTERSEA GENERAL HOSPITAL.

REMOVAL per vaginam is the universally adopted method of operating upon large cervical tumours occupying the vagina. I append the notes of the removal of an intravaginal fibroid which, when depleted of blood, measured 5 in. by 3½ in. and weighed 10 oz., and the method by which I removed it.

Mrs. P., aged 48, had had uterine hæmorrhage for three years. The patient was very weak and extremely blanched. She had had eight children, the youngest 8 years old. She had never had a miscarriage, but since her last confinement she had not had proper menstruation, but floodings accompanied by clots every two or three months. On examination I found the entire vagina filled by a hard tumour presenting at the vulva. Digital examination per vaginam was impossible. Per anum I was unable to get my finger above the tumour mass or to differentiate the cervix uteri. By abdominal palpation I felt the fundus uteri three fingers-breadth below the umbilicus, and a cystic swelling on the right side. I decided to perform a laparotomy.

Operation.

The right ovary, which had undergone cystic degeneration and to which its tube was bound by strong adhesions, was removed. The left tube and ovary were also surrounded by adhesions, which latter were removed, but were otherwise normal. The uterus was small, and it could now be detected, by grasping the vaginal vault between the fingers and thumb, that the tumour protruded from the cervix. Incising the peritoneum through the utero-vesical fold I dissected down between the uterus and bladder and cut through the anterior vaginal wall over the cervix. The tumour originated from the anterior cervical wall on its inner aspect, just below the internal os by a short thick pedicle. This I divided, enucleating the proximal portion, whilst an assistant delivered the tumour per vaginam. I now completed the operation by suturing the vaginal wall, leaving a small drain leading into the vagina for 24 hours, restored the peritoneum and sutured the abdominal wall. The patient made an uneventful recovery and returned home three weeks later restored to normal health.

Discussion.

I consider that I was justified in the above procedure, and that the abdominal route is to be preferred in such cases. The following essential factors seem to me to be often overlooked: (1) The frequency of associated pathological conditions of the corpus uteri and adnexa, which can only be dealt with by laparotomy; (2) the possibility of malignant degeneration in an intra-abdominal associated growth; (3) the practical impossibility of diagnosing the presence of such conditions in most of these cases, for a bimanual examination cannot be carried out.

Fibroids are usually multiple, and a fibroid polypus may co-exist with corporeal sessile ones. It is likewise my experience, as confirmed by Berkeley and Bonney, that ovarian tumours co-exist commonly with a uterine fibroid. In a recent case upon which I operated I found almost every form of fibroid present.

I am unfortunately unable to bring forward statistics to prove the relative frequency of the presence of corporeal fibroids with cervical polypi, or with associated ovarian cysts and other adnexal tumours, but I am convinced it is by no means negligible. Malignant degeneration of fibroids is estimated at between 2 and 4 per cent. of all cases. Such degeneration may be present in an intra-abdominal tumour, but remain undetected owing to the difficulty of diagnosis.

With these large intra-vaginal growths I think most surgeons will agree that it is in most cases impossible to determine before operation whether the growth is cervical, sessile, or polypoid; and the presence of associated pathological intra-abdominal conditions more often than not cannot be detected. Moreover, in some cases we have to depend upon the microscope for the detection of malignancy, and with regard to this Eden and Lockyer rightly state, "all cervical polypi should be submitted to careful histological examination, for apparently innocent growths may eventually prove to be sarcomata."

Considering, therefore, the likelihood of the co-existence of adnexal or corporeal pathological conditions, the impossibility of excluding malignancy in such intra-abdominal tumours, and the great difficulty in diagnosing their presence when the bimanual procedure is obstructed by the vaginal growth, I strongly advocate that large intra-vaginal tumours should be dealt with by laparotomy. If associated pathological conditions be found, or malignancy be detected histologically in a growth, the operator has saved the patient from the necessity of a second operation. If, on the other hand, no such conditions are present he can feel more surely that he has cured his patient.

The principal objection that may be urged against this suggestion will, no doubt, be the relatively greater danger to the patient of the abdominal operation. But in the present days of aseptic surgery there is little to be feared if the operator is accustomed to abdominal work.

Clinical Notes:
MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

◆

A CASE OF
CARCINOMA OF THE OVARY
IN A GIRL AGED NINE YEARS.

BY H. M. GERSON, M.R.C.S., L.R.C.P. LOND.,
HOUSE PHYSICIAN, POPLAR HOSPITAL FOR ACCIDENTS, LONDON.

THE following is undoubtedly of rare occurrence and therefore worthy of some record.

The patient, a Spanish girl, aged 9, one of an apparently healthy family of 13, was admitted to the Whitechapel Infirmary on August 9th, 1919, having been transferred from the Children's Hospital in Shadwell. It appears that an exploratory laparotomy was performed, a provisional diagnosis of tuberculous peritonitis having been made, and as a result the right ovary and tube were found involved in a growth, and removed; no secondaries were observed at the time. Within a few weeks of operation a lump was noticed in the left iliac region, and on the presumption that the left ovary was involved, a second laparotomy was performed which revealed a malignant growth of left ovary and multiple secondaries in the omentum. The case was considered inoperable and the patient removed to the Whitechapel Infirmary, wherein she died two weeks later.

Post-mortem.—At the autopsy the following was found. A distended abdomen, dense matting of intestines, and a large fungating growth extending from the left ovary to the left iliac bone, to which it was adherent, and also down the course of the psoas muscle sheath into the thigh. The pelvic contents were removed with difficulty, and a mass consisting of the uterus and vagina, left ovary and tube, stump of right tube, and a portion of adherent large gut, and examined. The left tube and ovary were represented by a ragged mass 7 cm. in diameter. The tube could not be identified, and a portion of large intestine was adherent to the mass. The mucosa was smooth and a portion of omentum attached by a tag to the mass contained discrete and smooth nodules measuring to 2·5, 1·5, and 1 cm. On section they were lemon-yellow tinged red. The bladder was greatly distended. There were nodules on the peritoneal surface of the fundus of the uterus, and a plaque 5 × 3·5 × 1 cm. of crimson tissue containing small cysts. Similar nodules were on its submucosa; the external os and adjacent part of vagina showed a conspicuous villus which completely covered the external os. Of the other organs, the pelvis of the left kidney contained a secondary growth, diam. 5 cm., and similar growth in the liver, size 8 cm. × 6 cm., and secondaries in the spleen were found. Microscopically a large papillary carcinoma, tubular and cystic, consisting of polygonal and cubical cells, was found in the left ovarian mass. Secondary carcinoma were found in the vagina and external os, the submucosa of the bladder, and the subserosa of the great omentum. A noteworthy fact was that no secondaries were found in the kidney on the right side, from which the corresponding ovary had been removed at the first operation.

My thanks are due to Dr. J. Woods, of the London Hospital Pathological Department, who did the microscopical investigation, and to Dr. W. J. Woodyatt, superintendent of Whitechapel Infirmary, for permission to record this case.

A CASE OF
SUPPURATING HYDATID CYST OF THE LIVER.

BY R. LEONARD LEY, M.B., B.C. CANTAB.,
ASSISTANT SURGEON, GREAT YARMOUTH HOSPITAL.

THE following case may be of interest in connexion with the annotation in THE LANCET of Dec. 6th on Hydatid Obstruction of the Bile-duct Simulating Gall-stones.

Mrs. A was admitted into the Great Yarmouth Hospital during this summer suffering from jaundice and fever of hectic type, with attacks of epigastric pain. The tongue was dry, red, and smooth, the pulse small and rapid. She appeared very ill. Symptoms present for some ten days; upper abdomen and right rectus rigid, so that edge of liver and gall-bladder could not be felt. I watched her for two or three days, during which time the fever remained high and jaundice varied. The diagnosis made was gall-stone in the common duct.

Operation.—Abdomen was opened through right rectus and liver found much enlarged; there was a pale and, I thought, fluctuant area immediately below the ribs. I explored the gall-bladder and ducts, and found the gall-bladder not distended and ducts normal. I then explored the fluctuant area with a syringe and found pus. The patient was not very fit, so I rapidly packed off the liver round the fluctuant area with gauze and incised the fluctuating point. About one pint of pus and hydatid daughter cysts in large quantities escaped—the cysts in various stages of dissolution. The wound was closed by through-and-through silkworm gut sutures and a large tube put into the abscess cavity. The gauze packing was removed after 48 hours and the patient gradually recovered; the sinus healed at the end of about two months and she is now quite well. All her life she had never left Great Yarmouth.

I suppose in Australia a correct diagnosis might have been made, but the patient presented a fairly typical picture of gall-stone disease. I did not examine her blood after operation to see if eosinophilia was present, but this seems to me to be the only likely point on which a differential diagnosis could have been made.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

CLINICAL SECTION.

Exhibition of Cases.

A meeting of this section of the Royal Society of Medicine was held on Dec. 12th, Sir **Anthony Bowlby**, the President, being in the chair.

Mr. C. **Firmin Cuthbert** contributed the notes of three cases.

(1) Intussusception caused by a Papilloma at the Ileo-cæcal Valve.

The patient was a lady, aged 40, who complained of pain in the abdomen for two days, accompanied by slight diarrhœa, a feeling of sickness, and tenderness over the left rectus abdominis low down. These symptoms were attributed by her to riding a bicycle, the pedals of which were too long for her, for 22 miles. The whole abdomen was found to be somewhat dull and tense, and under an anæsthetic a small round movable tumour could be distinctly felt, and was thought to be an ovarian tumour with a long pedicle. There were no urgent symptoms. The following day the abdomen was opened and a large ileo-cæcal intussusception found. This was gently reduced in about 20 minutes. The cæcum was in a very bad condition, but bled when scratched with a needle, and so was left in the abdomen. Bearing in mind that a large proportion of intussusceptions in people of this age are caused by a growth in the cæcum, Mr. Firmin Cuthbert a fortnight later again explored and found a tumour, apparently movable, in the cæcum. He clamped the ileum and divided it about 4 inches from the ileo-cæcal valve and the ascending colon high up. Microscopically, the tumour proved to be a papilloma without evidence of malignancy. She was now, more than seven years later, quite well and had been doing war work. Discussion was invited on the unusual absence of urgent symptoms (considering how long the intussusception had been going on), the situation of the papilloma, and the freedom from malignant invasion.

(2) Bony Ankylosis of the Knee.

The patient, a girl aged 25, admitted to hospital in August, 1915, had been getting about on crutches for the previous three years. Six months before she had had acute pain in the knee and a high temperature. It was called "rheumatism." The knee had gradually drawn up until it became fixed at a right angle. No other joints were affected. The symptoms which she had had at this time might have been due to the gonococcus, but no gonococci were found. A radiogram showed that the tibia was fixed to the femur and the patella to the outer condyle. The joint was excised by Kocher's method. She now had a useful leg and frequently walked 16 miles a day. She had been married three years without signs of pregnancy, which might have been due to her having been rendered sterile by the gonococcus.

(3) Appendix containing 36 shots, followed by signs of Malignant Endocarditis.

The patient was a man, aged 41, admitted to hospital in January, 1906. Fifteen months before, he had had sudden pain in the right iliac region and had never been well since, but always felt cold. The abdomen was distended and the colon well defined. The tongue was foul and the breath fœtid. Temperature 101° F.; pulse 88. There was no pain or tenderness, but he looked very ill. No actual diagnosis was made, but duodenal ulcer or chronic appendicitis was suspected. An appendix 7 inches long was removed; it felt as if it contained shot. There were no adhesions anywhere and no other lesion was found in the abdomen. Having read somewhere in the literature that lead in the appendix might be followed by malignant endocarditis, Mr. Firmin Cuthbert gave a very guarded prognosis. Blood examinations were made three hours later and the *Streptococcus longus* grew in culture. Vaccine treatment and saline purgation were given. The patient still ran a temperature of 101° and looked very ill, and had an aversion to all food. About two months later rigors supervened and the urine was found to contain albumin. He became very confused, developed left hemiplegia with convulsions, and died. Unfortunately no post-mortem examination was allowed.

The **President**, discussing the first case, recounted the case of a boy, aged 17, on whom he had operated for intestinal obstruction. A fibrous papilloma, originating in the ileo-cæcal valve, had caused an intussusception, and the intestine, with the cæcum, had subsequently become twisted, producing volvulus. Speaking of the second case, he said that he had seen complete bony ankylosis of many joints of the body in young people from no cause that was apparent.

Cirsoid Aneurysm.—Dislocation of Patella.

Mr. R. P. **Rowlands** showed two cases of Cirsoid Aneurysm, for both of which amputation had been advised. One, which affected the hand, was of 30 years' standing. The brachial artery was ligatured, but the thumb had subsequently to be amputated for gangrene. The other case was in a young woman, the cirsoid aneurysm being in the left foot. Ligature in this case had been followed by no untoward symptoms, and the result had been very successful.

The **President** said that the danger of gangrene following ligature in such cases was often not sufficiently recognised. The profusion of vessels in the part would suggest that it was an unlikely accident, yet it often occurred. He suggested that a possible explanation was local clotting in the dilated vessels which subsequently spread.

Dr. F. **Parkes Weber** pointed out that the blood-supply in these cases was nearly double the normal, and consequently when the main artery was ligatured nearly double the usual amount was cut off.

Mr. **Rowlands** also showed a case of Dislocation of the Patella in a young girl, which had been present since the age of 3. Osteotomy of the femur had been done, and the patella had been replaced by the following procedure. An incision was made into the outer side of the fibrous capsule of the knee-joint, and subsequently the sartorius and gracilis were transplanted to the inner side of the patella.

Auricular Flutter.

Dr. A. **Hope Gosse** showed a case of Auricular Flutter in a man aged 72.

The patient had first noticed shortness of breath a year ago which had come on suddenly when he was getting into bed. He said his breathing "stopped" when he lay down. Cough commenced at the same time, and he had had one small hæmoptysis. His ankles had never been swollen, but since then he had had periodic attacks of dyspnœa. On examination the heart was found to be regular, and when first seen he had a pulse-rate of 110 when lying down. When he moved his leg the pulse-rate jumped immediately to 165, to return again to 110 after a few minutes. A polygraphic tracing showed a series of waves, equally spaced, running at the rate of 330 to the minute. The heart appeared to be of normal size, and there were no murmurs. The Wassermann reaction was negative. Four days later he had a pulse-rate of 75 beats per minute and a run of equally spaced beats in the jugular pulse at the rate of 300 per minute.

The case was diagnosed as one of auricular flutter for the following reasons: (1) sudden increase to 160 beats per minute on moving one limb; (2) an irregular pulse which spaced; (3) a jugular pulse showing four waves equally spaced to each left ventricle contraction and at a rate of 300 beats per minute; (4) the presence of symptoms of heart failure. He was at present being treated with tincture of digitalis, ♏ xv. six-hourly, which was to be increased in order to convert the rhythm into one of auricular fibrillation if possible, and then to be stopped to give an opportunity for a normal rhythm to assert itself.

Unilateral Sweating of the Face.

Dr. G. **de B. Turtle** showed two cases of Unilateral Sweating of the Face.

The first was that of a man, aged 32, who had a shrapnel wound of the right mastoid process in September, 1916. This was followed by some suppuration involving the parotid gland, and a salivary fistula resulted, which had healed. The sweating was apparently limited to the distribution of the auriculo-temporal nerve on the right side. It only occurred when the patient was eating, and had been present about 18 months.

The second case was that of a man, aged 43, in whom the unilateral sweating of the left side of the face was most marked over the area of distribution of the upper division of the fifth nerve, but was observed also over the areas of distribution of the other divisions of the nerve. It had been present for from four to five months, and occurred at any time, but especially after exertion or taking a hot meal, more particularly after drinking hot tea. He was a leading seaman in the Naval Division, and was captured at Antwerp and interned in Holland for four years, returning home in November, 1918.

Dr. PARKES WEBER considered that the first case belonged to a definite clinical group, the symptoms of which were unilateral sweating and flushing of a portion only of the face, especially after eating. The symptoms were associated with a wound. In 1908 he collected the recorded cases and showed a typical example. The wound was never a simple one, but was accompanied by the formation of cicatricial tissue. In most cases it had been associated with suppuration of lymphatic glands.

Dr. S. A. K. WILSON had seen several such cases, one or two of which he had treated for a long time, but the symptoms remained unaltered. A similar condition might occur with a lesion of the cervical sympathetic or thrombosis of the posterior inferior cerebellar artery, but there was no evidence of either of these in the class of case under consideration. There were no other concomitant symptoms, and in his cases there had been no wound. He regarded the disorder as a reflex phenomenon, dependent upon a purely local reflex from one branch of the fifth nerve to another.

Dr. F. S. LANGMEAD said that Dr. Turtle had been good enough to allow him to see the first case at St. Mary's Hospital. He suggested that the afferent impulse in this case arose in the parotid gland by stimulation of nerve endings from the undue tension imposed by the cicatricial tissue, and was transmitted through the otic ganglion to the sympathetic fibres which accompanied the auriculo-temporal nerve.

Multiple Congenital Anomalies.

Dr. WILSON showed a case of Multiple Congenital Anomalies in a boy aged 7. There were present hydrocephalus, a highly arched palate, spina bifida with bony defects from the second lumbar vertebra to the sacrum, the latter being unaffected, syringomyelocœlic lumbar hypertrichosis, retention of testis on each side, and double congenital dislocation of hip. Dr. Wilson said that the hypertrichosis was of considerable interest. The late Sir William Gowers had described a similar overgrowth of hair over the corresponding vertebræ in a case of fore-quarter syringomyelia.

Dr. WILSON also showed a case of Friedreich's Ataxy in a girl.

Mr. LAWSON WHALE showed a case of Pituitary Tumour which had been operated upon and proved to be an endothelioma.

Dr. R. H. B. CARTHEW showed a case of Rodent Ulcer of the face which had been treated successfully by radium. Before treatment the ulcer was an inch and a half in diameter and nearly a quarter of an inch deep. Radium, 33 mg., was applied weekly for three quarters of an hour. The ulcer responded rapidly and commenced to heal after two applications. After four it covered over, and all pain and irritation ceased.

SECTION OF ANÆSTHETICS.

A MEETING of this section of the Royal Society of Medicine was held on Dec. 4th, Dr. LL. POWELL, the President, being in the chair.

Intra-tracheal Insufflation of Chloroform.

Mr. CLARENCE H. MOTT read a paper on Intra-tracheal Insufflation of Chloroform, based on 357 cases. He showed that the insufflation method might be expected to suit chloroform particularly well, and he had not been disappointed in his expectations. At first Mr. Mott had worked with varying proportions of chloroform and ether together, using them both intra-pharyngeally and by the trachea before he arrived at pure chloroform by the trachea. A Vernon-Harcourt inhaler containing chloroform was placed between the motor and Kelly's intra-tracheal apparatus, containing ether. Finally, Messrs. Down Bros. added a second chamber to Kelly's apparatus. A flow-meter has since been added, which gives readings up to 30 litres of air per minute, and, thanks to the great kindness of Dr. A. D. Waller, Mr. Drew and Mr. Mott have been able to grade the dial on the chloroform tap, showing the actual percentage of chloroform vapour when the motor is delivering 10, 20, 30, or 40 litres of air per minute, with 16 oz. of chloroform in the chamber. The majority of the cases had morphia and atropine, and the catheter was passed into the trachea, whilst anæsthesia was maintained by intra-pharyngeal methods. When untoward symptoms supervened—and these were on rare occasions—increase or decrease of the chloroform, more frequent or longer reductions of the air stream to zero, alterations in the volume or pressure of air stream, or slight withdrawal of the catheter effected the desired improvement, and at any moment ether or oxygen could be added at will. The 357 cases included intra-peritoneal, 135 (gastro-enterostomy, 11, gall-bladder, 10, hysterectomy, 10); limbs, 15; hæmorrhoids, 12; kidney, 10; breast amputations, 10; glands of neck, 7; thyroid, 7; bladder, 3; mouth, 3.

Respiratory complications.—Cases developing no complications, 306; very slight, 28; more serious, 22; pneumonia, and died, 1, six days after an operation for hysterectomy; this patient had a cough before operation, which lasted one hour and a half.

Vomiting.—114 cases did not vomit at all; 129 cases vomited 1 to 3 times; 60 cases vomited 4 to 6 times. Children appear to take the method as well as adults.

Deaths.—There were 8 deaths. None of these can be attributed to the anæsthetic:—2 died from hæmorrhage 14 hours and 6 days after operation respectively; 2 died from heart failure 36 hours and 3 days later; 1 died from peritonitis (perforated duodenal ulcer); 1 died from intestinal obstruction 5 days later; 1 died from pulmonary embolism 4 days later; 1 died from pneumonia (already mentioned) 6 days later.

Discussion.

Mr. REGINALD ALCOCK said that complete relaxation was not so uniformly found with any anæsthetic as it was with intra-tracheal chloroform. The excursions of the abdomen were almost absent, a great gain in such operations as gastro-jejunostomy. Also there was absence of congestion and of hæmorrhagic oozing, and the anæsthetist and apparatus were conveniently distant from the operator in head and neck cases.

Mr. W. C. ALLARDYCE had operated some hundred times with the method, the ages of the patients ranging from 9 to 65 years. He had come to value Mr. Mott's administration of chloroform very greatly, but regarded it as a method solely for the expert. Mr. Mott provided him with everything that a surgeon was entitled to ask of his anæsthetist.

Mr. NORMAN PATTERSON pointed out the great value which the method should have in the treatment of malignant disease of mouth and pharynx by diathermy.

Dr. J. BLOMFIELD regarded Mr. Mott's work as a most valuable confirmation of the work done upon animals to determine physiologically safe percentages of chloroform vapour. He deprecated any general comparison as to the relative safety of chloroform and of ether based upon these 300 cases.

Dr. F. E. SHIPWAY pointed out that the post-operative results compared unfavourably with those due to intra-tracheal ether, and he asked where, except in the matter of abdominal stillness, was there any advantage in using chloroform, particularly in mouth cases. He did not believe that it was a scientific procedure to procure complete muscular relaxation by general anæsthesia alone.

The paper was further discussed by the PRESIDENT, Mr. C. VANCE, Mr. F. S. ROOD, Dr. J. F. W. SILK, and Mr. C. T. W. HIRSCH.

A collection of apparatus designed and used by the late Mr. J. T. Clover was exhibited to the meeting, and an appreciation of him, written by Dr. Dudley Buxton, was read by the PRESIDENT.

Reviews and Notices of Books.

IMMUNITY IN HEALTH.

By KENELM H. DIGBY, M.B., B.S., F.R.C.S., Ho Tung Professor of Clinical Surgery and Professor of Anatomy in the University of Hong-Kong. London: Henry Frowde and Hodder and Stoughton. 1919. Pp. 130. 8s. 6*d*.

THE functions of the tonsils and other subepithelial lymphatic glands in the bodily economy are dealt with by Professor Digby in a novel and arresting manner in the handy little volume bearing the above title. If the title is a little too comprehensive and the micro-diagrams a little crude, these minor deficiencies are amply compensated for by the clarity of the author's arguments. Charles Darwin, amongst others, is saddled with the responsibility of teaching that the tonsils, adenoids, and vermiform appendix are dangerous relics of a past usefulness. Professor Digby holds that these organs, which with the solitary follicles and other lymph nodes of the gut are collectively termed the subepithelial lymphatic glands, constitute a very valuable antibacterial mechanism and are the prime factors in the development of individual immunity. Large numbers of bacteria pass into the subepithelial lymphatic glands and are attenuated by the lymphocytes, and this process of attenuation is completed in the red marrow. The cells of the glands are of two kinds—the small lymphocytes and the endothelial cells. The former, Professor Digby assures us, are both motile and phagocytic, and the latter ingest the former when these return to the glands laden with bacteria. The small lymphocyte in the blood is also probably motile and phagocytic. This much would appear to be confirmed by the fact that an increase of small lymphocytes accompanies infective granulomata and also malaria, measles, mumps, and whooping-cough. If lymphocytosis were not purposeful why should it occur at all? The glands in question protect against measles, cerebro-spinal fever, and influenza; also against the inroads of the alimentary bacteria. They are anatomically and chronologically situate at the point of maximum aggregation and minimum protection against bacterial influence. There is a gradual atrophy when with age individual immunity is secured. Appendicitis begins as a lymphadenitis, and is followed by ulceration, which progresses or cicatrises according to the resisting powers. Subepithelial lymphadenitis is the beginning of sore-throats, peptic ulcers, typhoid fever, and appendicitis. As the author points out, "an occasional attack of tonsilitis is a cheap ransom to pay for immunity from general infections of far greater frequency and severity," and, indeed, it is clearly proven that diminished bacterial resistance may eventuate from indiscriminate removal of tonsils and adenoids.

Professor Digby advises greater moderation in these matters, and we are inclined to agree with him that Nature is not so foolish as to have planted these organs for the mere benefit of surgical handicraft. At the same time the author in nowise denies that under modern civilised conditions, particularly in England, these organs frequently become grossly pathological, and that then their removal becomes an urgent necessity. "*Suaviter in modo, sed fortiter in re*" exactly if tritely epitomises the attitude which Professor Digby sets forth in this connexion.

THE ART OF ANÆSTHESIA.

By P. J. FLAGG. Second edition. With numerous plates and charts. London and Philadelphia: Lippincott and Co. 1919. Pp. 367. 18*s*.

LITTLE time has elapsed since the first edition of this book appeared, and the present issue is therefore not widely different from its predecessor. The chapter dealing with ether is a good deal extended, and a new chapter treats of the choice of anæsthetic. The author's preference, generally speaking, is for gas and oxygen with ether. He treats his subject in a broad-minded way, and the book, with its large print and capital illustrations, can be read with pleasure.

JOURNALS.

Tubercle. A Monthly Journal Devoted to all Aspects of Tuberculosis. Vol. I., No. 3. December, 1919.—The current number opens with an article on Syphilis and Tuberculosis—the work of Emile Sergent, by Dr. A. Mirande of Paris, who claims that Sergent has brought order out of chaos. The subject is summarised under the heads of Etiology—the Influence of "Soil," the Interaction of the Two Diseases in the Same Individual, and thirdly, Diagnosis, Prognosis, and Therapy. "Mercury is the remedy to be used for all combined lesions; it cures the syphilis and helps to cure the tuberculosis." The question of the relations between the two great granulomata is one whose importance is becoming increasingly realised. Dr. Clive Riviere's lecture on artificial pneumothorax, recently delivered at the Royal Institute of Public Health, gives an excellent account by an acknowledged authority of the practical side of this method of treatment. The value of X rays as an aid to realising the physical conditions of the chest is insisted on, and it is to be regretted that some sanatoriums still lack this essential equipment.—A series of abstracts deals with institutional treatment, and in the course of critical remarks *apropos* of the Papworth scheme, the suggestion is made that part of the unemployment problem might be solved by providing the type of employment used in such a colony as Papworth *within reach of the homes of the patients.* If this means the establishment of factories, &c., in urban or semi-urban districts, surely it is a plan well worth trying and likely to benefit a much larger number of patients than any colony.—Another set of abstracts is devoted to the relation of alcohol to tuberculosis.—A critical review discusses the sociological aspect of tuberculosis, especially as affecting the metropolis; while an article on preventive medicine stresses the view that this is rather a political and economic than a medical problem.—The number closes with reports on the Cannes Conference and on meetings of various societies.

A Review of the Foreign Press.—During the war the intelligence service of the War Office, at first a small press-reading section of the department, developed by the end of 1917 into an essentially civilian organisation which supplied the Government, the Army and Navy, and the Civil Servants of the Crown with all the information of importance—political, economic, technical, and medical—which could be obtained from the newspapers and printed publications of foreign countries. A "Review of the Foreign Press" was thus instituted, and we are glad to learn that this important national work is to be continued and the results published in two journals known as the *Political Review* and the *Economic Review*, now issued in weekly numbers. The collaborators on the staff have been chosen from among those who carried on the same work for the Government. Having the latter paper before us, we heartily join in the earnest hope of the editor and of his distinguished advisory council that all those who realise the paramount importance of accurate information to the commercial and industrial existence of the nation, and who see the urgent need for an accurately informed public opinion in our relations with other nations, will give their support to the undertaking. The first numbers we have received (Nov. 12th and 19th) furnish abundant evidence of the value of the information collected, the contents covering the following subjects: I., Economic and Social Conditions; II., Industry and Commerce; III., Transport and Communication—Shipping, Shipbuilding, Railways; IV., Foreign Trade, Treaties, &c.; V., Trade Propaganda; VI., Banking, Money Market, Insurance; VII., Public Finance, Financial Policy, Taxation; VIII., Colonies, Colonial Policy, Migration; IX., Social and Economic Policy, Education; X., Labour Conditions and Organisations; XI., National Insurance, Savings Banks, Coöperation, &c.; and XII., Agriculture, Food Supplies. Medicine, of course, is bound up with many of these questions, and we hope will soon make a more conspicuous appearance in the journal, for the *Economic Review* should appeal to a very wide class of readers and render excellent service to the nation.

THE LANCET.

LONDON: SATURDAY, DECEMBER 27, 1919.

Last Year.

A YEAR of nominal peace, following upon long years of uninterrupted war, has brought its joys and its sorrows, and will have passed before we next address our readers. If in its trials and disappointments many have realised how far we are from the material ease which characterised the era before the war, only the very selfish can fail to see that from the welter of disarray and discouragement, which is accompanying a new order of things, some of the good which we were promised has emerged. As a country we are feeling all the stress of over-expenditure and all the irritation which must accompany the making of vast efforts with ill-defined issues; but we did not enter into the war with any view of national aggrandisement, and we must bear the painful position of sharing the world's troubles, having no material reward in prospect. The undoubted position is a greater generosity of spirit, a wider feeling of sympathy manifested by the strong towards the weak, and a useful breakdown of many class barriers. Science and art recognise in theory no such barriers, and medicine in particular regards humanity as catalogued neither in racial strains nor social grades. Let us who practise medicine derive all the consolation that we may from the belief that the human race is progressing, though any child can point out that here, there, and everywhere phases of life occur which contradict the creed. Such bloody insanities as the attempted assassination of Lord FRENCH seem to give the lie to any claims that humanity is progressing; but the horror with which the crime has been universally received points to a happier position.

Anniversaries are wisely used as dates when stock-taking can be put through, when reports of progress can be furnished, and when records of failure have to be made and explained; and January the 1st, 1920, the ninety-eighth year of the life of this journal, finds the medical profession with much that is perplexing to face. We have to decide what are the situations in our professional life which most need reform, balancing against the concrete ills that we know of the probable benefits of a brighter future in a more orderly world. The war has brought to the practice of medicine, on the face of all the circumstances, great troubles; but to the art and science of medicine it has brought wonderful experiences, much varied scientific knowledge, and precious accumulations of success. Herein lies our justification for thinking that too many men are unduly depressed by the events of the moment. Our practice depends upon our scientific equipment, and it is quite impossible that those who follow the calling of medicine should fail to share in the advantages that will accrue to the world from our scientific advance. But undoubtedly there are grave difficulties ahead. The Government, this one or another, has to discharge through the offices of our profession its national responsibilities in the matter of health, and we have no guarantee that the pattern of service to be exacted is one that will give immediate opportunity for that rise of the medical profession, which has been earned by our increased knowledge, and which by common consent is due to us in recognition of the part played by doctors in the preservation of national health throughout the war.

The Ministry of Health is confronted at the opening of the year with vast problems whose solution depends upon the harmonious coöperation of the citizen with the doctor; but while the doctor must remember that he is himself a citizen and not a member of a class apart, the citizen must see that much of the executive work and all the detailed ministrations, must emanate from the doctor. The value of the doctor to the State has been proved during the war—and what was done in the circumstances of war may be regarded as only an indication of the greater things that can be done in circumstances of peace; but for the nation to extract anything approaching its full national value from the efforts of the medical profession it will be necessary that the material position of the profession be reasonably safeguarded and that its scientific developments be not impeded by ill-considered claims, regulations, or demands. This is the essential thing upon which for 98 years we have held it our duty and our privilege to insist.

◆

Industrial Medicine in America and Here.

ONE sitting of the Clinical Congress of the American College of Surgeons, of which we give a condensed account elsewhere, was given up to the position of the physician and surgeon in the industrial era. The view of those who shared in the discussion is that in the States there exists a wider appreciation than prevails in this country of the part which the profession can, and indeed must, play in the national and international social problems of the day. Dr. O. P. GEIER, of Cincinnati, pointed out that "permanent international peace could not come, unless there was peace among those who make up the nation," adding that we cannot have permanent peace within the nation "if the majority of people were badly or unjustly dealt with, and were suffering want, for this interfered with production and the government became unstable." At the back of industrial unrest lies the health, and, what depends on health, the sanity of the people, and Dr. GEIER'S call to the medical profession to awake from its social, or rather unsocial, torpor is justified, since labour, in seeking compensation for loss of time and wages through illness, is ahead of the profession of medicine, "with the result that workmen's compensation laws and group insurance schemes were being promoted without seeking the guidance of those best fitted to inspire and direct such undertakings." Meanwhile the profession is content to tinker at occupational injuries and disabilities without any appreciation of the loss to the workers in time and wages, and to the community in their productivity.

Dr. GEIER was speaking of his own colleagues and country, but the same things hold good in this country, where a Departmental Committee is sitting to consider what amendments are wanted to improve the Workmen's Compensation Acts. The voice of the profession is only incidentally heard at its deliberations—not that it is not desired, but because few medical men are able to give adequate help, so that our usefulness in the discussion of social problems is small. We agree with Dr. GEIER that henceforth the medical profession "must be familiar with all the factors which affect the health of the employé, with the sanitation of the factory and the working man's home, his food and his habits, with occupational diseases, with the effects of fatigue and long working hours." He will in this way learn to what extent the labourer's soreness of mind is the result of long hours and the monotony of his work. Dr. J. J. MOORHEAD, of New York, considered the problem was largely one of education and of preparing the medical student of the future on better lines. Assuredly the industrial importance of injury and illness should be brought home to the student, and when Dr. J. M. WAINWRIGHT, of Scranton, claimed that industry was responsible for the stability, wealth, credit, and resources of the nation, it follows that medical men should be trained to appreciate the basic relations between the workers and their work. The knowledge of the medical man requires to be brought to bear practically upon the problems of the loss due to sickness and disability among those engaged in industry, for the welfare of the individual country and the world. Every medical school in this country cannot have in operation a chair of industrial medicine and surgery at the present juncture, but this ideal, which is the American ideal, should be kept before all the British authorities concerned.

In this country, while the profession neglects social economics and is far from awake to its responsibilities for paying to the industrially employed that close attention necessary to increase our national productivity, we can claim to be making an endeavour in one field of industrial health—that known as "welfare." The energy and life in this movement were shown at the crowded congress held, on Nov. 29th, in London by the Central Welfare Supervisors' Association, which has a membership, male and female, of about 1000. Here is developing a medico-social organisation of great power for good; but it is developing with little or no help from the medical profession. There is room here for application of present-day knowledge, and industry knows well how to pay when it gets direct return for expenditure. Are we going to leave the great field of industrial preventive medicine—the care of the human machine—to lay organisations entirely, which, however capable, active, and enthusiastic, can have little knowledge of health and less of disease? We welcome the propaganda which the *Times* is undertaking in its Trades Supplement to popularise the idea of "health and work"; but we feel strongly that unless the medical profession takes its part, and takes it quickly, in directing the movement much will be done wrong which it will be difficult to undo. We commend this question to the Federation of Medical and Allied Societies, for, at the conference held on Dec. 12th under the auspices of the Federation, a wise spirit of tolerance was displayed, and there was throughout the proceedings a recognition of the fact that medicine and the public must work in unison if the national health is to be preserved and improved.

Annotations.

"Ne quid nimis."

HOSPITALS AND THE MINISTRY OF PENSIONS.

A CIRCULAR letter from the British Hospitals Association has called the attention of the governing bodies of hospitals to the coming increase in the rates of payment by the Ministry of Pensions for the treatment of disabled sailors and soldiers. The principle adopted by the Ministry is that which has reasonably been imposed upon the Government by public opinion. That is to say, it recognises that it is for the country and not for voluntary institutions to bear the continuing burden of the injuries sustained by the citizens who defended it. That which the hospitals have done voluntarily during the war exceeds anything for which money compensation can be paid or sought, but now that war is at an end rates of payment for the continued treatment of the disabled, subject to certain definite reservations, are "to cover the whole cost of treatment so that no portion of it shall fall or be a charge on the charitable funds of hospitals." The main object of the letter of the British Hospitals Association, referred to above, is to call attention to the necessity for formally notifying the Ministry of Pensions at once as to the requirements of any hospital. The new rates of payment will come into force on Jan. 1st of next year, and not later than that date the Ministry is to be informed that an increase is needed by any hospital which knows that its accounts will justify such an application. Only the timely sending in of this formal application will insure payment at the increased rates when granted being made retrospective, as from Jan. 1st. The granting of the increased rates will be dependent upon the hospital providing reasonable evidence in support of its claims, based upon particulars extracted from its audited accounts, for which particulars an official form will be supplied by the Ministry on application. It is because it is acknowledged that the evidence required on the official form, and based on the audited accounts of the current year cannot be ready by Jan. 1st, that only a formal application is to be made before that date. This appears to be reasonable enough, and the rates proposed, if they do not cover the cost of treatment in an individual hospital, can presumably be refused by it without its incurring any blame or obloquy on that account. The charity accepting them will make a bargain with the State under which it will be recouped up to a known figure but not beyond it. The maximum allowed for in-patients is to be 11*s.* per day paid upon a sliding scale, varying according to the circumstances of the hospital and its cost of maintenance. For out-patients the existing flat rate of 2*s.* per attendance is continued, and in order to encourage evening clinics the Ministry guarantees a minimum total payment of £2 2*s.* per session per clinic, irrespective of the number of attendances. Also, in the case of aural or ophthalmic clinics, at which the nature of the disability requires active attention by the medical man personally on each occasion of the patient's attendance, the rate of pay is to be 5*s.* per attendance as long as the number is below 12, and for any number above 12 payment will be at the rate of 3*s.* per attendance, while the Ministry will guarantee a minimum total payment of £3 3*s.* per session per clinic.

When we consider that a large proportion of those permanently affected by wounds, or otherwise suffering from disability due to the war, are under 25 years of age, and that some of these may require constant or intermittent treatment during the rest of their lives, we realise that the definite establishment of a principle of national responsibility for their benefit has been just and necessary. These sufferers will keep alive the memory of the killing and maiming inseparable from war in all our minds. They will form a class of patients who will recall to us what science did to preserve life while the great struggle lasted, and may yet be called upon to do. The letter of the British Hospitals Association informs us that the improved arrangement now entered into is the result of negotiations initiated by it with the Ministry of Pensions, and it is to be congratulated upon what it has achieved. The sanction of the Treasury had not been obtained when the Association's letter was printed, but presumably it will not be withheld in the circumstances. It will remain for the Ministry of Pensions to carry out its own conditions in a just and generous spirit, asking only for such evidence of cost as, to quote its own word, is "reasonable," and ascertaining and fulfilling its obligations with "reasonable" promptitude.

SIMULATION AMONG PRISONERS OF WAR.

As the result of his observations in the prisoners of war camp at Celle (Hanover), which mainly consisted of officers, and in thé adjacent hospital, in which Belgian, French, and Russian soldiers were treated, Pellegrini[1] came to the following conclusions. Simulation among prisoners of war is very uncommon. The rarity of its occurrence is not due to fear of punishment or to a lofty moral standard, but mainly to a peculiar state of anaphylaxis or hypersensitiveness to pain and to the lack of physical and moral energy to which the prisoner soon becomes a victim. When simulation does occur it is only found in isolated cases, and hardly ever in epidemic form, as it is seen at the front. The methods employed are often extremely common-place and indicate a puerile mentality, thus differing widely from the ingenuity of the malingerer attempting to escape from service. As a general rule there is a reluctance to use methods which require the endurance of even a slight degree of pain. Hunger strikes only occur when the individual knows that it is always in his power to make a recovery, owing to the existence of a relative abundance of food. Cases of simulation are extremely rare unless there is a real illness prevalent in the camp. The principal diseases simulated by the prisoners were tuberculosis, epilepsy, nocturnal enuresis, and ankylosis of the limbs from immobilisation; the production of bullous eruptions by hot fluids was the most obvious of the auto-mutilations.

EPSOM COLLEGE.

AT the same time as a wider culture is being generally recognised to be desirable, the public school education which should ensure it is steadily retreating from the grasp of those with moderate means. Our grandfathers, to whom we owe a debt of filial gratitude, foresaw this and founded, in the year 1855, on the breezy Surrey Downs, and in pleasant proximity to a famous racecourse, a public school providing, amongst other things, free education—together with clothing, maintenance, and pocket-money—for 50 necessitous sons of medical men. Sir Henry Morris, the present honorary treasurer of Epsom College and of its Royal Medical Foundation, in a letter this week exhorts the present generation to emulate the generosity and foresight of their ancestors, and to give according to their means to keep up and to extend the benefits of the Foundation. On p. 5 of our advertising columns are set forth for all to see what uses will be made of the contributions sent to the treasurer. They will afford no mere gilt-edged security. The value of the training at Epsom College is sterling through and through.

THE GENERAL NURSING COUNCIL.

ENACTMENTS for the State registration of nurses in all three constituent parts of the United Kingdom have been hurried through both Houses of Parliament. In each case the Act provides simply for the enrolment of names on a list, and leaves it to a General Nursing Council to define the standard of training and other important matters. The first English Council to be appointed will hold office for not less than two years and not more than three years, and will consist of 25 members, two to be appointed by the Privy Council, two by the Board of Education, five by the Minister of Health after consultation with training authorities. The remaining sixteen members, also to be appointed by the Minister of Health, must be, or have been at some time, actually engaged in nursing the sick, and the appointments will be made after consultation with the Central Committee for the State Registration of Nurses, the College of Nursing, the Royal British Nurses Association, and other bodies desiring to be consulted in the matter. After the first Council has held office for three years the constitution will remain the same, except that the sixteen nurse members will be elected by the nurses on the register. The members of this second, and finally constituted, Council will remain in office for five years. Since Parliament, when establishing any State register, must safeguard the interests of those already in practice, there is a "loose" clause in the Bill which covers the admission of existing nurses to the register during a period of two years, subject to the approval of their claims by the General Nursing Council. Rules made by the Council will not come into operation until they have been approved by the Minister of Health and laid before Parliament. The register is to consist of a general and a supplementary part, the latter to include male nurses, mental nurses, and nurses of sick children. The Fever Nurses Association has not asked for a separate register, nurses qualifying at a fever hospital merely having this fact noted on the register.

---

[1] Gazetta degli Ospedali e delle Cliniche, 1919, xl., 828-832.

It is quite evident that the question whether State registration of nurses as granted by this Bill is to be a help or not to the nursing profession and to the sick public will depend entirely upon the General Nursing Council, its wisdom and its strength. The one essential thing, registration, having been obtained, we may reasonably expect the pioneers of the movement to lay aside their armour and assist each other in peaceful legislation for the common good.

THE PROLONGED SERUM TREATMENT OF HÆMOPHILIA.

FOR the serum treatment of hæmophilia we are indebted to M. P. Émile-Weil. At a meeting of the Académie de Médicine of Paris on Nov. 25th he returned to the subject and showed the value of prolonged administration. In 1907 he reported to the Congress of Medicine at Paris the case of a man, aged 26 years, who since infancy manifested hæmorrhages with quasi-regularity—hæmarthroses every month and hæmaturia four times a year. He was injected six times during a year with serum, human or animal, and the hæmorrhages ceased. At the same time his blood, which coagulated in 4½ hours before the treatment, showed only the slightest delay in coagulation. The case was followed for five years, during which 20 c.cm. of serum were injected every three months at first and then every two months. No spontaneous hæmorrhages occurred, but the blood did not become altogether normal, and the hæmophilia persisted in slight degree, for when he cut himself he bled more than a normal person, but never dangerously. Of the great number of hæmophiliacs who have been under M. Émile-Weil's care only six others submitted to prolonged treatment. Five obtained the same attenuation of the disease and the complete disappearance of recurrent hæmorrhages (hæmarthroses, hæmatomata, &c.). The abnormalities of the blood greatly diminished but never disappeared. In the sixth case the amelioration was the least; the recurrent hæmatomata continued. The curative action of serum injections in hæmophilia is generally admitted, but what M. Émile-Weil insisted on was the preventive action of continuous treatment. By it the diathesis can be made to "age" artificially in a few months, a process which naturally requires years. It is curious that although the injections give the most favourable conditions for severe manifestations of anaphylaxis such never occurred. One patient received 30 injections in six years, others 20, and still others 12 without ever being really ill. Nothing more serious than some fever, slight arthropathy, or urticaria was observed. These complications appeared most irregularly. One patient showed them on the seventeenth injection, though he never had them before or afterwards. Others had them after the first and not after the later injections. M. Émile-Weil therefore thinks that there should be no hesitation in adopting this treatment, which completely transforms a disease of serious prognosis.

VOLUNTARY WELFARE WORK IN LONDON.

A DEPUTATION from the London Federation of Infant Welfare Centres was recently received by the Minister of Health, and the work carried out by maternity and infant welfare centres in London was discussed. The situation in London is complicated by the exceptionally large number (154) of voluntary infant welfare centres compared with the 41 municipal ones. It was urged by the deputation that the voluntary centres should be encouraged to continue their work as part of properly coördinated borough schemes, in order to preserve the good-will with the mothers which those centres had acquired. The methods of organising the work vary in form and efficiency in different metropolitan boroughs, and there are three ways in which the municipalities have dealt with voluntary centres in the past: (1) by taking over the centres; (2) by giving help in kind—allowing the use of premises; or (3) by repaying the centres for work done. The second way is a compromise, and unsatisfactory at that. The third course is that advocated by the members of the deputation, who laid great stress on the retention of the personal touch between the voluntary workers and the mothers, and seemed to think this is imperilled where the centres are taken over by the municipality. The alternative, suggested by the deputation—namely, the allocation of a grant sufficient to enable the voluntary centres to employ a number of highly skilled health visitors—might equally put an end to the existence of the personal touch. But we find it difficult to see how the taking over of the centres by the local authority would destroy the confidence of mothers and midwives, provided due care were taken to prevent sudden changes in personnel. One of the drawbacks of the present system is the wide variety in methods between different districts, and the best way of ensuring some standard in the conduct of welfare centres would surely be their assimilation by the local authority under the advisory control of the Ministry of Health.

THE new scale of pay in the Royal Army Medical Corps, given on p. 1209, comes into force with the New Year. Officers may now hold, and draw the pay of, specialist appointments up to the rank of full colonel, while the specialist pay is double the former rate in several of the subjects. This is a move in the right direction.

THE subject set for the Liddle Triennial Prize for 1919–20 is the Ætiology of Epidemic Influenza. The value of this prize is £120, and it is open to public competition, the number and importance of original observations being chiefly considered in the award. The examiners are appointed by the Medical Council of the London Hospital, and essays, distinguished by a motto or device, should reach the Dean of the London Hospital Medical College by June 30th, 1920.

INDEX TO "THE LANCET," VOL. II., 1919.

THE Index and Title-page to Vol. II., 1919, which is completed with the current issue, will be published in THE LANCET shortly.

CLINICAL CONGRESS OF AMERICAN COLLEGE OF SURGEONS:
NINTH ANNUAL MEETING.

THE ninth annual meeting of the Clinical Congress of the American College of Surgeons was held in New York from Oct. 20th to 24th, Dr. WILLIAM J. MAYO (Rochester, Minn.). the President, being in the chair.

After an address of welcome by Dr. J. BENTLEY SQUIER (New York), chairman of the committee on arrangements, and some remarks from Dr. JOHN G. CLARK (Philadelphia), the retiring President, the inaugural address on

The Relation of Cancer to the Prolongation of Human Life

was delivered by the PRESIDENT. In discussing the relation of surgery to the prolongation of human life Dr. Mayo stated that the arch enemy of middle age and beyond was cancer, and our measures both for prevention and cure had not advanced according to the increasing need. One woman in nine and one man in 13 died of cancer, and this proportion of cancer deaths would be maintained in the enormously greater number of persons reaching the cancer age. He said that we must spread more widely the fact that chronic irritation was the cause of the disease. Good dentistry had eliminated a percentage of cancers of the jaw due to the irritation of defective teeth. Cancer of the lip and tongue was on the increase as the habit of smoking was on the increase in both sexes. It seemed to be a well-established fact that the incidence of cancer of the breasts was in direct ratio to the amount of covering of the breast and the pressure exerted on it. The influence of drinks too hot to be held comfortably in the mouth in the production of chronic irritation which preceded the development of gastric cancer seemed probable. Unfortunately less was known about the causes of cancer of the large intestine and rectum. The majority of cancer patients came to operation too late to be cured. The paradox of an increased experience in operating accompanied by higher operative mortality and a smaller percentage of cures was to be explained by the increased operability. The surgeon who reported percentages only of operative death-rate and of cure, without stating operability, gave us little information. Too little attention had been paid to traumatic transplantation of malignant cells during operation. A considerable percentage of adenocarcinomas of the ovary were due to spontaneous grafting of cells having their origin in cancer of the stomach. These cells were grafted on to the break in the ovarian surface due to the discharge of the ovum. He said that operative methods should be devised more effectively to prevent cell transplantation as well as the traumatic detachment of cancer-infected thrombi into vascular channels—a complication which frequently caused post-operative metastatic carcinoma of the liver and lungs. Radium, the X ray, and the radiant energy of heat had a useful field in extending operability, preparing the cancer field for operation, and as after-treatment to reduce the percentage of recurrences. Radiotherapy destroyed cells for a certain distance, cells were sterilised at a greater distance so that their reproduction was checked, and connective tissue was caused to develop and acted as a barrier to the further extension of the malignant process. Radiotherapy often failed when malignant cells became attached to the walls of the three-coated blood-vessels, from which they drew sufficient nourishment to withstand the effect. The use of radium had been greatly extended and good results had been obtained in the past three years, especially in inoperable cancer of the large intestine and upper rectum. A colostomy was made as close as possible to the growth, and through it radium was introduced directly into the lumen of the carcinomatous area. In the stomach, by means of a Witzel lumen of the gastrostomy and the introduction of a tube into the cancerous area, radium might be directly applied, and the patient could be temporarily nourished by means of a jejunostomy. By properly combining radiotherapy with surgery he said we could increase operability, lower mortality, and increase the percentage of cures. In making suggestions concerning cancer research,

Dr. Mayo asserted the probable presence of a measure of immunity against cancer in all persons, and that this was sufficiently great in some to prevent them from having cancer. He had on several occasions been unable to remove all of a cancerous growth and, to his astonishment, the patient had remained well for a term of years. A search for the cause of such immunity and a means of increasing it was greatly to be desired. The more primitive and important the function of an organ the greater its immunity. The small intestine and the testicle were primitive and were seldom the seats of new growth; whereas the large intestine and the ovary had a short heredity and were frequent seats of neoplasms. Surgery was striving by all means within its power to reach pathological processes before they become gross. Abstract science was being called to their aid, especially physics and bio-chemistry, to give a better understanding of physiology and pathology. In this connexion the action of colloids was of significance. The bio-chemists had shown that when certain substances were more toxic in the colloid state than in other conditions, and this peculiarity has been attributed by some physicists to the energy contained in the colloid body. The physical state of matter might influence those early changes which might result in cancer. The benign cystoid appendix, the escape of its colloidal contents from an aperture in the wall of the appendix into the peritoneal cavity, might result in the grafting of hypoblastic elements upon the peritoneum, with the sequence of pseudomyxomatous peritonitis, myxomatous peritonitis, colloid peritonitis, and eventually cancer. It might be assumed, perhaps, that the physical activity of colloid particles attacked the tissues and prepared the field for grafting. Again, it might change the nature of the disturbed mucous cells in the cystic contents of the appendix, and thereby set in motion a series of events which resulted in cancer. The use of energy in the form of rays, such as radium, X ray, and heat, were examples of bio-physics in relation to medicine. These things served to direct attention to the contributions of the abstract sciences to cancer research, and to emphasise the need of more intensive study in these new fields.

Gunshot Fracture of the Femur.

Sir ANTHONY BOWLBY (London) read a paper on Gunshot Fracture of the Femur. At the beginning of the war the splints supplied at the front were very inefficient, as well as very few. Within a few months, however, they had been able to obtain supplies of stouter splints, made with a metal bracket 8 inches long, so as to permit access to the wound, which proved very serviceable. The writer described the "Thomas outfit," which was adopted later, and the routine treatment of the patient until the advisability of amputation could be considered. Sir Anthony Bowlby then discussed the principles of treatment where amputation was not found necessary.

Sir ROBERT JONES (Liverpool) said that the good results obtained in fractures of the femur in France were also obtained in the cases that came to England. In Liverpool the average shortening was only ⅝ths of an inch. They had learned in the pre-war days that weight bearing at too early a period after a fracture of the femur increased shortening, and what was true in the pre-war days was true of the compound fractures of war. Hence they made use of caliper splints. These were Thomas's splints going to the heel of the boot, so that there was no pressure on the leg and the heel did not touch the floor. When these calipers were worn a patient with an ununited fracture could walk with consummate ease, and the patient with a gap in his femur could walk without lameness. Sir Robert Jones then described some of the many types of deformity in connexion with fractures of the femur.

Brain Tumour Statistics.

Dr. HARVEY CUSHING (Boston) said that he had undertaken a statistical study of brain tumour cases (or suspected brain tumour cases) during a 15-year period. Generally speaking, about 20 per cent. of these were pseudo tumours, but 80 per cent. were undoubtedly brain tumours, of which half were verified by operation or autopsy. As the number of verified cases increased, and as one went deeper into the complexity of the subject, it became more and more evident that dogmatic statements belonged to the young and unwise. Statistical presentation was possible but not profitable in a subject in which so many elements were to be considered. In reviewing such a work as that by Osler and Macrae on abdominal tumour one saw that it would be impossible to attempt to cover the field of brain surgery. Doubtful cases had to be regarded as pseudo tumours, and must be excluded from lists of true tumours. Figures of verified cases had increased; thus from 1890–1900, 11 cases had been observed at Johns Hopkins Hospital; from 1902–12, 337 cases; from 1912–17, 500 cases; and the following years 1000 cases. A recent series of 93 cases showed 84 of presumable tumour, 50 of which were certified. Another important question to settle was, which are operative fatalities and which operative recoveries. Dr. Cushing quoted a case of a young man who suffered from profound attacks of unconsciousness. At operation a large tuberculoma was found. An effort was made to remove it in its entirety. Such operations had an extremely high mortality; of 12 tumours removed, 11 of the cases had died. The operation appeared successful. In three weeks the patient was up and about feeling well. He was started for Saranac Lake for convalescent treatment. He missed his train and was found wandering about and brought back to the hospital. He then developed tubercular meningitis and died. Was that an operative fatality? Was that brain tumour or not? There were two other patients who entered the hospital within one week of each other. Both suffered from the rarest kind of brain tumour, a cholestiotoma, or mother-of-pearl tumour. From a superficial study of statistics one might suppose that this tumour was common, but only six had been recorded in the literature. One case was cerebellar, and a laminectomy had to be done as well. It was very necessary to make some standard for "cures." How long must one wait before claiming cure? In the matter of diagnosis the field of vision was most important. For instance, in the case of a young girl suffering from glioma one could state that there was pressure upon the geniculate pathway and not upon the chiasma. This girl was apparently cured by removal of the tumour. It was of the highest importance in these cases to agree upon certain standards of classification, so that surgeons might know they were speaking the same language as regards results.

Dr. **CHARLES H. FRAZIER** (Philadelphia), referred to the use of callosal puncture in this field. In all pretentorial tumours the symptoms were due to distension of the ventricles, which often brought matters to a fatal issue. The increased tension appeared before localisation was possible. He had hoped that an opening could be made and drainage instituted in the corpus callosum, and that in an inoperable growth the life of the patient could be prolonged by this means. It was, however, of but transitory benefit. Lately he had combined callosal puncture with sub-tentorial decompression. His attention had also been attracted by the relation of chronic meningitis to brain tumours. An exploratory operation did not always exclude brain tumour, as the growth might be overlooked. In many cases, however, it seemed that one was dealing with a pre-existing meningitis. It was better not to wait to localise a tumour, but to operate early. The use of radium was another point to be mentioned. There was clinical evidence that with the use of radium the tumour underwent retrograde changes. In one such case, an enormous cerebellar tumour, so adherent that its removal was impossible, the use of radium was combined with operative measures, and five years later there was no sign of recurrence. In another case, where the patient was stuporous and bedridden from tumour at the cerebellar pontine angle, a tube of radium was embedded and left in situ. The patient had recovered so far as to be able to return to work. Dr. Frazier's experience had been limited, but it would appear as if this was a distinct clinical aid. Referring to Dr. Cushing's question, Dr. Frazier did not feel that the death of the patient from subsequent meningitis should be charged up to operative mortality. As to the length of cure, this depended on the type of tumour. Endothelial growths were slow-growing. Seven years would not be too long to wait for recurrence. All cases should be observed for at least five years.

Empyema, with Particular Reference to its Pathogenesis and Treatment.

Dr. **ALEXIS V. MOSCHCOWITZ** (New York) said that knowledge of the pathology and pathogenicity of empyema was necessary in order to understand its treatment. In most cases a sub-pleural abscess was found connecting with the empyema cavity. The stages were: serous pleurisy was converted into exudate, then encapsulation occurred, which which might be either diffuse, localised, or multiple. Sero-purulent pleurisy was not encapsulated, but purulent pleurisy always was. An absolutely free empyema containing frank pus was an unknown quantity. Frank pus was usually an end-product. The states could be divided into (1) formative, or rupture of abscess; (2) acute stage, or increase of fluid and toxæmia; (3) chronic stage. The reason why thoracotomy was not permissible in the early stage was this: the fluid ran out and atmospheric pressure, at 15 pounds to the square inch, rushed in, collapsing the lung. This was badly borne by the patient and caused fluttering of the mediastinum, with rapid heart action; it pushed out the other lung and disabled the heart. Thus, early thoracotomy was attended by terrible mortality. Statistics improved in proportion as the surgeons became frightened at the high mortality. When the stage of adhesions had been reached these formed an anchor for the lung to the side of the chest. It was then safe to operate and evacuate the pus. An acute pyo-pneumothorax was different; these patients stood early operation. The statistics as to the use of the Carrel-Dakin treatment were rather rosy, but some cases did stay cured. In cases where a pneumothorax had occurred this tended to disappear. It was safe to sterilise the cavity and close it over a pneumothorax.

Dr. **JOHN L. YATES** (Milwaukee) said that anything foreign to the serous membrane was an irritant—air, blood, plasma, serum, thrombin, fibrin, &c. This irritation, whether due to toxins or to foreign body, provoked an acute serous reaction. Before adhesions formed the serous fluid had penetrated the cavities. This was sufficiently irritating to provoke a sero-fibrinous reaction apart from bacteria, and secondary foci might become more acute than the primary one. The subserosa were extremely resistant, and the best prevention of empyema lay in keeping the pleural serosa in constant apposition. Drainage should be done later, when the secretions had coagulated. Primary thoracotomy could only be done by maintaining pulmonary inflation.

Dr. **JAS. F. MITCHELL** (Washington, D.C.) said he had been asked "Just what would you do for empyema?" He thought the answer depended on the type of case. These were of three kinds—(1) acute, (2) chronic, (3) late intractable cases. The profession agreed that early operation was dangerous in streptococcal empyemas. It was found that pressure in one chest was not independent of pressure in the other. There was a definite relation between the opening, and the amount of air in the lungs. When the lung was restricted by pneumonia, the size of opening compatible with life became smaller. Adhesions rendered the opening safer. Attention to diet and early exercise were found to be most important therapeutic aids. The success of the Carrel-Dakin method depended on its intelligent application. Three points might be emphasised; (1) avoidance of early operation; (2) vigorous application of the Carrel-Dakin method; (3) attention to diet and exercise. Persistent cases should be examined by the X ray method. Stereoscopic plates should be made both with and without bismuth, because the bismuth might obscure a foreign body. The chest wall might be closed regardless of an existing cavity, provided the latter were sterile. The cavity tended to disappear with expansion of the lung. Certain cases would progress to the third stage. X ray studies were then important, and the bacterial content should be kept as low as possible. The operation should be as simple as possible. Slough should be removed and small flaps should be used to close the opening.

Surgical Treatment of Exophthalmic Goitre.

Dr. GEORGE W. CRILE (Cleveland) gave a summary of conclusions based upon personal experience of 2250 thyroidectomies; 50 per cent. were subjected to ligation. In the last series 333 cases were first submitted to ligation, then to thyroidectomy. Among 160 ligations one death occurred in the stage of dissolution. Thyroidectomies were done at first without any of those special precautions, which they had since learned were important. The first 100 cases had a 16 per cent. mortality. With the use of gas and oxygen anæsthesia this was reduced to 2·5 per cent. By the adoption of special management of cases the mortality had been still further reduced to 0·6 per cent. Special operative precautions included: light anæsthesia, gas and oxygen, and multiple stage operation; exclusion of the psychic factor, possibly carrying out the operation unknown to the patient. A point of importance was the discovery by the British Research Department that the wound could be left open in statu quo by the use of a dressing of 1 : 5000 flavine. This permitted the surgeon to stop at any point at which he found the patient was not enduring the operation well. Lobectomy was performed under analgesia, as the inhalation anæsthesia interfered with respiration in a patient already suffering from suboxidation. Complete team work was essential to success in handling these patients. It could be said that the operation was performed by the hospital and not by the surgeon. The differential diagnosis was greatly aided by the Goetsch adrenalin test and basal metabolism determinations. The psychic control of the patient was of the highest importance, as was the pre- and post-operative care. With an excessive post-operative temperature, the patient was put in an ice-pack. In view of the striking results obtained, no case was rejected on account of its gravity.

Stiff and Flail Joints.

Sir ROBERT JONES stated that one of the common products of the results of war injuries was the flail joint. The greater number of these disabilities were the direct results of excisions deliberately performed at casual clearing stations or base hospitals. They were performed in order to save the limb from amputation or the patient from death by minimising local sepsis and preventing general sepsis. Cases of so-called limited section had resulted in better function than in those in which the excision had been extensive. Moreover, cases in which sepsis had been overcome and bones allowed to remain in position has resulted sometimes in a very good firm ankylosis with excellent function if the position of election had been maintained. There was no reason why any joint should be allowed to heal at functional disadvantage. A flail joint might follow as the direct result of excision following the removal by the surgeon of large comminuted pieces of bone, the direct loss of bone from missile, and the extrusion of necrosed bone during sepsis. In order to preserve function the extent of excision should be strictly limited, subject only to conditions of safety. The extension applied should be very moderate and of short duration. In the treatment ankylosis should be aimed at rather than mobility. In limiting the extent of excision muscular attachments should be preserved. The fact that they aimed at ankylosis did not mean that they attained it, but the effort left the best possible results for reconstruction. The rule should be that as soon as the surgeon could do so he should place the bones as nearly together as he could and in the best position for future functioning, whether a pseudo-arthrosis or an ankylosis occurred. The speaker described in detail typical procedures to be employed in the treatment of various joints. He considered bone-grafting of very limited application in injuries of the upper part of the shaft of the femur. Ankylosis in the case of limited excision of the hip was of no advantage and certainly did not justify the severe operation which it would necessarily entail. The only practical treatment of a flail knee was ankylosis, and if the bones were in good position nothing was needed but to saw the ends and fix them with screw or nail. Where there was a wide separation associated with sinuses it was necessary, after sawing the ends of the bone, to bring a bulky sliding graft from the tibia or femur and wedge it in at right angles to the line of the joint. A flail ankle was so rare that he could not recall one instance of it as a result of a war wound. Many operations for fixing the shoulder had failed because the surgeon had been content to bare the glenoid and freshen the humerus. This was quite insufficient. It was extremely important before the arm was ankylosed to ascertain whether the scapula was mobile and whether it retained its normal position in regard to the humerus. If the scapula was fixed and the arm abducted the result was a tragedy, for the patient would have a fixed abducted shoulder with an arm that he could not lower. Operation must be designed whereby large apposition of raw bone surfaces was secured. The principle for operation was to freshen the bone ends, split them without detaching the fragments, enlarge the area of bone apposition, and firmly immobilise. Attempt should never be made to stabilise a flail joint to permit of voluntary movement unless there was sound muscular control. In speaking of the treatment of stiff joints the author stated that they had found it necessary to discard many of the pre-war methods of treating stiff and ankylosed joints. War had taught them to discard methods of force in favour of persuasive and gentle methods. In closing he paid a tribute to the young surgeon who had left an indelible impression upon the evolution of surgery. He felt that these younger men should be given more liberty of action, and that they should be given larger opportunities to be useful.

Dr. JOSEPH A. BLAKE (New York) said that if one wished to conserve the motion of a joint he should never allow it to be lost. This meant motion from the time of the injury, not several times a day, but by an arrangement whereby unconscious movement might be made at any time. It was desirable that the patient should make the motions himself, since active motion not only maintained the functions of the muscles, but made new bone conform to the architecture of the joint. Not only did active motion prevent deformity, but it favoured healing by improving the nourishment of the parts. The reconstruction of muscles was only possible in the hands of a man who understood the technique thoroughly, and also understood the after-treatment. It had been impossible to make this treatment general, because there were not the men to carry it out. In a joint already stiffened one was confronted with two problems, permanent ankylosis or a return to motion by proper treatment. In the first class one must consider whether motion was more valuable than a possible loss of stability. He had great faith in active motion by the patient himself, under proper instruction and guidance, but active motion should never be carried out to the point of traumatism. The practice of breaking down a stiff joint under an anæsthetic was utterly and absolutely reprehensible. Traumatism not only caused suffering, but necessitated repair, and consequently additional ankylosis. It was surprising how little force disrupted a bone in which rarefication had taken place as the result of disuse.

The Standardisation of Hospitals.

Dr. JOHN G. BOWMAN (Chicago), chairman of the Committee on Hospital Standardisation, outlined the following minimum standard which the American College of Surgeons asked hospitals to put into effect: 1. That membership upon a staff be restricted to physicians and surgeons worthy in character and matters of professional ethics. 2. That the staff hold meetings at least once each month to review and analyse the successes and failures in the treatment of patients. 3. That accurate and complete case records be written for all patients and filed in an accurate manner in the hospital. 4. That clinical laboratory facilities be available for study, diagnosis, and treatment of patients. Such a standard would not only assure proper care and treatment of patients, but would put the board of trustees of hospitals in possession of essential information which many such boards did not now receive. Among the 617 general hospitals of more than 100 beds in the United States and Canada, about 438 could not now present even a fairly complete analysis of their clinical work. It was urged that communities withhold their support, financial and otherwise, from hospitals whose trustees could not inform the community as to the character of treatment received by their patients, such as would be provided by the college's minimum standard. Apparent incompetence should receive immediate investigation. The doctor scarcely existed who, if his incompetence was brought to his notice at frequent intervals, would not either endeavour to perfect his training or retire from membership of the staff. The same principle was true regarding character and professional ethics.

Cancer of the Uterus.

Dr. S. M. D. CLARK (New Orleans) spoke informally on radiotherapeutic and other methods for treatment of cancer of the uterus. He stated that cervical carcinoma might be divided into groups. In the first group were included those cases in which the existence of the carcinoma had made no constitutional inroads; the patient was a good surgical risk; the disease was confined to the cervix, and there was no infiltration or invasion of the uterus; the uterus was freely movable. In this group of cases he favoured radical surgery, since it afforded a mortality of only 5 per cent., and in a large percentage of cases a complete cure. After the radical removal of the carcinoma the stump of the cervix might be cauterised, the abdomen opened, and the glands at the external iliac and uterine arteries examined. If they showed metastases they were removed, together with the uterus, and radium applied post-operatively. The second group of cases were those which showed, in addition to the local involvement, constitutional impairment, hæmorrhage, and the local condition was more advanced than in Group 1, there being slight encroachment on the vaginal wall and slight thickening of the parametrium. In this group of cases radiotherapy was a valuable adjunct, but it fell far short of the mark as a curative agent. The application of radium in these cases previous to operation lessened the operative risk by 50 per cent. Patients of this group subjected to radium treatment should be operated upon in from four to eight weeks after receiving the radium treatment, or else fibrosis would make surgical interference very difficult. Radium was much preferable to the cautery. Radium, as was well known, had a limited penetrating power, and he believed cancer cells could be eradicated through a wider area by operation. This group of cases was the last in which surgery was applicable. The third group comprised the more advanced cases, with uterine involvement, and it was well to leave these cases alone so far as surgery was concerned and to use radium. In these cases radium treatment marked a distinct step forward. In 19 per cent. of cancer cases the patient died from the local disease and not from metastases, and if the local disease could be controlled the patient's life might be lengthened. In numberless cases radium had brought new life or an extension of life. It relieved symptoms and lessened discomfort in these advanced cases of cancer. Although it was in no way connected with the title on which he was to speak, Dr. Clark said he could not forbear speaking of the early diagnosis of cancer and the prevention of this disease. After a woman had finished the child-bearing period she should be subjected to a physical examination. A lacerated cervix at this time of life provided an inviting soil for carcinoma and should be repaired. There should be a cancer crusade to disseminate information of such facts as that 1 in every 13 women who reached the age of 38 years died of cancer. It was the duty of the Congress to keep up pressure and to keep hammering into medical students and at medical societies the necessity for the early recognition of cancer.

Treatment by Disseminated Heat.

Dr. JAMES F. PERCY (Galesburg, Ill.) stated that disseminated heat held and would continue to hold a high and successful place in the curative and palliative treatment in all forms of malignancy. The accomplishment of the best results was being temporarily held in abeyance because of a misunderstanding of the correct application of this agent and its use by the inexperienced, who would be its friends but who had not learned the limits of its application. It was a valuable remedy because nerve structures, blood-vessels, and muscle cells were more resistant to heat than cancer cells. The application of heat through abdominal incisions could be so regulated that ureters and important blood-vessels could be preserved, while the cancer cells in the parametrium and lymph channels were destroyed with their load of infection. By the use of heat one did not transplant cancer cells as was done with a scalpel. With the abdomen open one could tell when he had applied enough heat, and if he gave too much he would know at once and could take means to repair the damage. After treatment with heat the glands could be removed easily, but this was not necessary as they would disappear. The methods of producing heat had been much improved and there were electrical devices that did more than spread heat; they made heat. The various forms of electric energy devitalised nerves and affected the blood-supply, sometimes causing chronic endarteritis. Nature was not prepared to repair these injuries, but burns were a part of Nature and she stimulated their repair. The application of heat was something more than a mere local cooking procedure. It was unfortunate that they continued to talk about the cautery as though it were something else than heat; it was essentially heat. Their 1917 record showed 15 per cent. of the utterly hopeless type of cancers cured for periods ranging from 2½ to 5 years on the basis of 65 cases. No doubt a review of these cases to-day would show that more could be added to this 15 per cent. Thus far the application of heat had done more than anything else in cancer of the cervix at the time that it was reaching the inoperable stage.

Local Growth.

Dr. HENRY K. PANCOAST (Philadelphia) said that in the treatment of malignant conditions by the X ray or radium one must consider the local growth, the metastases present and those likely to occur in the future. Success could not be obtained unless all three zones were treated and unless the primary growth could be removed. In the treatment of carcinoma of the uterus with the X ray one must consider the possibility of starting up metastases, and the more nearly inoperable a cancer was the more likely was one to start up metastases. The X ray treatment of carcinoma of the uterus could not be considered as strikingly rational. Its purpose was as a supplement to radium and operation. It could be employed as a post-operative aid, but he did not believe it was successful unless radium was used as an ante-operative or post-operative treatment, but he believed it was an advantage to use it with radium. The use of radium was the method of choice in those cases which started in the cervix and then invaded adjoining structures. If the growth had invaded the broad ligaments and the pelvic lymph nodes radium alone could not cure, but only gave relief from pain and symptoms. Some believed they became worse after radium treatment. The dose of radium should be the maximum one, because it only penetrated over an area a few centimetres in diameter, and beyond this area it did no good. One should not depend on radium treatment if cancer was located where it could be removed. The details in reference to radium treatment should be studied statistically. The radium treatment should be given through many ports of entry, ten or a dozen was not enough, and the X ray should be given anteriorly, posteriorly, and in every direction. Such treatment exerted an effect on the intestinal tract, but this was not to be considered in comparison with the harm resulting from the growth. The treatment with the X ray must be carried out by as uniform a technique as that connected with the use of radium.

Three Groups of Cases.

Dr. HAROLD C. BAILEY (New York) said that in order to form an estimate of the value of radium in the treatment of uterine cancer consideration must be given to the way it was used. The cases fell into three groups—(1) operable, (2) borderline, (3) inoperable. In the first group radium might be given from two to six weeks before operation and post-operatively as a prophylactic against recurrence. The minimum dose was 2000 milligramme hours. The post-operative dose should be given three or four days after the operation when the patient had recovered her equilibrium. If large amounts of radium were available a dose of 1500 milligramme hours might be given in the body of the uterus, the mass of radium being suitably filtered and directed to the fundus of the uterus. Radium emanations should be directed to the parametrium through the vault of the vagina following hysterectomy. Not infrequently so much of the vaginal wall was removed at operation that it was not possible for radium emanations to reach the parametrium through the vault of the vagina. There were two obstacles to the application of radium post-operatively: the thickening of the scar tissue and restriction of the rectum. In certain borderline cases it might be better not to operate, but to employ radium treatment and keep the patient under observation. In large cauliflower growths filling the vault of the vagina and certain other large growths preliminary cauterisation and the application of radium emanation tubes might be employed, but it must be remembered that by just that much time was the treatment of the parametrium delayed.

A Series of Problems.

Dr. BURNHAM (Baltimore) stated that cancer of the uterus and closely allied cancers of the cervix and vault presented not a single, but a series of distinctly different problems. The treatment depended upon the extent, location, and histological character of the cancer. The prognosis depended upon the operability of the cancer, and the technique employed in its removal. Hysterectomy for carcinoma of the uterus had been fully developed and widely employed for ten years; the tendency was to employ it in too advanced cases. In such cases it was only palliative; it relieved the discharge and pain and prolonged life. With the aid of radium many more cases of carcinoma of the uterus were saved. The speaker discussed separately carcinoma of the body of the uterus, carcinoma of the cervix, and carcinoma of the vagina. Carcinoma of the body of the uterus should be treated surgically and not with radium. When operation was contra-indicated radium should be used by intra-uterine application; its use had been of much help, but he had not seen a single case of huge carcinoma of the body of the uterus permanently cured in this way. In advanced carcinoma of the cervix he had seen some marked improvements under radium treatment, and in a few cases a clinical cure. He urgently recommended radium in the treatment of carcinoma of the cervix. In discussing vaginal carcinomas he considered five sub-groups depending upon the degree of involvement; in certain cancers in this group radium offered a possibility of permanent cure. He quoted statistics showing 15 per cent. of apparent cures in cases that would formerly have been considered incurable, and concluded that radium was a most welcome addition to the methods of treating cancer; a combination of radium and the X ray was better than radium alone; a combination of radium and early operation gave better results than radium alone or operation alone. Radium could lead to painful and even fatal results if improperly used; therefore surgeons should learn how to employ this treatment safely. Would it not be possible for the College of Surgeons to take up the standardisation of cancer reports?

Honorary Fellowship.

At a subsequent meeting of Convocation honorary Fellowship in the American College of Surgeons was conferred upon Sir Anthony Bowlby, Sir Robert Jones, and Major-General Tuffier, and Dr. Irving H. Cameron (Toronto). Surgeon-General Ireland awarded the Distinguished Service Medal to Sir Anthony Bowlby and Sir Robert Jones in recognition of the assistance given America in the treatment of her wounded soldiers.

CANADA.

(FROM OUR OWN CORRESPONDENT.)

Crime in Canada under Prohibition.

A BLUE-BOOK on criminal statistics for the year 1918 has recently been issued from the office of the Dominion Statistician; it covers the whole of Canada. According to the returns there were 21,747 charges for the year 1918 and 17,370 convictions for indictable offences, as against 19,559 charges and 15,559 convictions in 1917—in the first case being an increase of nearly 12 per cent., and in the second place an increase of 11½ per cent. for convictions. The convictions increased during the year in all the provinces except Alberta, British Columbia, and the Yukon. The higher increases were noted in Ontario, Quebec, Manitoba, and Nova Scotia. The number of summary convictions jumped from 98,452 in 1917, to 105,199, and of these less than 8 per cent. were women. Of the minor offences against the law, 21,026 were convicted for drunkenness, as against 27,882 during 1917. This is a decrease of about 25 per cent., but increases were recorded for the provinces of Manitoba and Alberta. In Alberta the convictions for drunkenness were 825 as compared with 391 in 1917—an increase of 111 per cent.; while in Manitoba the convictions advanced in 1917 from 1085 to 1123 in 1918—an increase of 3½ per cent. In the war period 1914–1918 there was a decline of 65 per cent. in the number of convictions for drunkenness.

Advisory Committee on Patent Medicines.

The Federal Government at Ottawa, complying with the recent amendments to the Canadian Patent Medicine Act, have appointed an advisory committee to advise the Deputy Minister of Public Health. The following are the members of that committee: Dr. Alexander Blackader, professor of pharmacology, McGill University, Montreal; Dr. Robert D. Rudolph, professor of therapeutics, University of Toronto; Dr. A. McGill, chief analyst, Food and Drug Department, Ottawa; Dr. E. W. J. E. Lecours, professor of pharmacy and vice-president of Laval School of Pharmacy, Montreal; Dr. Charles F. Heebner, dean of the College of Pharmacy, Toronto.

Physical Examination of Students at Toronto.

Dr. J. W. Barton, physical director of the University of Toronto, has caused to be made a physical examination of all the students in the various departments of the University of Toronto. The enrolment for the present year far surpasses any in the history of that institution, partly owing to the return of more than one thousand students who were on active service overseas. The numbers in the different faculties are as follows: Arts, 1600 (with a soldier matriculation of 175); medicine, 1093; dentistry, 800—in addition, a pre-dental class of 25 and 15 ladies in dental nursing; school of science, 790; faculty of forestry, 43. Additions to the staffs have been necessary in all the faculties. The examination resulted as follows: 75 per cent., 18 years and upward, fit for military service in any branch anywhere; 13 per cent. fit for service anywhere, but not front-line work (used in Army Medical Corps and in Army Service Corps); 10 per cent. fit for service in Canada only; 1¼ per cent. capable of being raised to first, second, or third rank; ¾ per cent. totally unfit for service. From the standpoint of military service the faculties all did equally well. Science had the greatest percentage, because her men were older. In arts and medicine 50 per cent. of the students were under military age, whereas in science only 35 per cent. were under military age.

Small-pox in Toronto.

Toronto has been experiencing for two months a small-pox outbreak, which has totalled so far nearly 800 cases. The disease is of a mild form, and so far no deaths have been recorded. With a population of 500,000 there have been 200,000 vaccinations. The United States has placed Toronto out of bounds. Every person travelling into that country from Toronto, and two or three other points in Ontario, are required to produce certificates of recent successful vaccination. Dr. John W. S. McCullough, the provincial medical officer of health, is responsible for the statement that in more than 600,000 vaccinations in the Canadian Army no untoward results were recorded.

Care of Military Mental Cases in Canada.

Situated at Coburg, Ontario, is the psychopathic hospital of the C.A.M.C. in Canada. The institution has accommodation for 450 patients, and has been under the superintendency of Major E. H. Young, a skilled physician in mental cases. The custodial appliances are little more than would be found in any general hospital. During the existence of the institution more than 1200 cases have been admitted and cared for without a suicide, a homicide, or serious accident of any kind. Over 50 per cent. of discharges passed to civil life under their own control, and a slightly larger percentage were discharged without pensionable disability. The excellent results achieved at the institution emphasises the need of general hospitals for a psychiatric department, and with this experience before the Canadian people there should be no insurmountable obstacle in hereafter properly handling mental cases in the Dominion.

The *Canadian Medical Association Journal* will hereafter be published by a select committee of the Association, which will control advertisements and edit the journal. The chairman of the editorial board is Dr. Alexander Blackader, of Montreal, Dr. Maude E. Abbott is acting editor, and the general secretary of the Association, Dr. W. W. Francis, is assistant editor.

Toronto, Nov. 30th, 1919.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

Organisation of the Medical Profession in Vienna.

THE political processes in this country, which have resulted in the preponderance of the social democratic party, have brought the medical profession face to face with socialism. The ruling men recognise only the labourer as the person whose interests have to be guarded, whilst all others belong to the caste of "bourgeois," being not absolutely necessary for the welfare of the State. In order to obtain the necessary influence upon all the decisions and laws of the Government all medical men were—not without very hard work—united in one central non-political body, the "Medical Central Council" (Aerzterat), which itself consists of representatives of all groups of medical corporations, bodies, societies, institutes, and clinics in this city, about 4000 men at present. One of the first acts of the "council" was to announce that in future all bills and acts of the legislature, as well as all contracts pertaining to the individual doctor or the profession as a whole must be approved by the council. The uniform control of all such proceedings is very beneficial against any too radical ideas on the part of the political parties. Another step of the new body was to promulgate a sort of "guide" as to medical fees. For a consultation in the doctor's office a fee is to be paid of at least 15 kronen; the fee for a call at the patient's house will cost double the sum. These figures mean an increase of about 100–150 per cent. against the old fees. But considering the general rise of the cost of living and the deterioration of our money (about 1800 per cent.!) these fees are still ridiculously low and cannot be regarded otherwise than as the minimum. It may interest the English doctor to learn that whilst in peace a shilling was equivalent to a little more than 1 krone, now it is worth 25 kronen! Thus a doctor has to be glad if he gets—in Austrian money—an equivalent of 1*s.* for a consultation in his office!

A Health Ministry in Austria.

During the war the importance of medical supervision of the population and control of public health was well driven home into the minds of the authorities, and the result was the establishment of an independent board of health and a special Secretary of State. After long and serious negotiations a medical man was called to this office. This was a complete break with tradition in this country, where hitherto only legal training has, in the opinion of government, been necessary for administrative offices. At present Professor Dr. Tandler, the chief of the Anatomic Institute of Vienna, holds the secretaryship. He is well up to date in all subjects pertaining to public health, as well as to the needs of the general practitioner. It may be added that the present Secretary of the Interior (Chief of the Home Office) is also a doctor of medicine, who was in practice until about a dozen years ago.

Reform of the Pharmaceutical Business.

The Government has worked out a complete plan to take over all apothecary shops and druggists, both the wholesale and the retail, as well as the pertaining factories, into public possession, and thus keep down the prices of the necessary drugs. At present an illness is a very costly affair, chiefly on account of the exorbitant prices of the pharmaceutical articles needed for the patient. The budget of the hospitals and Krankenkassa (sickness insurance institutes) is at present chiefly burdened by this item; it accounts for more than 30 per cent. of the expenditure, whilst formerly it took up about 6 to 8 per cent. of the grand total. Under the plan all retail shops, except the dispensing office of a doctor, are bought by the State. The present owner gets a compensation based on the net income, as set down by himself in his depositions to the officers of the public rates and taxes within the last five years. The wholesale shops and factories are taken over on similar conditions. The import and sale of drugs and medicines is allowed only to a "public society for medical remedies," which corporation has to distribute all the available goods amongst the dispensaries and medical men and public institutes according to the monthly reports of these parties. Thus prices will be regulated as well as the supply be controlled.

Influence of the War upon Syphilis of the Offspring.

In a protracted and exhaustive series of investigations conducted by Dr. Hochsinger on the fate of the offspring of syphilitic parents during the war some facts have appeared that seem to be well worth serious consideration. All the records of 1911 to 1918 of babies born in the public hospitals of the former Austrian Empire, as well as—after the revolution—those of the present Austrian Republic, were taken into the investigations—a number of 123,284. It appeared that whilst before 1914 the average percentage of clearly syphilitic offspring was 2½ per cent. of all cases of birth, during the war the figure fell to 1·64 per cent. of all births, a drop of 3·5 per cent. In the first years of life signs of syphilis appeared in 1·82 per cent. before 1914, but between 1914 and 1919 it was 1·25 per cent.—that is, 30 per cent. less. As regards the conditions in private families, it is a clear fact that the figures for syphilitic births before and during the war do not differ much; but still, also here the last five years have shown an increase of the birth of healthy children. The explanation for the latter fact is that in the better classes of the population a vigorous treatment of an acquired syphilis is the rule, and that permission to marry is generally not granted before repeated examinations have shown the patient to be free from infection—as our opinion of present days states it. But as regards the average man, the fact that nearly all men in the reproductive age have been called to the army, and there every person suffering from fresh or old syphilis had every interest to report himself to the doctor—it meant for him freedom from actual service for weeks and months, often it liberated him totally. This fact produced a thorough treatment of, so to say, all would-be syphilitic fathers. No doubt also the modern methods of combined mercury-salvarsan treatment are, in a large measure, responsible for the improvement of the statistics and of the public health. But now there is nothing to enforce such general and effective treatment in case of fresh infection, and unless legislation finds means to produce some similar measure of coercion, the beneficial result will soon be a thing of the past. The army has dispersed, compulsion of treatment no longer is aided by egotistic motives, and salvarsan is very expensive, too expensive for those people who want it worst and will not go to the hospital.

Vienna, Dec. 9th.

The Services.

ADDITIONAL PAY AND CHARGE PAY FOR OFFICERS OF THE R.A.M.C.

THE following are the alterations under Army Order 411, dated 1919, which becomes effective as from Jan. 1st, 1920, in the Royal Warrant for Pay Appointment, Promotion, and Non-Effective Pay, dated December, 1914:—

(1) In Article 360, *for* "officer under the rank of lieutenant-colonel appointed by Our Army Council as specialist ...... 2*s.* 6*d.* a day" the following is substituted:—

"Officer not above the rank of lieutenant-colonel, while acting as specialist in a post considered by Our Army Council to merit the grant of additional pay, according to subjects or groups of subjects as under, within a limit of 5*s.* a day:—

Operative Surgery, advanced; Medicine; Ophthalmology; Gynæcology and Midwifery; Dermatology, including Venereal Disease, 5*s.* daily.

Otology, Laryngology, and Rhinology; Radiology; Anæsthetics; Mental Diseases; Hygiene; Pathology; subjects, other than above, at the discretion of Our Army Council, 2*s.* 6*d.* daily.

Officers granted temporary higher rank while holding appointments in the services of hygiene and pathology will not be eligible for additional pay as specialists while holding such temporary rank.

(2) The following is substituted for Article 361 (*a*):—

"(*a*) Officer in charge of a hospital.—If the number of equipped beds, as certified by the deputy director of medical services, exceeds—

50 beds ...	2*s.* 6*d.* daily.	300 beds ...	7*s.* 6*d.* daily.
150 ,, ...	5*s.* 0*d.* ,,	500 ,, ...	10*s.* 0*d.* ,,

Officer in charge of a medical or surgical division of a general hospital with not less than 300 beds—half the above rates."

An officer graded as a specialist appointed to the charge of a medical or surgical division of a general hospital may be allowed to retain his additional pay and to draw the rate of charge pay laid down above for the officer in charge of a medical or surgical division of a general hospital, provided that the total of additional and charge pay so drawn does not exceed the rate of charge pay drawn by the officer in charge of the hospital. With this exception charge pay and additional pay as specialist will not be issuable concurrently.

ROYAL NAVAL MEDICAL SERVICE.

Temp. Surgs. Lieut. N. A. H. Barlow and E. B. Kelley transferred to the permanent list of Surgeon Lieutenants.

ROYAL ARMY MEDICAL CORPS.

The undermentioned relinquish the acting rank of Lieutenant-Colonel on ceasing to be specially employed: Majors H. E. J. A. Howley, R. V. Cowey; Temp. Capt. W. N. Parker.

To be acting Lieutenant-Colonels whilst specially employed: Major and Bt. Lieut.-Col. C. R. Sylvester-Bradley; Capt. and Bt. Major F. T. Dowling.

Capt. F. E. Bissell and Temp. Capt. E. R. Hunt relinquish the acting rank of Lieutenant-Colonel.

The undermentioned relinquish the acting rank of Major: Capts. E. A. Strachan and J. Y. Moore; Temp. Capts. C. E. Waldron, R. T. Grant. On ceasing to be specially employed: Capts. J. A. L. Wilson, J. E. Hepper; Temp. Capts. S. S. Dnnn, E. T. C. Milligan, T. M. Bellew, G. Marshall, N. Reader, C. J. L. Patch, St. G. E. Harris, E. J. Maxwell.

To be acting Majors whilst specially employed: Capt. W. T. Graham; Temp. Capts. H. B. G. Russell, C. S. Wynne, E. Kidd.

H. W. Wookey, late Major, Can. A.M.C., to be temporary Major.

Temporary Captains relinquish their commission on transfer to the Indian Medical Service: A. C. Craighead, C. J. L. Patch.

To be temporary Captains: N. W. Furey (late Captain, Canadian A.M.C.), H. Morell (late Major, Canadian A.M.C.), I. N. Mitchell (late Captain, Canadian A.M.C.), M. J. Houghton, D. Cowin, D. J. Stokes (late temporary Captains), L. H. Woods.

J. V. Coghlan to be temporary Lieutenant.

Officers relinquishing their commissions: Temp. Lieut.-Col. T. G. Moorhead. Temporary Majors retaining the rank of Major: S. W. Patterson, C. U. Laws. Temporary Captains granted the rank of Major: A. R. Elliott, K. Black, R. H. Stevens. Temporary Captains retaining the rank of Captain: E. G. Bunbury, H. L. W. Woodroffe, G. W. Bury, A. B. Jones, H. Thorp, J. J. Moriarty, C. W. C. Harvey, K. S. Melvin, J. H. Askins, G. Collins, E. Ashby, J. F. Barr, H. F. Strickland, W. Raffle, R. C. Verley, A. B. Brock, W. R. Thomas, C. R. Taylor, S. A. Hall, T. T. Rankin, F. W. Chamberlain, H. Webb, H. Sheldon, W. Messer, A. W. Kendall, J. A. Powell, J. D. Yule, R. B. Eadie, W. H. Thomas, F. C. Ormerod, A. R. C. Doorly, D. J. Thomas, W. McConley, G. S. Phillips, E. L. K. Sargent, G. A. Varian, J. J. O'Neill, A. Binning, J. Warnock, W. C. S. Wood, A. McCawley, J. J. Reynolds, D. C. P. Taylor, H. Sheasby, B. E. Wall, G. A. Wyon, J. Simpson, D. D. Farquharson, J. B. Mitton, G. Hadfield, J. L. Torley, J. R. Wylie, J. B. P. McLaren, D. McVicker, H. A. Colwell, T. H. Wilkins, N. P. L. Lumb.

South African Medical Corps.

Major A. Edington relinquishes his temporary commission on ceasing to be employed with the Union Imperial Service, and is granted the rank of Lieutenant-Colonel.

SPECIAL RESERVE OF OFFICERS.

Captains relinquishing the acting rank of Major on ceasing to be specially employed: R. D. Cameron, G. E. Kidman, D. G. Stoute.

TERRITORIAL FORCE.

Captain (acting Major) H. W. Spaight relinquishes the acting rank of Major on ceasing to be specially employed.

2nd Scottish General Hospital: Major J. D. Comrie is restored to the establishment.

3rd Scottish General Hospital: Capt. J. Patrick is restored to the establishment on ceasing to hold a temporary commission in the R.A.M.C.

3rd Southern General Hospital: Capt. G. H. R. Holden is restored to the establishment.

TERRITORIAL FORCE RESERVE.

Major H. A. Ballance, K.B.E., C.B., from 1st Eastern General Hospital, to be Colonel.

ROYAL AIR FORCE.

Medical Branch.—The undermentioned are transferred to the unemployed list: Capt. H. J. Orr-Ewing; Lieut. A. Henderson.

THE HONOURS LIST.

The following awards to naval medical officers are announced:—

C.B.

Surg. Comdr. David Walker Hewitt, C.M.G., R.N.

For valuable services as Senior Medical Officer on the Staff of the Senior Naval Officer, White Sea.

O.B.E.

Surg. Lt.-Comdr. Robert Hunter McGiffin, R.N.

For valuable services in the Archangel area of the White Sea.

Surg. Lt.-Comdr. Arthur Addison Sanders, R.N.

For valuable services as Senior Medical Officer of H.M.S. *Glory* in Russia.

Surg. Lt.-Comdr. Frederick St. Barbe Wickham, R.N.

For valuable services in H.M.S. *Hyderabad* in Russia.

The following awards to and promotions of medical officers for valuable services rendered in the several spheres of military operations are also announced:—

O.B.E.—Maj. J. H. Gurley, R.A.M.C.; Capt. (acting Lt.-Col.) O. William, D.S.O., R.A.M.C.; Capt. C. S. O'Neill, R.A.M.C.; Capt. (acting Lt.-Col.) H. C. Deans, R.A.M.C.; Capt. R. W. A. Salmond, R.A.M.C. (T.F.); Capt. D. C. Scott, R.A.M.C.; Maj. (acting Lt.-Col.) H. C. Sidgwick, R.A.M.C.; Capt. (acting Lt.-Col.) J. C. Sproule, R.A.M.C.; Temp. Capt. G. C. Ramsey, R.A.M.C.; Capt. (acting Maj.) E. A. Richmond, R.A.M.C.; Temp. Capt. P. P. J. Stewart, R.A.M.C.; Capt. F. A. Comins, Aust. A.M.C.; Capt. (temp. Maj.) H. Sutton, Aust. A.M.C.; Temp. Capt. (acting Maj.) F. R. Brown, R.A.M.C.; Capt. (acting Maj.) B. L. Davis, R.A.M.C. (T.F.); Dr. (Miss) E. B. Holloway, R.A.M.C.; Lt.-Col. R. Milner-Smyth, S. Afr. M.C.; Capt. J. S. Arthur, R.A.M.C. (T.F.); Temp. Maj. R. A. Beaver, R.A.M.C.; Capt. H. E. G. Boyle, R.A.M.C. (T.F.); Capt. G. A. Child, R.A.M.C. (T.F.); Temp. Maj. A. J. Cleveland, R.A.M.C.; Temp. Lt.-Col. M. A. Collins, R.A.M.C.; Temp. Capt. (acting Maj.) C. C. de B. Daly, R.A.M.C.; Capt. S. H. Daukes, R.A.M.C. (T.F.): Temp. Maj. R. L. Davies, R.A.M.C.; Temp. Capt. W. L. M. Day, R.A.M.C.; Temp. Capt. H. Devine, R.A.M.C.; Capt. (acting Maj.) R. Eager, R.A.M.C. (T.F.); Temp. Lt.-Col. S. C. Elgee, R.A.M.C.; Temp. Lt.-Col. T. S. Good, R.A.M.C.; Temp. Maj. C. D'O. Grange, R.A.M.C.; Temp. Capt. A. W. Hendry, R.A.M.C.; Capt. (temp. Maj.) F. A. Hepworth, R.A.M.C. (T.F.); Temp. Maj. D. B. King, R.A.M.C.; Capt. (acting Lt.-Col.)

W. P. MacArthur, D.S.O., R.A.M.C.; Capt. (acting Maj.) D. B. McGrigor, R.A.M.C.; Maj. W. M. MacKay, R.A.M.C.; Temp. Maj. H. D. MacPhail, R.A.M.C.; Temp. Maj. T. R. Morse, R.A.M.C.; Maj. C. A. Morton, R.A.M.C.(T.F.); Maj. R. W. Murray, R.A.M.C.(T.F.); Maj. W. C. Murray, R.A.M.C.(T.F.); Temp. Maj. C. Noon, R.A.M.C.; Temp. Maj. A. O'Neill, R.A.M.C.; Maj. F. J. Oxley, R.A.M.C.; Temp. Maj. J. R. P. Phillips, R.A.M.C.; Temp. Maj. N. Roberts, R.A.M.C.; Temp. Maj. H. Robinson, R.A.M.C.; Temp. Maj. F. M. Rodgers, R.A.M.C.; Capt. W. J. M. Slowan, R.A.M.C.(T.F.); Temp. Maj. S. A. Smith, D.S.O., R.A.M.C.; Temp. Capt. C. R. Stewart, R.A.M.C.; Temp. Maj. F. J. Stuart, R.A.M.C.; Temp. Lt.-Col. A. C. Suffern, R.A.M.C.; Capt. H. G. Turney, R.A.M.C. (T.F.); Temp. Capt. (acting Maj.) H. B. Wilson, R.A.M.C.; Maj. T. L. Anderson, Aust. A.M.C.; Capt. (temp. Maj.) J. H. B. Brown, M.C., Aust. A.M.C.; Capt. G. Finlay, Aust. A.M.C.; Maj. J. P. Fogarty, M.C., Aust. A.M.C.; Maj. C. H. Terry, Aust. A.M.C.; Capt. (temp. Maj.) J. F. Brown, N.Z.M.C.; Maj. (temp. Lt.-Col.) H. M. Buchanan, N.Z.M.C.; Maj. T. D. M. Stout, D.S.O., N.Z.M.C.; Capt. (temp. Maj.) K. E. Tapper, N.Z.M.C.; Capt. W. L. Gordon, S. Afr. M.C.; Temp. Capt. (acting Maj.) H. R. Mullins, S. Afr. M.C.; Maj. G. W. Robertson; Capt. (acting Maj.) W. Thomas, S. Afr. M.C.

M.B.E.—Temp. Capt. G. E. Kinnersly, R.A.M.C.; Capt. P. Chisholm, N.Z.M.C.; Capt. S. H. Hay, N.Z.M.C.; Maj. A. Hosking, N.Z.M.C.; Capt. H. C. Tait, N.Z.M.C.; Capt. I. W. Brebner, S. Afr. M.C.; Capt. H. E. H. Oakley, S. Afr. M.C.

To be Brevet Lieutenant-Colonel.—Maj. (acting Lt.-Col.) O. Jevers, D.S.O., R.A.M.C.; Maj. H. F. Horne, R.A.M.C. (T.F.).

To be Brevet Lieutenant-Colonel on Promotion to Substantive Major.—Capt. A. R. Wright, D.S.O., R.A.M.C.

To be Brevet Major.—Temp. Capt. E. A. Aldridge, M.C., R.A.M.C.

The following is the continuation of the "statements of services" the first part of which was given in THE LANCET of Dec. 20th:—

The Military Cross.

Capt. (acting Major) George Frederick Allison, attd. 149th Fd. Amb.

For conspicuous gallantry and devotion to duty. On Sept. 29th, 1918, immediately after the crossing of the Canal de l'Escant, when a regimental medical officer was mortally wounded, he went forward under intense fire and dressed and evacuated the wounded who were lying out. By his fine example of courage and devotion to duty he was directly responsible for saving many lives at this critical phase of the operation.

Temp. Capt. (acting Major) Lewis Anderson, D.S.O. (D.A.D.M.S., 32nd Div.).

On Nov. 7th, 1918, in the neighbourhood of Avesnes, during the advance following the breaking of the Sambre-Oise Canal line, he heard that a number of men were lying out wounded in the vicinity of the enemy. Having heard that the medical officer was also a casualty, and seeing that the area was being heavily shelled, he twice went to their assistance with the utmost disregard for his personal safety and cleared the wounded.

Lieut. Edgar Richard Batho (Spec. Res.), attd. 16th Bn., Lanc. Fus.

As medical officer to the battalion during the attack on the Oise-Sambre Canal on Nov. 4th, 1918, he displayed conspicuous gallantry and devotion to duty in dressing wounded under heavy shell fire. To enable the rapid evacuation of wounded he had established his aid-post in close proximity to the line, and in this exposed position he dealt with a great number of cases, working for many hours under very great pressure.

Capt. John Patrick Bonfield, Can. A.M.C., attd. 20th Bn., Can. Inf., 1st C. Ont. R.

For conspicuous gallantry and devotion to duty. He established a regimental aid-post in Mestrin, immediately behind the front line, and twice went under heavy machine-gun fire to the lower slope of the Bois le Haut to attend and evacuate wounded. He also went to the help of a wounded officer under close range of machine-gun fire.

Temp. Lieut. Samuel Frederic Boyle, attd. 51st Bde., R.F.A.

During the operations since September, 1918, he showed great devotion to duty. In particular in the operations round Ooteghen on Oct. 22nd, 23rd, and 24th, 1918, he showed great gallantry in attending to wounded men at the battery position under heavy shell fire, and on one occasion crossed the open during an enemy barrage and helped to carry in wounded infantrymen.

Temp. Lieut. Andrew Fisher Calwell, attd. 13th Bn., K.R.R.C.

For gallantry and devotion to duty in the attack on Louvignies on Nov. 4th, 1918. He attended to the wounded under very heavy shell fire, and subsequently removed them to a place of safety. Later, he went forward through a barrage and remained dressing them in the open for two hours until all had been attended to.

Temp. Hon. Capt. Donald Earl Carter, attd. 13th Bn., E. Lanc. R.

For devotion to duty and conspicuous gallantry during the operations at Pecq on Nov. 6th, 1918. He went forward to the forward companies when a heavy artillery bombardment was on. Although gassed himself he remained at duty all night, and did not leave his post until the last case had been evacuated.

Capt. Raymond John Chapman, 2/3rd (E. Lanc.) Fd. Amb. (T.F.).

For great gallantry and devotion to duty at Le Cateau on Oct. 18th, 1918. When a medical officer was shelled out of his aid-post he personally superintended the establishment of relay posts to the new R.A.P., and arranged for the clearing of the old R.A.P. under heavy shell fire. Throughout the whole battle he set an inspiring example to those under him.

Capt. Douglas Gordon Cheyne, attd. 240th (S.M.) Bde., R.F.A. (T.F.).

He is an ideal regimental medical officer, and commands the confidence and respect of all ranks. He shows great energy and cheerfulness under all conditions. These qualities were very marked during the recent operations, especially during the early stages of the advance on the Asiago Plateau on Oct. 31st and Nov. 1st, 1918, when he displayed great coolness and devotion to duty under heavy enemy fire.

Temp. Capt. Herbert Midgley Cockroft, attd. 75th Bde., R.F.A.

For conspicuous gallantry and devotion to duty at Malgarni on Nov. 7th, 1918. Heavy and continual shelling caused many casualties, which he attended to in the battery positions, moving about from man to man with total disregard of danger, and although the position had to be cleared he remained until all the wounded were dressed and evacuated.

Temp. Capt. Archibald Francis Reignier Conder, 109th Fd. Amb.

For conspicuous gallantry and energy during the advance through and N. of Harlebeke between Oct. 14th and 27th, 1918, in charge of the bearers clearing the 109th Battalion. During the whole time he kept in close touch with the battalions, often in the front line under heavy shellfire. At the crossing of the Lys he brought his ambulance cars and bearers right up to the canal, and quickly evacuated the wounded, remaining under heavy fire till all were cleared.

Capt. Walter Mundy Cox, 1/2nd (S.M.) Fd. Amb. (T.F.)

For conspicuous gallantry and devotion to duty during the late strenuous operations N. of Asiago, from Oct. 31st to Nov. 2nd, 1918. He remained on duty night and day for practically 72 hours. During this time he was in constant communication with the infantry, and it was largely due to his efforts that such excellent touch was kept with the troops. He showed exceptional pertinacity in maintaining the liaison which was absolutely necessary to the success of the operations. He was much exposed to shell and machine-gun fire.

Capt. John Alexander Dougan, Can. A.M.C., attd. 58th Bn., 2nd Cent. Ont. R.

For gallantry and devotion to duty during the attacks on the Marcoyne line and Pont d'Aire on Sept. 28th and Oct. 1st, 1918. Throughout both of the above actions he worked under heavy fire, dressing the wounded and superintending their evacuation. He at all times showed great coolness, and several times assisted in the carrying of the wounded. His untiring energy was the means of saving many lives.

Capt. John James Balmanno Edmond, Spec. Res., attd. 4th Bn., K.R.R.C.

For conspicuous gallantry and devotion to duty during the actions near Villers Outreaux on Oct. 8th, 1918, and near Dourlers on Nov. 7th. When in charge of a regimental aid-post he carried on the work of dressing the wounded in an exposed situation for several hours under heavy shelling, high explosive, and gas. Later, in an advance against the enemy position, he continued to dress wounded men under heavy machine-gun fire for several hours, though early wounded in the leg.

Temp. Capt. Dugald Ferguson, attd. H.Q., 168th Bde., R.F.A.

For conspicuous gallantry and devotion to duty at Bazuel, on Nov. 4th, 1918. He visited batteries constantly under heavy shell fire, and attended to wounded under most trying circumstances. His cheerfulness and untiring energy kept up the spirits of the troops.

Capt. (acting Major) Thomas Ottiwell Graham, Spec. Res., attd. 71st Fd. Amb.

For conspicuous gallantry and devotion to duty during operations on the Piave between Oct. 27th-29th, 1918. He was responsible for evacuation of wounded from the left brigade to the advanced dressing station, Lovadina. During the attack from the Island of Grave di Papadopoli he led his bearers closely behind the infantry across the river under heavy shell and machine-gun fire, and established a post on the left bank. He personally supervised the collection and evacuation of wounded from regimental aid-posts to the island. It was due to his untiring energy, personal supervision, and excellent organisation that the evacuation of wounded was carried out rapidly and with the maximum of comfort for the wounded.

Temp. Capt. Hugh Arrowsmith Grierson, attd. 251st (North'bn.) Bde., R.F.A. (T.F.).

For gallantry and devotion to duty. On Oct. 1st, 1918, at Raillencourt, a battery came suddenly under heavy shelling, four men being killed and an officer and six men of a detachment wounded. He hurried to the spot and dressed the wounded men, staying on the position until assistance was procured to evacuate the wounded. On Oct. 23rd, 1918, in Le Cateau, he again showed great devotion to duty under heavy shelling.

Temp. Hon. Capt. Edward Harding, attd. 4th Bn., K.R.R.C.

On Nov. 8th, 1918, near Dourlers he displayed conspicuous gallantry and devotion to duty during an attack on an enemy position. The regimental aid-post, of which he was in charge, was subjected to continuous shelling. He remained at his post for eight hours, dressing the wounded in an exposed situation. The casualties in the attack had been very heavy, and the fine work of this officer was undoubtedly responsible for saving many lives.

Capt. James Gill Hill, 2/2nd (North'bn.) Fd. Amb. (T.F.).

He showed great gallantry and devotion to duty as bearer officer on Nov. 4th, 1918, at Fontaine-au-Bois, where he worked continuously, treating and clearing a large number of wounded under heavy shell and machine-gun fire. On the night of the 7th he volunteered to take up ambulance cars to St. Remy Chaussee. At this time the bridge at Tannieres was almost impassable for cars, but he succeeded in taking cars up to the line in the dark and cleared the forward posts.

Temp. Capt. Trevor Howell, attd. 246th (W. Rid.) Bde., R.F.A. (T.F.).

For conspicuous gallantry and devotion to duty near Camhrai, on Oct. 13th, 1918. When one of the batteries of the brigade sustained heavy casualties, and it was impossible to get enough stretchers to clear away the wounded, he rode through a heavy barrage and attended the wounded in the open, under heavy fire, utterly regardless of personal danger. He invariably displayed the greatest courage and skill, and set a splendid example to all on any dangerous work.

Capt. George Gerald Jack (Spec. Res.), attd. 2/2nd (W. Rid.) Fd. Amb. (T.F.).

On the evening of Nov. 2nd, 1918, at Escarmain, a main dressing station had just been commenced when the enemy opened a half-hour's concentration fire. Two bearers were killed and several others wounded. He promptly took charge and directed the collection and dressing of the cases and their clearance to a safe place. He showed great gallantry and ability.

Temp. Capt. Rupert William Percival Jackson, 91st Fd. Amb.

During the attack by the 18th Infantry Brigade east of Vaux Andigny, on Oct. 17th, 1918, he was in command of the R.A.M.C. bearers clearing the forward area. The routes of evacuation were under constant heavy shell fire. He kept constantly moving along these routes encouraging the bearers and setting a splendid example to his men. He undoubtedly saved the lives of many severely wounded.

Temp. Capt. Arthur Cecil Laing, attd. 1/2nd (High.) Fd. Amb. (T.F.).

For gallantry and devotion to duty on Oct. 24th, 1918, while on duty at the advanced dressing station, Douchy (south-west of Valenciennes), when for some hours the enemy shelled the immediate vicinity. During this period about 22 bursts occurred, several very close to the advanced dressing station, which was in an open building without cellarage. His coolness and energy much facilitated the efficient treatment and evacuation of the patients.

Temp. Capt. Frank Whitwell Kinnear Lawrie, attd. 11th Bn., Notts. and Derby R.

During the advance east of Le Cateau on Oct. 23rd and 24th, 1918, he behaved with great gallantry under heavy fire, to which his post was subjected. He dressed and attended to large numbers of wounded with unremitting devotion to duty, and rendered very valuable service by going forward and evacuating wounded.

Temp. Capt. Percival Garmany Leeman, 12th Fd. Amb.

South of Valenciennes, throughout the period Oct. 21st to Nov. 2nd, 1918, he was bearer officer, in the performance of which duty he displayed great gallantry and resource. His duty entailed constant movement in the open between regimental aid-posts under heavy shell fire; he organised and maintained continuous touch between regimental aid-posts, car-posts, and bearer-posts, and, although wounded, remained at duty until the conclusion of the action.

Capt. (acting Major) Henry Wingate Maltby, Spec. Res., attd. 22nd Fd. Amb.

For conspicuous gallantry, zeal, and devotion to duty. He was acting D.A.D.M.S., and during the operations of Oct. 23rd–24th, 1918, personally superintended the evacuation of wounded from the Lido bridgehead. His arrangements throughout showed the greatest initiative. Subsequently he personally supervised the arrangements for evacuating the wounded across the Grave di Papadopoli, and on both occasions he was frequently under heavy shell fire. Throughout the course of the operations his services were invaluable, and it was largely owing to his untiring efforts that the wounded were evacuated so successfully.

Capt. Harris Mendelsohn, 6th Fd. Amb. Austr. A.M.C., attd. 21st Bn., Austr. Infy.

During operations in the vicinity of Montbrehain, on Oct. 5th, 1918, soon after the attack had been launched, he pushed his aid-post forward under heavy shell fire and established it at a most advanced position. Throughout the day he worked unceasingly, showing fearless devotion to duty, and was the means of saving many lives.

Capt. Walter Corneil Morgan, Can. A.M.C., attd. 46th Bn., Saskatchewan R.

For conspicuous gallantry and initiative on Sept. 27th/29th, 1918, before Cambrai. On Sept. 27th when the battalion attacked, he went forward under heavy fire and attended to the wounded in the field, and later establishing regimental aid-posts in the battalion objective he organised stretcher parties and personally supervised the clearing of all wounded. On Sept. 28th he carried on his work in the face of great danger until he was wounded severely.

Temp. Capt. David Lyall Morrison, attd. 27th Bde., R.F.A.

For most conspicuous gallantry and devotion to duty during the night of Nov. 3rd and the morning of Nov. 4th, 1918, near Beaudignies, when the batteries in the brigade were very heavily shelled. He went from one battery position to another, attending to and dressing the wounded and having them carried away to an aid-post.

Capt. Joseph Armand Pare, 11th Fd. Amb., Can. A.M.C.

For conspicuous gallantry and devotion south-east of Valeucienues, on Nov. 2nd, 1918. Whilst working as bearer officer he made repeated trips into the village of Marly to evacuate wounded. This was done under intense gas and shell fire, the village being practically the front line all day. During subsequent operations he kept in close touch with advancing troops, and was responsible for the splendid work of clearing the battle-field.

Lieut. Malcolm Clark Paterson, Spec. Res., attd. 7th Bn., Seaf. Highrs.

For conspicuous gallantry on Oct. 20th, 1918, near St. Louis, when he went forward under heavy fire to dress wounded in the open and to arrange for their removal to the rear. Again, on Oct. 25th, 1918, near Ooteghem, when the battalion was held up by very heavy machine-gun fire, he made a tour of the front line and attended to the wounded under very trying circumstances. From Sept. 28th to Oct. 26th he showed marked devotion to duty.

Lieut. Arthur Vernon Pegge, Spec. Res., attd. 15th Bn. Lancs. Fus.

During the attack on the Oise-Samhre Canal, Nov. 2nd–4th, 1918, his aid-post came under very heavy shell fire, and was also gassed at intervals. The casualties were very heavy, and he carried out his work in the open, working unceasingly and with untiring energy. By his personal example and zealous devotion to duty under fire the task was carried out successfully, and an absolute block prevented.

Capt. (acting Maj.) Andrew Picken, Spec. Res., attd. 70th Fd. Amb.

For conspicuous gallantry and devotion to duty between Oct. 28th and Nov. 1st, 1918, especially on night of Oct. 31st, 1918. When the enemy were still holding part of Sacile, on hearing there were wounded on the far bank of the Livenza river he crossed the river, collected and dressed the wound, and remained with them until he could evacuate them, at times being under heavy machine-gun and rifle fire. He behaved splendidly.

Temp. Capt. Alfred James Pirie, attd. 10th Bn., Essex R.

For conspicuous gallantry and devotion to duty. On Oct. 29th, 1918, while holding the line in front of Petit Planty (near Le Cateau), battalion headquarters was heavily shelled. He dressed the wounded as casualties occurred and withdrew them into sheltered positions outside the area of fire. He has consistently shown great devotion to duty.

Capt. (acting Major) Richard Payne Pollard, 2/3rd (Lond.) Fd. Amb.

He showed great gallantry and devotion to duty during the period Nov. 4th to 6th, 1918, near Sehourg. He worked for long hours attending and operating under fire on wounded men. At the same time he organised the dressing station and the evacuation of serious cases in such a manner that he was undoubtedly instrumental in saving many men's lives.

Capt. (acting Major) Herbert Barrett Pope, 2/1st (W. Rid.) Fd. Amb. (T.F.).

For conspicuous gallantry and devotion to duty during the advance of the division from west of Le Quesnoy to east of Maubeuge between Nov. 4th and 10th, 1918. During six successive days and nights he worked unceasingly as bearer officer in charge of evacuation from the divisional front. Adverse weather and the blowing up of roads and bridges made evacuation extremely difficult, but he maintained a continuous liaison with regimental aid-posts, personally visiting them and planning out fresh routes under heavy hostile fire.

Capt. William Benton Rennie, attd. 7th Hrs. (Mesopotamia).

For conspicuous gallantry and devotion to duty near Huwaish on Oct. 28th, 1918. During the withdrawal of the regiment he stayed behind to tend the wounded under heavy fire. He finally had to withdraw himself, and, after mounting, noticed a corporal who had lost his horse, about to be overtaken by the advancing enemy cavalry. He immediately returned and taking the corporal up behind him, rejoined his regiment. His fine action saved this N.C.O. from capture.

Capt. Stuart Robertson, T.F., attd. 16th Bn. R.W.Fus.

At Englefontaine, Nov. 4th, 1918, he heard that the battalion had suffered heavy casualties on its position of assembly. He left his aid-post immediately, and led his men through a heavy barrage to the assembly position. Here he worked in the open, with the utmost coolness and disregard of danger under heavy fire, until all the wounded were cleared.

Capt. (acting Major) William Albert Robertson, 2/2nd (North'bn) Fd. Amb. (T.F.).

During the recent operations he was in charge of the bearers attached to an infantry brigade from Nov. 4th to 10th, 1918. He showed great resource and gallantry in the operations at St. Auhin and district, and his gallantry was an example to all the men under his command.

Capt. (acting Major) Henry James Drew Smythe, 1/3rd (S.M.) Fd. Amb. (T.F.).

For conspicuous gallantry and devotion to duty on Oct. 31st and Nov. 1st and 2nd, 1918. He was in charge of the front line evacuation during all the active operations on the Asiago front. He made a personal reconnaissance of the front and its approaches to establish the line of evacuation. On Nov. 3rd he was ordered to withdraw his bearers, and in spite of intense shelling he personally saw to the withdrawal and brought all his men safely back, though slightly wounded himself. During the subsequent attacks he spent 30 hours visiting posts and encouraging bearers, often under intense shell fire and machine-gun fire. It was mainly owing to his disregard of danger, initiative, and devotion to duty that the long line of evacuation was kept working smoothly.

Temp. Capt. Thomas Stordy, 23rd Fd. Amb.

He was with the bearers from the commencement of operations on the Piave on the night of Oct. 23rd/24th, 1918. He showed a fine example to all his men under dangerous and difficult circumstances, maintaining liaison at all times with regimental medical officers, on two occasions passing through machine-gun fire to do so. He showed a complete disregard for danger and set a fine example of courage and perseverance to all under him.

The name of Surg.-Lt. J. F. Strugnell, R.N., has been brought to the notice of the Admiralty for valuable services in the prosecution of the war.

The names of Surg.-Lt. A. F. R. Wollaston, D.S.C., R.N., and of Surg.-Lt. G. Nicholson, R.N., have been mentioned in despatches.

FOREIGN DECORATIONS.

French.

Legion of Honour.—Officer: Surg.-Capt. O. W. Andrews, C.B.E., R.A.

Médaille d'Honneur des Épidémies.—Surg.-Lieut. L. Moss, R.N.

Médaille des Épidémies (en Vermeil).—Capt. A. E. Bonham, R.A.M.C. (T.F.); Temp. Maj. (acting Lt.-Col.) H. M. Chasseaud, R.A.M.C.; Temp. Capt. (acting Maj.) A. W. D. Coventon, R.A.M.C.; Capt. C. Gamble, R.A.M.C. (S.R.); Temp. Capt. A. H. Greg, O.B.E., R.A.M.C.; Maj. (acting Lt.-Col.) R. N. Hunt, D.S.O., R.A.M.C.; Capt. A. Oliver, R.A.M.C. (T.F.); Temp. Capt. J. W. Pell, R.A.M.C.; Maj. R. E. Todd, R.A.M.C.

American.

Distinguished Service Medal.—Surg.-Rear-Admiral Sir R. Hill, K.C.M.G., C.B., C.V.O.

A MONTHLY RECORD OF ATMOSPHERIC POLLUTION.

METEOROLOGICAL OFFICE: ADVISORY COMMITTEE ON ATMOSPHERIC POLLUTION: SUMMARY OF REPORTS FOR THE MONTHS ENDING

April 30th, 1919.

Metric tons of deposit per square kilometre.

Place.	Rainfall in millimetres.	Insoluble matter.			Soluble matter.		Total solids.	Included in soluble matter.		
		Tar.	Carbonaceous other than tar	Ash.	Loss on ignition.	Ash.		Soluble (as SO3).	Chlorine (Cl).	Ammon. (NH3).
ENGLAND.										
London—										
Meteorological Office	74	0·20	5·04	2·14	1·48	3·25	12·11	1·48	0·94	0·11
Embankment Gardens	62	0·30	4·51	11·31	7·06	8·40	31·50	4·77	1·24	0·43
Finsbury Park ...	81	0·06	1·40	4·75	2·01	3·04	11·26	1·81	0·55	0·10
Ravenscourt Park	46	0·29	5·00	9·61	1·65	3·05	19·59	1·80	0·42	0·08
Southwark Park	75	0·03	8·55	16·56	11·57	5·23	41·95	8·11	1·25	0·68
Victoria Park ...	23	0·02	0·97	3·07	0·93	0·91	5·90	0·96	0·26	0·03
Wandsworth Com.	16	0·01	0·10	0·50	0·82	1·07	2·50	0·76	0·05	0·02
Golden Lane ...	74	0·23	3·22	5·15	1·48	4·45	14·53	2·04	0·92	0·15
Malvern	46	Nil.	0·20	0·33	0·28	1·10	1·93	0·51	0·10	Tr.
St. Helens...	45	0·06	1·67	0·86	1·80	4·50	8·89	1·35	1·02	0·05
Southport—										
Hesketh Park ...	36	0·01	0·43	1·00	0·89	2·67	4·99	1·07	0·34	0·00
Woodvale Moss ...	26	—	—	—	—	—	2·98	—	—	—
SCOTLAND.										
Coatbridge	38	0·04	0·38	0·98	2·47	3·31	7·18	2·60	0·45	0·19
Glasgow—										
Alexandra Park...	29	0·03	1·26	2·28	2·31	1·18	7·06	1·37	0·44	0·11
Bellahouston Pk.	34	0·34	1·70	2·05	1·75	4·05	9·89	1·51	0·29	0·08
Blythswood Sq....	36	0·11	1·52	2·91	1·41	2·19	8·14	1·27	0·24	0·14
Botanic Gdns. ...	40	0·08	1·33	3·31	1·94	4·73	11·39	2·61	0·29	0·09
Richmond Park...	41	1·33	3·39	3·73	5·78	5·99	20·22	1·65	0·45	0·09
Ruchill Park ...	46	0·05	1·37	2·91	1·43	3·12	8·88	1·74	0·29	0·10
South Side Park...	37	0·21	1·86	1·89	1·41	4·78	10·15	1·40	0·22	0·10
Tollcross Park ...	36	0·08	1·40	3·13	1·44	3·11	9·16	1·76	0·23	0·07
Victoria Park ...	37	0·03	1·09	2·77	1·47	4·54	9·90	2·52	0·34	0·14

May 31st, 1919.

Metric tons of deposit per square kilometre.

Place.	Rainfall in millimetres.	Insoluble matter.			Soluble matter.		Total solids.	Included in soluble matter.		
		Tar.	Carbonaceous other than tar	Ash.	Loss on ignition.	Ash.		Sulphate as (SO3).	Chlorine (Cl).	Ammon. (NH3).
ENGLAND.										
London—										
Meteorological Office	7	0·07	0·61	2·21	0·42	0·53	3·84	0·24	0·13	Tr.
Embankment Gardens... ...	12	0·23	2·93	7·78	1·25	2·16	14·35	1·17	0·26	0·06
Finsbury Park..	13	0·04	0·40	1·99	0·72	1·22	4·38	0·58	0·15	0·02
Southwark Park	13	0·11	4·47	9·14	2·11	2·51	18·33	1·90	0·26	0·12
Victoria Park ...	17	Nil	0·07	0·28	0·36	1·01	1·72	0·27	0·12	0·03
Golden Lane ...	15	0·04	1·97	3·60	0·61	1·41	7·62	0·77	0·25	0·07
Malvern...	24	Nil	0·23	0·26	0·33	0·82	1·63	0·41	0·07	Tr.
Rothamsted ...	12	0·03	0·59	1·30	0·64	0·52	3·07	0·24	0·07	0·03
St. Helens	16	0·05	0·38	1·11	0·18	1·05	2·78	0·48	0·19	0·01
Southport—										
Hesketh Park...	26	0·01	0·40	0·97	0·47	1·86	3·70	0·59	0·16	0·01
Woodvale Moss	24	—	—	—	—	—	2·56	—	—	—
SCOTLAND.										
Glasgow—										
Alexandra Park	20	0·04	1·78	2·06	0·71	1·56	6·15	0·85	0·21	0·06
Bellahouston Pk.	11	0·08	1·83	3·31	0·82	1·82	7·86	0·68	0·22	0·01
Blythswood Sq.	14	0·08	1·47	3·42	0·67	1·41	7·05	0·56	0·18	0·07
Botanic Gdns....	13	0·01	1·60	4·57	1·14	2·59	9·91	0·93	0·12	0·04
Richmond Park	12	0·06	1·95	2·55	0·94	1·79	7·29	0·79	0·14	0·05
Ruchill Park ...	13	0·03	1·11	2·74	0·58	1·25	5·71	0·62	0·14	0·04
South Side Park	13	0·04	1·61	2·65	0·59	1·81	6·70	0·65	0·15	0·04
Tollcross Park..	3	0·03	1·51	3·32	0·36	0·70	5·92	—	—	0·01
Victoria Park ...	13	0·02	1·03	3·71	0·55	1·35	6·66	0·96	0·13	0·06

There were no returns during the month of April from the following stations: Whitworth Street (garden) and roof of College (Manchester); Newcastle-on-Tyne (removal of gauge); Rochdale (observations temporarily suspended). In the deposit caught in the gauges at all the Glasgow stations the presence of lead is reported, while at the stations Bellahouston Park, Richmond Park, and South Side Park (Glasgow) it is reported that the "contents of these carboys possessed a marked odour of paint, whilst the liquid was turbid and greasy in appearance. This contamination is reflected in the analysis by the comparative high extract by carbonaceous matter other than tar."

There were no returns during the month of May from the following stations: Ravenscourt Park and Wandsworth Common (London); Whitworth Street (garden) and roof of College (Manchester); Newcastle-on-Tyne and Rochdale. Lead was reported to be present in the samples taken at Ruchill Park and Tollcross Park (Glasgow). At the latter station the estimation of SO_3 and Cl was omitted owing to loss of sample.

"Tar" includes all matter insoluble in water but soluble in CS_2. "Carbonaceous" includes all combustible matter insoluble in water and in CS_2. "Insoluble ash" includes all earthy matter, fuel, ash, &c. One metric ton per sq. kilometre is equivalent to: (*a*) Approx. 9 lb. per acre; (*b*) 2·56 English tons per sq. mile; (*c*) 1 g. per sq. metre; (*d*) 1/1000 mm. of rainfall. Tr. = Trace.

The personnel of public health authorities concerned in the supervision of these examinations and of the analytical work involved remains the same as published in previous tables. The analyses of the rain and deposit caught in the gauge at the Meteorological Office are made in THE LANCET Laboratory.

CARDIFF MEDICAL SOCIETY.—The ordinary monthly meeting of this society was held on Dec. 9th. Dr. H. G. G. Cook showed a specimen of a Gall-bladder containing three gall-stones which completely filled it, removed by cholecystectomy. The diagnosis was obscured by the coexistence of a right movable kidney, to which the symptoms manifested might equally well have been attributed. A nephropexy was performed, and on palpating the gall-bladder through the lumbar wound the stones were felt. On completion of the nephropexy the wound was sutured, and the gall-bladder removed through the usual anterior incision, both operations being done under the one anæsthetic. The patient made an uninterrupted recovery. . Dr. D. Leighton Davies showed a case of Dermoid of Conjunctiva. A boy, aged 11, showed a flat sessile growth, about 4 mm. diameter, occupying the usual position outside the outer edge of the cornea. The growth had been present since birth, and was not noticed to have increased in size. It was of a yellowish colour, and showed a few down-like hairs. It appeared rather dry on the surface, as though not moistened by the hairs. Professor E. Emrys-Roberts related his experiences whilst in charge of the Welsh Mobile Bacteriological Laboratory presented to the Welsh Army Corps by Lady Lynn Thomas in the beginning of 1915. The laboratory was attached to the Welsh Division during its training and for a short time after its arrival in France, after which it was established as a unit in the First Army, having allotted to it a corps area including five casualty clearing stations. The work was varied and interesting, and Professor Emrys-Roberts gave a résumé, so far as time would permit, of what had been done, and indicated in the course of his address the value of a mobile laboratory, not only on active service, but also as a part and parcel of the equipment of a public health service. A hope has been expressed that in due time the laboratory will find its way back again to the Principality, where it should be possible to utilise its unique potentialities to the full.

Correspondence.

"Audi alteram partem."

EPSOM COLLEGE.

To the Editor of THE LANCET.

SIR,—It is again my duty to bring before your readers the good work carried out by the Royal Medical Foundation of Epsom College, which consists of (*a*) giving pensions of £30 a year to 50 aged and impecunious medical men or their widows; and (*b*) providing free of charge a high-class education, together with clothing, maintenance and pocket money for 50 necessitous sons of medical men. To enable these beneficent objects to be carried out, the Council have had to supplement the moderate income derived from invested funds by procuring contributions from medical men and others amounting to at least £4500 a year. It will be necessary, however, for a much larger sum to be obtained in future from subscriptions and donations, owing to the greatly increased cost of food, clothing, lighting, heating, wages, repairs, and general expenditure. Furthermore, Epsom College, like other secondary schools throughout the country, has had to incur a heavy increased expenditure in masters' salaries, whilst a more costly Masters' Pension Scheme will have to be instituted shortly if the best masters are to be attracted to the College.

I therefore urge all friends of the College to do what they can to assist the Council to procure the further financial support needed, by increasing their own subscriptions for a few years, and by bringing the good work of the Foundation before medical men and others. The Foundation has strong claims on the public, bearing in mind the services rendered by the medical profession in the prevention of disease, as well as in the treatment of illness and accidents. It frequently happens that owing to the exceptional risks to which medical men are exposed permanent disablement and even premature death occur in the course of the discharge of their everyday duties. The Council have received numerous applications for assistance as a direct consequence of the war, and Foundation scholarships and Salomons entrance scholarships have been awarded to several boys whose fathers were killed in action or lost their lives in torpedoed vessels. But these scholarships and the Council exhibitions inadequately meet the calls for aid in forwarding the education of many necessitous and deserving sons of medical families. The Pensioners and Foundation Scholars are elected in June each year by the votes of the governors, who are allotted ten votes for every guinea subscribed annually and ten votes a year for life for every donation of 10 guineas.

I am, Sir, yours faithfully,
HENRY MORRIS,
Honorary Treasurer of Epsom College and its Royal Medical Foundation.
37, Soho-square, London, W. 1, Dec. 17th, 1919.

THE DRAFT REGULATIONS FOR 1920.

To the Editor of THE LANCET.

SIR,—The minutes of the annual conference held at the Memorial Hall under the auspices of the British Medical Association should prove an exhilarating document to the Minister of Health. The local medical and panel committees have proclaimed him autocrat in medical affairs. It is true that the conference carried the motion, "That any person aggrieved by the removal of his name from the list may appeal to the High Court, and on any such appeal the High Court may give such directions in the matter as it thinks proper, &c." But this was not the fault of the conference. We were told by a private member that he had it on unimpeachable authority that neither Dr. Addison nor the representatives could alter the law of the land nor curtail the powers of His Majesty's judges. Our hands were therefore tied. The conference, however, remained loyal to the Minister. Every motion that gave the slightest hint of interfering with his powers was immediately either ruled out of order, or by a little adroit manœuvring was withdrawn. Dr. Addison's attitude was confirmed when a resolution to organise the profession to refuse service under certain contingencies was dropped as unthinkable. For we admitted that no greater calamity could befall us than removal from the medical list. We agreed that whatever the capitation fee may be our services were certain. We were so enamoured of our work that we are clamouring for more. We insisted that the bargain (whatever it may happen to be) would continue for three years. To make ourselves thoroughly amenable to discipline and officialdom we agreed to negotiate with the Government for a pension scheme.

The same fate befell any attempt to assert the rights of the panel practitioner, for it was made abundantly clear that he had no rights. His list must be henceforth limited to 3000 persons. When there are enough practitioners to go round it will be limited to 2000, because one can give more time to 2000 than to 3000 patients. But lest he has too much time to spare he must place himself at the beck and call, night and day, of anyone who demands his services. If he would employ an assistant he must obtain the consent of the Insurance Committee, and agree to the terms the Committee imposes. The patients whom he attracts by his ability, his affability, and tact are not his, but belong to the State. The motion that attendance on insured persons after labour shall not be required until 28 days after delivery was lost. That a person must produce evidence of his being an insured person—i.e., a medical card—before he can claim treatment was ruled out of order. That the liability of an insurance practitioner for the acts and omissions of his deputy be defined was lost.

What resolutions then did the conference pass? The non-committal ones. "That the conference maintains the opinion that 13*s.* 6*d.* is the lowest capitation fee for an effective service." It is a pious opinion with two qualifications by which, when the time comes, we can climb out and down. That the week should be defined as from Saturday midnight to Saturday midnight, instead of from Sunday midnight to Sunday midnight, was carried unanimously.

Medical men will receive with surprise eclipsed only by that of the Ministry the news "That this conference do express a general approval of the new regulations for 1920." No wonder that THE LANCET says that "Dr. Addison's assurance in the House of Commons that at a meeting of Panel Representatives only three dissentients were found out of 147 Representatives must be understood exactly, if it is not to be misunderstood." One representative at any rate was staggered at the hardihood of the conference. In this encounter we have lost. The Ministry has won. This is as I expected. The British Medical Association as a negotiating body has failed. The Insurance Acts Committee is as wax in the hands of the permanent officials of the Ministry.

I am, Sir, yours faithfully,
Exeter, Dec. 21st, 1919. J. PEREIRA GRAY.

THE JUSTIFIABILITY OF THERAPEUTIC LYING.

To the Editor of THE LANCET.

SIR,—There are many features in Dr. Hildred Carlill's remarkable article on Hysterical Sleeping Attacks in THE LANCET of Dec. 20th that demand serious attention, but I will only crave space for the most important. It is high time that the medical profession should decide whether it is justifiable for a physician to tell lies to his patient with the object of effecting a cure by suggestion, and on the basis of such lies to perform a serious operation with that object.

During the war there were certain physicians who would explain to a patient suffering from functional hemiplegia that the cortical cells on one side of his brain were out of order, or to one suffering from functional deafness that there was something radically amiss with his ear. And they would proceed to tone up the disordered cells by painful faradism, or would pretend to perform an operation under an anæsthetic on the affected ear. I have always been convinced that such measures are not only needless, but also dangerous. If the patient is not cured by the electricity or by the sham operation, his latter state is far worse than his previous one, because henceforth he firmly believes in an "organic" basis of his condition. If, on the other hand, he is cured, he may at any future time fear or fancy a recurrence of his "organic" malady.

But when the physician goes as far as Dr. Carlill, actually to operate on the patient for the removal of a piece of thickened bone from the skull, and when he permits the patient to wear that removed piece of bone, well knowing that the bone was not thickened and that the patient's condition had nothing to do with bone thickening, the procedure seems to me to be not only needless and dangerous, but also to be absolutely indefensible and unworthy of his profession. Even on the lowest grounds we have only to ask ourselves what would have been Dr. Carlill's position if the sleeping attacks of his patient had *not* ceased after the trephining operation, especially if the latter had come to know that the operation had been performed solely for its possible suggestive efficacy.

Whatever the method of psychotherapy adopted the *full truth* is not always possible; explanations have to be couched in terms fitted to the mentality of the patient. But *downright lies* are to my mind never necessary and deserve vigorous condemnation, especially when carried over into needless and possibly harmful action.—I am, Sir, yours faithfully,

CHARLES S. MYERS.

Montagu-square, W., Dec. 20th, 1919.

ANTIMONY IN FILARIASIS.

To the Editor of THE LANCET.

SIR,—I read with keen interest Sir Leonard Rogers's paper entitled "Preliminary Report on the Intravenous Injection of Antimony in Filariasis," published in your journal of Oct. 4th, 1919.

In my observations on the use of antimony in this disease in my book "Kala-azar, its Treatment"—published by Butterworth and Co. (India) in February, 1917, and reviewed in THE LANCET of Nov. 10th, 1917—the following words occur on p. 115: "It is difficult to determine the effect of any drug in filariasis, as the disease may remain latent for prolonged periods. Several cases have been treated with intravenous injection of tartar emetic and antimonyl sodium tartrate. In one case, however, there was a very marked reduction of the parasites in the peripheral blood and the fever stopped. In another case there was apparent disappearance of the embryos from the peripheral blood."

I am very glad to find that Sir Leonard Rogers's observations are corroborative of mine. My further observations will be published when more definite results are obtained.—I am, Sir, yours faithfully,

Calcutta, Nov. 12th, 1919. U. N. BRAHMACHARI.

ACUTE PULMONARY ŒDEMA.

To the Editor of THE LANCET.

SIR,—Cases of acute pulmonary œdema are so sudden in onset and run such a rapid course that treatment should be carried out promptly. It would have added much to the interest of the case reported by Dr. Guy Branson in your issue of Dec. 13th if he had indicated the treatment he employed. I have had such excellent results from the use of atropine subcutaneously in acute œdema of the lungs that I am anxious that this drug should be more generally recognised as a valuable agent in these grave cases.

I am, Sir, yours faithfully,

F. DE HAVILLAND HALL.

Wimpole-street, W., Dec. 19th, 1919.

UNIVERSITY OF DURHAM: THE ROLL OF SERVICE.

To the Editor of THE LANCET.

SIR,—May I have the hospitality of your columns to appeal to all members of the University of Durham for help in compiling the definitive edition of the Roll of Service and Roll of Honour? Forms framed to include all details of military service have already been sent to all those whose addresses are known, and further applications from others for them would be welcomed by me at these offices. The last date for receiving such information will be Dec. 31st, 1919.

I am, Sir, yours faithfully,

H. G. THEODOSIUS,

University Offices, 38, North Bailey, Durham, Registrar.
Dec. 18th, 1919.

A CORRECTION.

To the Editor of THE LANCET.

SIR,—In my "Notes on Some Occasional Manifestations of Malaria" published in your issue of Dec. 20th I referred to Major James Kerr as an advocate of intravenous quinine. I should have written Major *Charles* Kerr, R.A.M.C. (T.). I much regret the error.

I am, Sir, yours faithfully,

D. W. CARMALT JONES.

Seymour-street, W., Dec. 23rd, 1919.

ACHLORHYDRIA AND GASTRIC CARCINOMA.

To the Editor of THE LANCET.

SIR,—Modern surgical text-books suggest that the absence of free hydrochloric acid from a test meal is sufficient evidence to justify an exploratory operation for gastric carcinoma. I should be grateful for guidance in the following case.

A patient in whom I am interested was found, quite ten years ago, to have an entire absence of HCl, but so far does not seem a penny the worse for the deficiency. He uses a great deal of mustard, practically with everything, and frequently also sauces, and suggests that condiments make up to him for the deficiency of acid in the gastric juice.

Should it be proved that achlorhydria is always associated with malignancy, the condition is obviously the result of some unknown cause, which presumably persists even though the digestive faculty is kept up by the use of artificial HCl. The rationale of administering HCl under these circumstances needs some explaining. I am, Sir, yours faithfully,

Dec. 16th, 1919. ANXIOUS INQUIRER.

Obituary.

ARTHUR RIEUSSETT LITTELJOHN, M.R.C.S., L.R.C.P., M.R.C.V.S., D.P.H.,

MEDICAL OFFICER IN THE MINISTRY OF HEALTH.

IT is with regret that we have to record the death of Dr. Arthur Rieussett Litteljohn, which took place at a nursing home in London on Dec. 8th, at the early age of 38. He was a son of the late Dr. Saltern George Litteljohn, and was educated at St. Paul's School and at the Royal Veterinary College and St. Mary's Hospital. He was for some time tutor in veterinary medicine at the Royal Veterinary College, made a number of contributions to scientific journals on veterinary matters of special medical interest, and was the author of a well-arranged and useful handbook on "Meat and its Inspection." In 1911, when Dr. Litteljohn was appointed to the medical staff of the Local Government Board, he had already made a close study of the many important points at which veterinary and human medicine touch in their bearing on public health. He added to these a sound knowledge and practical experience of public health administration gained in the course of several municipal appointments which he had held, and with this unusual and valuable equipment he speedily found scope in the Food Department of the Local Government Board for the practical application of his knowledge and judgment.

The war arrived and the Food Department immediately became immersed in the task which it undertook for the War Office of organising and controlling arrangements for securing that the army's food-supplies were manufactured and prepared under proper sanitary conditions, and with those of his colleagues to whom military service was denied he threw himself with characteristic zeal into his work. Early in 1915 the Local Government Board was asked by the War Office to provide inspectors to undertake supervision of the preparation and packing of the vast quantities of food materials which were being manufactured for our armies in North and South America. Litteljohn was entrusted with this mission in the United States and Canada and laboured without a break in his extremely arduous and responsible task from the spring of 1915 to the autumn of 1918, when he returned to England much impaired in health, but with the satisfaction of knowing that his work in America had contributed in no small degree to the welfare and efficiency of our troops in the field. His correspondence during this time shows how capable he was of dealing with a big problem in a big way. In spite of the great distances which he had to cover in the United States and Canada, his arrangements enabled him to maintain effective control in all the packing-houses engaged on British contracts. The reputation which he had gained at home for sound knowledge of his subject, reliable judgment, and prompt and fair decision was quickly established amongst the American and Canadian packing firms. Many representatives of those firms have since testified their respect and admiration for his gifts in this direction, and for the helpful and stimulating spirit in which he invariably dealt with the many difficult problems with which all were faced. It is no exaggeration to say that one of the chief factors which went towards securing the uniform and consistently good quality of the food supplied to our troops was the high character of Litteljohn's work and the respect which his courage and ability inspired in those with whom he had to deal.

After a brief rest in England, during which his health seemed to improve somewhat, he undertook a mission of a similar kind for the War Office in Australia, where he remained for a few months. He had barely completed his work there when his health broke down, and he returned to England in July last. Since then he gradually became worse, but his fortitude never deserted him throughout his long and painful illness. For his services and sacrifices during these strenuous years he was mentioned in War Office despatches.

To the public "A. R." Litteljohn was well known generally as a fine athlete and first-class cricketer. He played for Middlesex for a number of years, and he and his brother, "E. S."—also a medical man—have on many occasions done brilliant things for their county XI. A. R. Litteljohn's loss will be keenly felt by numerous friends, both in the Ministry of Health, where his ability and high character were fully recognised, and in the world of sport, where he was loved.

FREDERIC SKAIFE, M.R.C.S. ENG., L.R.C.P. EDIN.

BY the recent death of Mr. Frederic Skaife, in his seventieth year, Chichester and district lost one of its most prominent and popular medical practitioners. After qualifying as L.S.A. and L.R.C.P. Edin. in 1871 and M.R.C.S. in 1872, he for a short time held resident appointments in Carlisle, Penrith, and Wigton, but his life's work was done in Chichester, where he started practice in 1879, and retired only in March of this year. During the whole of that time he was on the surgical staff of the Royal West Sussex Hospital, where his work was held in great repute; while in private practice, on account of his experience and skill, he was highly esteemed. "Equally attentive to rich and poor," writes one who knew him well, "genial, courteous, straightforward, of good presence and attractive personality, he established a remarkable hold on the affections of all who knew him. He was a keen sportsman and a fearless follower of hounds."

Like many others, Mr. Skaife, who himself did much war work, had his sorrows in connexion with the great war. Both his sons were officers in the old army, and both went to France with the Expeditionary Force. Within a short time both were reported by the War Office as killed. Subsequently it was found that the younger son was wounded and a prisoner in German hands, being repatriated in 1918. Mr. Skaife is survived by his widow and by his younger son, Lieutenant-Colonel E. O. Skaife, O.B.E.

Medical News.

UNIVERSITY OF OXFORD.—At examinations held recently the following candidates were successful:—

SECOND M.B. EXAMINATION.

Materia Medica and Pharmacology.—C. C. H. Chavasse, Hertford; H. K. Denham, Balliol; W. E. Hayes, New; and W. S. Tunbridge, Lincoln.

Pathology.—T. H. Cathrall, Trinity; C. C. H. Chavasse, Hertford; W. E. Hayes, New; J. G. Johnstone, St. John's; and M. H. MacKeith, Queen's.

Forensic Medicine and Public Health.—H. E. A. Boldero, Trinity; I. Harris, Jesus; and D. B. Pauw, Trinity.

Medicine, Surgery, and Midwifery.—W. T. Collier, Balliol; and B. G. von B. Melle, Queen's.

DIPLOMA IN PUBLIC HEALTH.

Part I.—H. M. Agnaü, J. I. Baeza, J. N. L. Blamey, G. K. Bowes, C. H. Carleton, A. P. Ford, F. W. Hamilton, G. T. Hebert, H. C. Jennings, M. M. Khan, T. McKibbon, S. C. Morgan, H. Smith, K. E. Tapper, H. Vallow, and C. H. Warner.

Part II.—A. G. Auld, J. I. Baeza, G. K. Bowes, M. M. Khan, T. McKibbon, S. C. Morgan, K. E. Tapper, and H. Vallow.

UNIVERSITY OF LONDON.—At a meeting of the Senate held on Dec. 17th the first award of the William Julius Mickle Fellowship, which is of the value of £200, was made to Dr. Thomas Lewis, of the Cardiographic Department of University College Hospital Medical School, in recognition of the work which he has carried out during the past five years on the nervous mechanism of the heart.—At examinations held recently the following candidates were successful in the subjects indicated:—

M.D. EXAMINATION.

Branch I., Medicine.—Robert Allan Bennett, Birmingham Univ.; William Stanley George, Guy's Hosp.; Reginald Hugh Simpson, St. Bart.'s Hosp.; and Sibyl Ibbetson Welsh, London Sch. of Med. for Women.

Branch II., Pathology.—Ludlow Murcott Moody, King's Coll. Hosp.

Branch V., State Medicine.—Claud Sebastian van Renen Harwood, Westminster Hosp.; and Richard Douglas Passey, Guy's Hosp.

M.S. EXAMINATION.

Branch I., Surgery.—Hugh Braund Kent, Guy's Hosp.; Raghunath Dadoba Shirvalkar, Univ. Coll. Hosp.; and Edward Gustave Slesinger, Guy's Hosp. (Univ. Medal).

UNIVERSITY OF MANCHESTER.—At examinations held recently the following candidates were successful in the subjects indicated:—

FINAL M.B. AND CH.B. EXAMINATION.

Mary E. Boullen, Elizabeth C. Davies, J. B. Higgins, F. S. Horrocks (distinction in Surgery and Medicine), E. R. Ormerod, Ellis Pigott, and Doris M. R. Tompkin.

Obstetrics.—F. G. Hamnett and J. N. Laing.

Medicine.—F. G. Hamnett.

Forensic Medicine.—Simon Almond, F. H. Anderson, Martha F. Barritt, Dorothy M. L. Dyson, Ernest Jones, Alexander Maude, E. R. Ormerod, J. S. Robinson, Constance Snowdon, Geoffrey Talbot, and H. W. Taylor.

THIRD M.B. AND CH.B. EXAMINATION.

General Pathology and Morbid Anatomy.—G. V. Ashcroft (distinction in Pathology), E. C. Berg, Nancy E. Bleakley, Muriel Coope, T. E. Coope, Eugenia R. A. Cooper, S. W. Drinkwater, Winifred M. Edghill, T. N. Fisher, Kathleen M. Fullerton, Edward Gleaves, Florence M. L. Graham, W. H. Gratrix, Albert Haworth, Ruth Hill, C. D. Hough, Violet M. Jewson, Marguerite F. Johnstone, Jessie Kilroe, R. R. Lane, James Leather, G. H. Lees, Eva G. Le Messurier, W. L. Martland, P. B. Mumford (distinction in Pathology), Cecil Nelson, Terence O'Brien, L. S. Potter, W. E. Powell, H. L. Sheehan, Margaret Single, J. W. Smith, Harry Stafford, Doris A. Taylor, S. N. Taylor, Norah M. Walker, Solomon Wand, Sidney Waterworth, Robert Williamson, and J. R. Wright.

FINAL EXAMINATION FOR DIPLOMA IN DENTISTRY.

Harold Walmsley.

UNIVERSITY OF LIVERPOOL.—At examinations held recently the following candidates passed in the subjects indicated:—

FINAL EXAMINATION FOR M.B. AND CH.B.

Part I., Pathology.—O. A. Akjaly, W. J. Birchall, Doris Brown, W. E. A. Burton, Doris M. Cassady, A. C. Crawford, Susan H. Gilchrist, W. S. Gilmour, J. Goldberg, S. B. Herd, Isabel E. Inmison, E. W. Johnson (with distinction), T. M. Jones, Florence M. Lamport, J. F. C. McColl, R. F. J. Martin, M. Newman, G. W. Phillips, Kathleen M. Platt, J. H. Pottinger, A. McK. Reid, Gladys Rutherford, J. C. Twomey, S. V. Unsworth (with distinction), D. O. Williams, and Josephine M. Wilson.

Part II., Forensic Medicine, Toxicology, and Public Health.—W. H. Evans (distinction in Forensic Medicine and Toxicology), M. H. Finegan, R. O. Jones, R. M. Jones, T. M. Jones, M. K. el Khadem, G. H. Potter (with distinction), and G. R. Wadsworth.

THIRD EXAMINATION FOR L.D.S.

Part I., Physiology, Dental Anatomy, and Dental Histology.—E. O. Bray, H. T. Brown, Dorothy A. Canning, R. E. Cook, J. P. Flynn, F. J. Kydd, S. Pearson, J. I. Smith, E. Wayte, and N. Williams.

Part II., Anatomy.—F. H. Birch, Anna Breen, O. R. Ellis, E. F. Hope, W. M. Middleton, H. O. Silcock, N. Williams, and L. B. Wood.

Diploma in Tropical Medicine.

C. H. Bowle-Evans, R. M. Burnie, Joan M. F. Drake, W. J. Fraser, R. M. Gordon, C. F. Krige, I. L. Oluwole, W. C. Sawers, Mary G. Thompson, and C. J. Young.

University of St. Andrews.—At examinations held recently the following candidates were successsful:—

Third Professional Examination for Degrees of M.B., Ch.B.

Pathology.—George Gilbert Buchanan, Nona Smith Lesslie, and Isobel Muriel Mansie.

Materia Medica and Therapeutics.—George Gilbert Buchanan.

Second Examination for Diploma in Public Health.

Sanitary Law and Vital Statistics and Sanitation and Epidemiology.—David Dempster and Frederick Leonard Keith.

Royal College of Surgeons of Edinburgh.—At a meeting of the College held on Dec. 16th the following candidates, having passed the requisite examinations, were admitted Fellows:—

Joseph Ringland Anderson, Maurice Holdsworth Barton, Christopher Osmond Bodman, Gavin Stiell Brown, Arthur Harold Budler, Andrew Campbell, Norman Stuart Carruthers, Percy John Chissell, Frederick Crooks, Walter Crosse, Alfred Beuthin Danby, William Everett, Arthur Horace Gibson, Harold Reginald Wessen Husbands, Karam Chand Jaidka, Harold Victor Lamb, James Breadalbane McDiarmid, George M'Mullan, William Martin, Leonard May, Vincent Philip Norman, Courtenay Henry Gerard Pochin, William Sowerby, Geoffrey Sparrow, David Campbell Suttie, Mordaunt Graham Sutton, Rustom Navroji Vakil, Dallas Bradlaugh Walker, and Neville Graham Sutton.

United Services Medical Officers Reunion.—A club has been formed under this name in Sheffield, with the object of bringing together, by means of occasional dinners, those who have served as medical officers in any branch of His Majesty's forces during the war. An inaugural dinner recently held at the King's Head Hotel was largely and pleasantly attended.

THE Prince of Wales Hospital, Cardiff, which came into existence during the war for the after-care treatment of maimed sailors and soldiers, is to continue its valuable work for civilians in the future. The necessity for such work is shown from figures which indicate that in the general population of Wales there is one such maimed person in every 800. Sir J. Lynn-Thomas has been the mainspring of getting the hospital placed on a financial footing for the future, just as he was in initiating its original start.

University of Sheffield.—The Faculty of Medicine has arranged for a series of clinical demonstrations on special subjects, to be given at the Royal Hospital, West-street. The course will begin on Monday, Jan. 19th, and will be continued each week until the end of March. On Mondays, at 3.30 P.M., Dr. W. H. Nutt will lecture on X Rays in Diagnosis and Treatment, and on Tuesdays and Fridays, at 4 P.M., Dr. P. J. Hay will lecture on Diseases of the Eye. Lectures on Diseases of the Ear, Nose, and Throat will be given by Dr. G. Wilkinson on Wednesdays, at 3.30 P.M., and on Diseases of the Skin by Dr. E. F. Skinner on Thursdays, at 3.30 P.M. The demonstrations are open free of charge to all qualified practitioners, and those wishing to attend any or all of the courses should send in their names and particulars to the Registrar, The University, Sheffield, on or before Jan. 10th. A full syllabus and time table will be forwarded on application.

Public Lectures at University of Manchester.—The public lecture held every week at the University of Manchester was delivered on Dec. 15th by Sir Archibald E. Garrod, who took for his subject "Medicine and the War." Sir Arthur A. Haworth was in the chair. The speaker referred to the fine record of the medical profession in the war, and to the heavy losses the profession had suffered as shown in the casualty lists. He himself was not qualified to speak of the admirable surgery done during the war. As regards medicine, the two things that had contributed most to the success achieved were first recent advances in knowledge, and second the presence of field laboratories. The work carried out by the Medical Research Committee and other scientific bodies was also of enormous importance. The appearance of trench fever in 1915 threatened to affect man power very seriously, but once it was discovered that it was carried by lice, and an anti-lice campaign was started, it became much less prevalent. This was an example of "team" work. Typhus had not troubled the army much in this war, he said. Advances in treatment, especially in that of shell shock, were next considered. Sir Archibald Garrod, who made a powerful plea for more hospital laboratories and clinics, concluded by saying that the proper research spirit was the thing to aim at in the hospitals, and each clinic and each hospital should be a centre of research work. Post-graduate teaching should include the holding of clinics.

University of Edinburgh.—Dr. George M. Robertson, physician in charge of the Edinburgh Royal Asylum, has been appointed to the newly created chair of Psychiatry in the University. An Edinburgh graduate, Dr. Robertson has been associated with institutions for the mentally diseased for many years, and his publications include papers on Melancholia and Mania, on the Use of Hypnotism among the Insane, and on General Paralysis of the Insane.

Bread Reform.—A deputation from the Bread and Food Reform League was received on Dec. 11th at the House of Commons by certain Members of Parliament. It was introduced by Dr. Nathan Raw, and its medical members included Sir James Crichton-Browne, Sir Arthur Mayo Robson, Dr. W. A. Bond, and Dr. G. D. Pidcock. The deputation directed attention to the fact that the germ and the square aleurone cells of wheat were the principal seat of the vitamine present in bread and that these were extracted from white flour. The speakers urged that the sale of white bread should not be allowed without precaution to ensure that the public were informed of its constitution, and that white bread should be regarded as confectionery and not be regarded as the "staff of life." They also suggested that the use of an excessive amount of water should be prevented and that bleaching, the addition of so-called "improvers" and other adulterations should be prohibited unless the public were at least notified of their use. The Members of Parliament, who included five medical men, showed much interest in the facts submitted and the deputation was assured that every effort would be made to induce the Government to carry out the suggestions made.

Beit Memorial Fellowships.—Seven elections to Beit Memorial Fellowships for Medical Research (35, Clarges-street, London, S.W.) have recently been made. The annual value of a fellowship is £300, tenable for three years with possible extension for a fourth. The names follow, with the place of research and an indication of the general character of the proposed research.

Harry Cecil Broadhurst, M.B., B.S. Durh.—The function of the kidney in maintaining the normal reaction of the blood by the secretion of acid and its relation to the similar function of the lungs effected by the removal of carbonic acid. (The Physiological Laboratories of the University of Sheffield.)

Ivan de Burgh Daly, M.B., B.Ch. Camb.—A comparison of the results on the electrical changes and mechanical response in the heart, and of controlled changes in its mechanical conditions as effected in the heart-lung preparation; the influence of artificial cardiac lesions on heart sounds and electrical response; an investigation of the applicability of Fleming valves (as used in wireless telephony) to the investigation of electrical changes in living tissues. (The Institute of Physiology, University College.)

David Keilin, Sc.D., Univ. of Paris (Sorbonne), B.A. Camb.—The life-history of flies (parasitic, blood-sucking, and others) and their parasites. (The Quick Laboratory, Cambridge.)

Elizabeth Herdman Lepper, M.B., B.S. Lond.—An investigation into infections of the urinary passages with *B. coli* with a view to determine: (1) The source of the micro-organisms and their relation to those present in the intestine; (2) as far as possible the effect of these infections on the secretory power of the kidney; (3) the results of vaccine treatment. (The Lister Institute for Preventive Medicine.)

Helen Marion Macpherson Mackay, M.R.C.P., M.D. Lond.—The clinical investigation of dietetic deficiencies which are the cause of malnutrition and debility in children, with special reference to the application of recent experimental work on vitamines. (The Lister Institute of Preventive Medicine, and a children's hospital.)

Thomas Archibald Malloch, M.D., C.M. McGill.—A study of types of pneumonia in relation to their causative bacterial organisms as a help towards exact diagnosis and treatment. (St. Bartholomew's Hospital.)

Geoffrey Marr Vevers, M.R.C.S. Eng., L.R.C.P. Lond.—Life cycles of helminth parasites, with special reference to their migrations and the reactions in the hosts consequent thereto. (Helminthological Department, London School of Tropical Medicine, Endsleigh-gardens, N.W., and the Prosectorium, Zoological Gardens, Regent's Park.)

Nurse and Resident Patient.—At the Manchester Assizes last week, before Mr. Justice Avory, sitting without a jury, the case was heard in which a masseuse and trained nurse sued the executors of a manufacturing confectioner in Manchester for services rendered to the deceased. The case presented unusual features, and its hearing extended over three days. Mr. Atkinson, K.C., and Mr. Eastham appeared for the plaintiff, and Mr. Merriman, K.C., and Mr. Brocklehurst for the defendants. For nearly 13 years before his death in March, 1919, the patient had been a resident in the plaintiff's house, and had there, besides board and lodging, received nursing and regular massage twice a day. He paid for board and lodging £2 5*s.* a week, increased later to £2 10*s.* and then to £3. The nurse's case was that she allowed the payment for nursing and massage to stand over, as the patient said, "until the end." He promised to leave her an annuity of £1 10*s.* a week as a reward for her care and attention; she had not seen the document which he drew up to this effect, but he had placed it in an envelope and had marked it with her name and "Private." It could not be found after his death. The value of this annuity had been agreed to be £1394, and she now claimed this amount from the daughter and son-in-law and a retired solicitor, who were the executors, together with payment for massage and nursing for 12 years at 10*s.* a day, which amounted to between £2000 and £3000. The defence said that there was no agreement to leave the nurse an annuity and that she had been paid for her services. A legacy of £100 had been left. Mr. Atkinson argued for the plaintiff that it was ridiculous to suggest that £2 10*s.* a week could include professional charges. The books proved that it was for board and lodging only. The judge agreed with this view, and accepted the evidence of the plaintiff and her sister as to the existence of a document respecting an annuity. It had disappeared, and he was glad he had not got to determine who was responsible for that disappearance. Possibly the deceased had destroyed it. He held that the plaintiff had succeeded as to the claim for the annuity, and gave judgment for the agreed amount of £1394. He considered the plaintiff had been very poorly paid for the services she had rendered.

Dr. Sydney Russell Wells has been elected Vice-Chancellor of London University in succession to Sir Edwin Cooper Perry.

A CIRCULAR issued by the Minister of Health states that the reduction of the fee for notification of infectious disease from 2*s.* 6*d.* to 1*s.* lapses on "the date of the termination of the war as fixed by Order in Council."

A REVISED memorandum on the Prevention of Influenza has been issued to town clerks and clerks of councils by the Ministry of Health (Memo. 2 Med.), and will shortly be on sale at H.M. Stationery Office.

CASES of lethargic encephalitis are again appearing in Birmingham and its neighbourhood. They show the same characters as those observed in the spring of 1918, when about 30 cases were reported.

Parliamentary Intelligence.

HOUSE OF LORDS.

THURSDAY, DEC. 18TH.

THE Mental Deficiency (Amendment) Bill, the Nurses' Registration (No. 2) Bill, the Nurses' Registration (Ireland) Bill, and the Nurses' Registration (Scotland) Bill were read a third time and passed.

HOUSE OF COMMONS.

WEDNESDAY, DEC. 17TH.

Tuberculosis Treatment under the Insurance Act.

In reply to Sir SAMUEL HOARE, Dr. ADDISON said that the number of persons in England and Wales who were receiving residential treatment for tuberculosis on Dec. 1st was approximately 8350.

THURSDAY, DEC. 18TH.

Fees for Pension Certificates.

Mr. TREVELYAN THOMSON asked the Pensions Minister if he was aware that in the Middlesbrough district the doctors were refusing to issue the two medical reports prescribed by circular 143 in connexion with claims for pensions under Article 9 of the Royal Warrant unless they received from the discharged soldier a fee of 5*s.* for each of the two certificates required by every applicant; and as in many cases discharged soldiers were not able to pay the 10*s.* demanded could he authorise the local pensions committee to pay these medical fees if necessary.—Sir L. WORTHINGTON-EVANS replied: Under Article 9 of the Royal Warrant a demobilised or discharged soldier is entitled to claim a pension at any time after leaving the Service if he can show that he is suffering from a disability due to or aggravated by service notwithstanding that he made no claim on demobilisation or discharge, and appeared then to be in perfect health. In such cases it must clearly rest upon the man to substantiate his claim, and the Ministry cannot reasonably be asked to defray the expense of obtaining the necessary evidence. I am, however, revising the procedure for claims under Article 9. I hope to reduce the amount of primary evidence required.

Payments to Panel Practitioners.

Mr. R. YOUNG asked the Minister of Health whether there were any fixed dates on which panel doctors should receive payment for work done under the Health Insurance Acts; whether he was aware that in Lancashire payment had not yet been made in full for services rendered in 1918; when such arrears would be paid; and whether arrangements would be made so that the doctors would not in future have to wait 12 months for money due to them.—Dr. ADDISON replied: The existing arrangements necessitate the calculation of the number of insured persons in each area during the period to which each payment relates, and necessarily involve delay in making a final settlement, although substantial instalments are paid as promptly as possible. I am informed that there has been certain unavoidable delay in effecting a settlement in Lancashire for 1918, but payment of the final balances has now been made in all cases except in the few instances where statements from the doctors have not yet been received. A new basis of payment which has been accepted by insurance practitioners will come into operation for 1920, and will enable settlements to be effected quarterly.

Alleged Failure of the Insurance Act.

Mr. NEWBOULD asked the Minister of Health whether, seeing that the Insurance Act had not improved the health of the nation, he intended to introduce an alternative medical service.—Dr. ADDISON replied: I am not of opinion that the statement made in the first part of the question is correct, and I do not, therefore, find it necessary to consider the suggestion in the second part.

Medical Service under the Insurance Acts.

Mr. NEWBOULD asked the Minister of Health whether the majority of panel practitioners regarded service under the National Health Insurance Acts as degrading, but were under the present economic conditions compelled to take service under that Act.—Dr. ADDISON replied: No, Sir; I have every reason to believe that the suggestions in both parts of the question are without foundation.

Diphtheria and Scarlet Fever in London.

Mr. GILBERT asked the Minister of Health whether his attention had been called to the increase of diphtheria and scarlet fever cases in London; whether he was aware that there was a shortage of beds for the patients; whether he had taken any action thereon; and could he make a statement on the subject.—Dr. ADDISON replied: Yes, Sir; and I have for some time been taking steps to get back certain London institutions on the fever establishment of the Metropolitan Asylums Board, which had been lent on account of war exigencies to the military authorities. It is mainly that occupation and the other factors named in my reply on the same subject to the honourable Member for the Rother Valley (Mr. Grundy) on Nov. 18th, which have occasioned such pressure for civilian needs as has been felt in the last few weeks. The dimensions of the present scarlet fever epidemic are smaller, and the maximum figure is a little later in the season than in the two previous epidemics for 1907 and 1914. I am glad to say that the number of scarlet fever cases notified last week (Dec. 7th to 13th) in London show a substantial decline; and the figures for diphtheria appear to indicate that the maximum for that disease has also been passed.

Sexual Offences Committee.

Major HENDERSON asked the Prime Minister whether, in view of the fact that the Joint Select Committee appointed in July, 1918, to consider the Sexual Offences Bill and the Criminal Law Amendment Bill, was unable to complete its inquiry owing to the dissolution of Parliament, the Government proposed to take any action in regard to further inquiry being made into this important question.—Mr. SHORTT (Home Secretary) replied: The question of reconstituting this committee so that their inquiry may be completed is now under consideration.

Venereal Disease in Portsmouth and Elsewhere.

Sir THOMAS BRAMSDON asked the Secretary for War if he would state, as regarded the military troops during the year 1919, so far as the information was available, what number of cases of venereal disease occurred monthly in the Portsmouth area—viz., the area actually administered at the time by the Assistant Director of Medical Services, Portsmouth; what number of cases occurred in other similar areas in the United Kingdom; in each of the above areas what was the monthly and annual rate of venereal disease per 1000 per annum; and, in the Portsmouth area, as above defined, what was the number of cases of venereal disease contracted by men resident in the area at the time of infection and also at the time in charge of the Assistant Director of Medical Services, Portsmouth; contracted by men who came under his care and then developed disease which had previously been contracted elsewhere—e.g., who arrived with drafts or with units joining station; and contracted by men who though resident within the area or joining it were yet not in charge of the Assistant Director of Medical Services, Portsmouth—e.g., men belonging to American or Colonial units or to the Royal Flying Corps.—Mr. CHURCHILL replied: I regret that it is quite impossible to furnish the information asked for. Such information would only have been available if a special investigation had been instituted at the beginning of the year, not only in Portsmouth but also in the other areas.

Appointments.

BAILEY, F. W., M.R.C.S. Eng., L.R.C.P. Lond., has been appointed Lecturer in Anæsthetics to Dental Students in the University of Liverpool.

DAVIS, E. D. D., F.R.C.S., Surgeon to the Nose, Throat and Ear Department, Charing Cross Hospital.

Royal Free Hospital: WILSON, J., L.R.C.P. Edin., L.M.S.S.A., Medical Officer in Charge of Electro-therapeutic and Massage Department; FITZPATRICK, S. C., M.B., B.S. Melb., PINNOCK, D. D., F.R.C.S., and GIBSON, H. E., M.D. Oxon., Clinical Assistants, Surgical Out-patients; GOWERS, Miss, M.R.C.S., L.R.C.P., Clinical Assistant, Skin Department.

Vacancies.

For further information refer to the advertisement columns.

Aberdeen Royal Infirmary.—Asst. P.

Ballinasloe District Asylum.—M.O. £225.

Bermondsey Infirmary, Lower-road, Rotherhithe, S.E.—First and Second Asst. M.O.'s. £350 and £300.

Bethlem Hospital, New Bridge-street, E.C.—Res. H.P. £25 per qr.

Blackburn County Borough.—M.O.H.

Bolingbroke Hospital, Wandsworth Common.—Hon. P. in charge of X Ray and Elec. Dept.

Cambridge, Addenbrooke's Hospital.—Hon. Asst. S.

Cheshire County Asylum, Parkside, Macclesfield.—Jun. Asst. M.O. £350.

Cheshire County Council.—District Tuberculosis Officer. £450.

Dorchester, Dorset County Council Education Committee.—School Dentists. £400.

Dudley County Borough Education Committee.—Asst. to Sch. M.O. and M.O.H. £500.

East African Protectorates.—M.O.'s. £400–£20–£500.

Hyde Borough.—Female Asst. M.O. £400.

Italian Hospital.—H.S. £150.

Leasowe, Cheshire, Hospital for Children.—Jun. Res. M.O. £150.

Leyton Urban District Council, Education Committee, Dental Clinic.—Second Sch. Dent. £420.

Liverpool Royal Infirmary.—Dermatologist.

London County Mental Hospitals.—Fifth Asst. M.O.'s. £300.

Manchester Children's Hospital, Gartside-street, Manchester.—Asst. M.O. £200.

Manchester Hospital for Consumption and Diseases of the Throat and Chest, Bowdon, Cheshire.—Res. M.O. £250.

Manchester Hospital for Consumption and Diseases of the Throat and Chest.—Asst. M.O. for Crossley Sanatorium. £250.

Manchester Northern Hospital for Women and Children, Park-place, Cheetham Hill-road.—H.S. £150.

Middlesbrough Education Committee.—Sch. Dent. £400.

Middleton-in-Wharfedale Sanatorium, near Ilkley.—Asst. M.O. £450.

Mile End Infirmary, Bancroft-road.—Second Asst. M.O. £300.

National Hospital for the Paralysed and Epileptic, Queen-square, W.C.—H.P. £150.

Newcastle-upon-Tyne, Hospital for Sick Children.—Junior Res. M.O. £200.

Plymouth Education Authority.—Asst. Sch. M.O. £400.

Salop County Council, Medical Inspection of School Children, Maternity and Child Welfare.—Three appointments. £450.

Seamen's Hospital Society, Dreadnought Hospital, Greenwich.—S.

Sheffield Royal Hospital.—Ophth. H.S. £135.

Straits Settlements.—Professor of Anatomy for Medical Department. $600 a month.

Sunderland Royal Infirmary.—Sen. H.S. £250. Also H.P. £200.

Surrey, Virginia Water, Holloway Sanatorium (Hospital for the Insane).—Female Jun. Asst. M.O. £300.

University of Birmingham, Faculty of Medicine.—Lecturer in Bacteriology. £450.

University of Liverpool.—Lecturer in Pharmacology. £500.

Ventnor, Isle of Wight, Royal National Hospital for Consumption and Diseases of the Chest.—Asst. Res. M.O. £250.

West End Hospital for Nervous Diseases, 73, Welbeck-street, W.—P.

West Ham Union Infirmary, Whipps Cross-road, Leytonstone, E.—Res. Asst. M.O. £300.

Whittingham County Asylum, Preston, Lancs.—Asst. M.O. £420.

Worcestershire County Council.—Asst. County M.O. £450.

Births, Marriages, and Deaths.

MARRIAGES.

GARRETT—PARKINSON.—On Dec. 16th, at the Parish Church of St. Mary, Cheltenham, John Henry Garrett, M.D., Medical Officer of Heath, Barrister-at-law, to Victoria Elizabeth (Viva), younger daughter of the late Major-General C. F. Parkinson and of Mrs. Parkinson, of Athgarven Lodge, Cheltenham.

MACDONALD—COOK.—On Dec. 17th, at Mount Pleasant Baptist Church, Swansea, William Macdonald, M.D., to Marguerite Lilian, elder daughter of Mr. Geo. E. Cook, Cilwendeg, Swansea.

DEATHS.

GOING.—On Dec. 15th, suddenly, Joseph Andrew Going, M.R.C.S.E., B.A. Cantab., of "The Elms," Manea, Cambs (and late of Hamilton, Waikato, New Zealand), aged 59.

PEART-THOMAS.—On Dec. 19th, at the Corner House, Claythorpe, Lincs, very suddenly, Major William Peart-Thomas, R.A.M.C. (T.F.), M.D. Edin.

TAYLOR.—On Dec. 21st, at Glenloch-road, Hampstead, after seven years of suffering, Charles Louis Taylor, for many years assistant editor of the *British Medical Journal*, in his 71st year.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

BOOKS, ETC., RECEIVED.

ALLEN, GEORGE, AND UNWIN, London.
Psychology and the Day's Work. By Prof. E. J. Swift. Pp. 388. 10*s.* 6*d.*

BAILLIÈRE, J. B., ET FILS, Paris.
Essai D'Urologie Pathologique des Pays Chauds. Par Dr. J. Khouri. Pp. 185. Fr.6.

BAILLIÈRE, TINDALL, AND COX, London.
Child Welfare and the Teaching of Certain Dentists, School Medical Officers, Medical Officers of Health, and Other Medical Men. By J. Sim Wallace, M.D. Pp. 102. 5*s.*
Aids to the Mathematics of Hygiene. By R. B. Ferguson, M.D. 5th ed. Pp. 186. 3*s.* 6*d.*
Physiological Principles in Treatment. By W. Langdon Brown, M.D. 4th. ed. Pp. viii. + 427. 7*s.* 6*d.*

BLACKWELL, MR., London.
Wheels, 1919. Pp. 104. 6*s.*

BUTTERWORTH AND CO., AND SHAW AND SONS, London.
The Law Relating to Housing and Town Planning in England and Wales. By W. A. Willis, LL.B. 2nd ed. Pp. 282.

BUTTERWORTH AND CO., London, India, and Canada.
Recent Advances in the Treatment of Syphilis. By Dr. R. K. Sen. With Foreword by Dr. P. Fraser. Pp. 82. Rs.3.

CASSELL AND CO., London.
Electrical Treatment. By Wilfred Harris, M.D. 3rd ed. Pp. 354. 9*s.*

CHURCHILL, J. AND A., London.
Text-book of Meat Hygiene. By Dr. R. Edelmann and Others. 4th ed. Pp. 472. 24*s.*
Minor Surgery and Bandaging (Heath, Pollard, Davies). 17th ed. By G. Williams, M.S. Pp. 448. 10*s.* 6*d.*

COLLINGRIDGE, W. H. AND L., London.
A Medley of Verse. By F. Barber Wells, M.B. Pp. 106. 2*s.* 6*d.*

DENT, J. M., London.
The Nursery School. By Margaret McMillan. Pp. 356. 7*s.* 6*d.*

LEWIS, H. K., AND CO., London.
Swanzy's Handbook of the Diseases of the Eye and their Treatment. 12th ed. Edited by L. Werner, M.B. 9 coloured plates and 273 text illustrations. 22*s.* 6*d.*
Diseases of the Nose and Throat. By H. Tilley, B.S. Pp. xx. + 844. 25*s.*

Communications, Letters, &c., to the Editor have been received from—

A.—Messrs. G. Allen and Unwin, Lond.

B.—Mr. U. Brahmachari, Calcutta; Dr. A. E. Boycott, Radlett; Mr. J. Burns, Edinburgh; Mr. H. Brown, Lond.

C.—Clerical, Medical and General Life Assurance Society, Lond.; Dr. H. P. Cholmeley, Forest Edge; Dr. D. W. Carmalt Jones, Lond.; Central Association for the Care of the Mentally Defective, Lond.; Dr. E. M. Cowell, D.S.O., Croydon; Mr. A. L. Candler, Exeter.

D.—*Discovery*, Editor of; Surg.-Commdr. S. F. Dudley, R.N.; Dr. V. Dickinson, Lond.

E.—Dr. J. I. Enright, Liverpool; *The Ex-Service Man*, Lond., Editor of; Epsom College, Lond., Sec. of.

F.—Dr. D. Fenton, Witton; Lieut.-Col. M. Flack, C.B.E., R.A.F.

G.—Dr. G. A. Gibson, Oxford; Gloucester Surgical Appliances Co., Cheltenham; Dr. J. P. Gray, Exeter; Great Northern Central Hospital, Lond., Sec. of.

H.—Home Office, Factory Dept., Lond.; Lieut.-Col. T. Hunter, I.M.S., Naini Tal; Mr. H. W. Holman, Lond.; Dr. J. M. Hamill, O.B.E., Lond.; Mr. J. T. Henderson, Pietermaritzburg; Dr. C. T. W. Hirsch, Lond.

J.—Mr. W. M. Johnston, Stratford.

K.—King George's Fund for Sailors, Lond.; King Edward's Hospital Fund for London, Hon. Secs. of.

L.—Mrs. A. J. Larkcom, Lond.; London Hospital Medical College, Sec. of; London Federation of Infant Welfare Centres, Sec. of.

M.—Miss N. March, Lond.; Dr. D. M'Kenzie, Lond.; Dr. P. Manson-Bahr, D.S.O., Lond.; Dr. A. A. Mumford, Manchester; Medical Research Committee, Lond.; Capt. W. F. Mason, R.A.M.C.(S.R.); Dr. C. S. Myers, Lond.; Ministry of Health, Lond.

N.—National Association for the Prevention of Infant Mortality, Lond., Sec. of.

P.—Mr. H. W. Peet, Lond.; Dr. S. R. Phillips, Cheltenham; Mr. W. Platt, Lond.

R.—Royal Institute of Public Health, Lond.; Royal Institution of Great Britain, Lond.; Royal Society of Arts, Lond.; Dr. J. D. Rolleston, Lond.

S.—Société de Biologie, Paris; Scottish Board of Health, Edinburgh, Sec. of; Dr. E. B. Sherlock, Lond.

T.—Tuberculosis Society, Lond., Hon. Sec. of; Dr. F. E. Tylecote, Manchester.

U.—University of Manchester; University of Liverpool, Registrar of; University of London, Academic Registrar of; University of Durham, Registrar of.

W.—Dr. S. Wyard, Lond.; Dr. G. D. Wynne, Norwich; Dr. F. J. Waldo, Lond.

Y.—Mr. M. Yearsley, Lond.

Communications relating to editorial business should be addressed exclusively to the Editor of THE LANCET, 423, Strand, W.C. 2.

THE LANCET: SUBSCRIPTION RATES.

INLAND	One Year	£1	16	0
	Six Months	0	18	0
	Three Months	0	9	0
ABROAD	One Year	£2	0	0
	Six Months	1	0	0
	Three Months	0	10	0

Subscriptions may commence at any time, and are payable in advance. Cheques and P.O.'s (crossed "London County Westminster and Parr's Bank, Covent Garden Branch") should be made payable to Mr. CHARLES GOOD, THE LANCET Offices, 423, Strand, London, W.C. 2

Notes, Short Comments, and Answers to Correspondents.

PUBLIC HEALTH IN CAIRO.

OWING to the conditions in Egypt since 1914 the annual reports on the health of Cairo have not been issued with the usual punctuality. The statistics for 1915 and 1916 have now been published and, with the remarks of the medical officer of health, Dr. J. Ferguson Lees, furnish most interesting material for all concerned with State medicine. Throughout 1915 and for a considerable period subsequently the general supervision of sanitary arrangements and the medical inspection of prisoners of war camps was taken over by the Government health authority. There was also an exceptional prevalence of infectious disease among the civil population. The circumstances therefore were quite abnormal.

Birth and Mortality Ratios.

The estimated population of Cairo at the middle of 1915 was 733,423, and for 1916, 740,000, of which numbers 72,952 in 1915, and 75,000 in 1916, were foreigners—i.e., non-Egyptians. The birth-rate was 40·8 per 1000 in 1915 and 42·1 in 1916; for the quinquennium, 1911–1915, the ratio was 43·8. The death-rate was 44·3 in 1915, and 38·3 in 1916; for 1911–1915 the mean rate had been 39·02. There was a very considerable difference as regards these factors in the different districts of the city. The birth-rate varied from 27·5 per 1000 (1915) and 28·1 (1916) in the district of El Muski, to 58·9 (1915) and 59·9 (1916) in the district of Shubra. The death-rate varied between 24·8 in Esbekiya district and 58·2 in Bulaq (1915), and between 26·02 in Esbekiya and 53·2 in Shubra (1916). The infantile mortality ratio for the whole city was 320 per 1000 births in 1915, and 295 in 1916; for the district of Old Cairo these ratios were 434 (1915) and 396 (1916); for the Esbekiya district they were 212 and 241. These mortality ratios march fairly regularly with the relative densities of population; the number of persons per 100 rooms at the last Census being 151 in Esbekiya and 248 in Old Cairo.

Increase in Infectious Diseases in 1915.

There was an enormous increase in the recorded incidence of infectious disease in 1915, the cases numbering 11,422, compared with 5413 in 1914; this, however, was not due so much to actual increase in cases as to improvement in notification. It is stated that, "roughly, three-quarters of the total deaths which occur in this city are deaths of persons who have received no skilled attendance of any nature whatsoever during life." From this total of 11,422 there must, however, be deducted 1818 cases among the British military forces and 148 hospital cases from outside the city, leaving 9456 cases of infectious disease among the Cairo civil population. The cases of typhoid fever numbered 2378, of which 1012 were fatal; of typhus fever there were 1112 cases, with 718 deaths; and of diphtheria, 1286 cases and 462 deaths. The typhoid incidence was 3·242 per 1000 and the case-mortality was 42·5 per cent., giving a death-rate of 1·379 per 1000 of the population. There was also an outbreak of an "unidentified fever" (3303 cases and 1732 deaths), which will be referred to later. The typhoid incidence was heaviest in the Bulaq district, where there were 424 cases and 246 deaths, giving a case-mortality of 58·01 per cent.; no doubt here, as in other districts, a very large number of cases were not notified. Typhus prevailed chiefly in the Gamaliya district, where 310 cases were recorded with 283 deaths; for the whole city the disease incidence was 1·516 and the death-rate 0·978 per 1000. The diphtheria prevalence (1·753 per 1000) was somewhat less than the preceding year (1·945) and the case-mortality (35·9 per cent.) was considerably less (it was 48·5 in 1914) "which suggests an improved position as regards discovery of cases." Small-pox (59 cases), cerebro-spinal fever (53 cases), and scarlet fever (37 cases) were but very slightly prevalent in 1915.

Decrease in 1916.

In 1916 there was a considerable decrease in zymotic disease generally; the total notifications numbered 7427, and from this total are to be deducted 244 cases from outside the city boundary, leaving 7183 cases compared with 9456 in 1915. The typhoid cases numbered 1462, with 632 deaths, giving an incidence of 1·975 and a death-rate of 0·854 per 1000, the case-mortality being 43·2 per cent.; the disease continued to be of a severe type; in the district of Old Cairo 86 deaths occurred among 113 cases (76·1 per cent.), and in that of El Darb el Ahmar (Rue de la Citadelle) 110 deaths in 180 cases (61·1 per cent.), but no doubt a very large number of cases were concealed. Typhus fever again increased, there being 1858 cases and 1075 deaths (2·510 and 1·452 per 1000 of the population), the case mortality being 57·8 per cent. The prevalence was greatest in the quarters of El Sayeda Zenab (3·973 per 1000), El Gamaliya (3·474), Old Cairo (3·317), and El Darb el Ahmar (3·293); the death-rates also being highest in El Sayeda Zenab (2·626) and El Gamaliya (2·426). Helwan had high rates (7·750 cases and 3·817 deaths per 1000), but the circumstances of the place and its fluctuating population make it an exceptional district. Diphtheria (1·129 per 1000) again decreased, though the case-mortality, 40·07 per cent., was slightly higher than in 1915. On the other hand, there were 277 cases of small-pox, with 103 deaths, showing a considerable increase; 62 cases with 32 deaths occurred in Abdin district, and 48 cases with 16 deaths in El Esbekiya. There were also 162 cases of chicken-pox, 33 of cerebro-spinal fever, and 48 of scarlet fever. The admissions to the Government fever hospital in 1915 numbered 4654, as compared with 2348 in 1914. Of these, a very large proportion (1547) were cases of the unidentified fever previously mentioned. The typhoid admissions were 997, those for relapsing fever 281, and for typhus 279. The case-mortality for typhoid was 18·1 per cent., for relapsing fever 2·84, for typhus 21·5, and for the unidentified fever 22·38 per cent. In 1916 the total admissions numbered 3419; those for typhoid were 154, for relapsing fever 1038, for typhus 922, the case-mortality for these three diseases being 14·2, 2·57, and 22·3 per cent. respectively. Small-pox was prevalent in 1914, when there had been 983 cases in the city. In 1915, there were only 59, of which 38 were admitted to hospital. In 1916 there were 277 cases in the city, of which 217 were admitted; the case-mortalities in these two years were 20·16 per cent. in 1915 and 26·7 in 1916, "the high mortality in 1916 and, to some extent, in 1915 as compared with 1914 [when it was 16·3 per cent.], being contributed to by the deaths of a certain number of non-vaccinated cases from the British Army."

Among the various matters of sanitary administration dealt with, it may be mentioned that systematic examination of milk samples has been carried out with very good results. In 1914 47·9 per cent. were found to be adulterated; in 1915, out of 2980 samples, 32·8 per cent., and in 1916, out of 2708 samples, 25·5 per cent. were found to be adulterated.

An "Unidentified Fever."

In Appendix C is given a detailed account of the "unidentified fever" of 1915, based on the experience of 1546 cases treated in hospital, of which 346 were fatal (22·38 per cent.); of these 13 (out of 28) were Europeans (46·42 per cent.) and 333 (out of 1518) were Egyptians (21·93 per cent.). The chief symptoms were headache and fever, with abdominal tenderness; in 28 per cent. of cases a roseolous or petechial rash. Widal reaction was negative, and typhoid bacilli were absent from blood, urine, and stools. Dr. Lees inclines to the belief that the disease was a new infection, introduced through the troops of various races and most diverse origin that were poured into the country at the time.

Many other subjects are dealt with in these reports, such as the control of pilgrims to and from Mecca, an anti-mosquito crusade, &c. The report is exceedingly well arranged and printed, is copiously illustrated with charts and tables, and by the completeness and thoroughness of its exposition of a very complex administrative situation reflects great credit on its author.

PUBLIC HEALTH IN CEYLON.

A REPORT on the Blue-book for 1918, prepared by Mr. C. H. Collins, Second Assistant Colonial Secretary, has been presented to the Imperial Parliament. In the section devoted to vital statistics and public health it is stated that the general health of the Colony was not satisfactory. This was principally due to a serious outbreak of influenza during the second half of the year. Ceylon had been practically free from the disease since 1891, but in 1918 it affected every part of the island. Many cases were followed by pneumonia, catarrhal or lobar, which was largely responsible for the high mortality. Everything possible was done to afford medical and material relief to the sufferers. Numbers of additional medical officers and apothecaries were employed, and vaccination and the ankylostomiasis campaign were suspended in order that all the officials might assist in influenza work.

Plague—A Rat Campaign.

Two other outbreaks of disease should be specially mentioned; these were an outbreak of small-pox at Mannar and the spread of plague to Nawalapitiya. There were 182 cases of small-pox of which 25 proved fatal. Plague appeared in Nawalapitiya in March; the infection was probably introduced from Colombo, but it is difficult to say by what means. A rat campaign was started almost at once, and patients were treated at the Infectious Diseases Hospital, whilst contacts were segregated at a special camp. It was, however, difficult to induce the townspeople to take the matter seriously, and as fresh cases continued to occur, and infected rats were found, it was decided to take drastic action to stamp out the disease. In May the affected area was completely evacuated, 1648 persons being removed from the area. An evacuation camp was formed and united with the quarantine camp. The whole of the infected area was surrounded by a fence formed of over 3000 yards of corrugated iron, so made that no rats could escape. Other steps were taken and the results were highly satisfactory, no case of plague being reported from Nawalapitiya after June 22nd. The disease spread to a few neighbouring places, and the last case was on July 30th. There were in all 126 cases, 97 being fatal. The disease appeared in the bubonic and septicæmic forms.

As regards plague in Colombo, the year 1918 was a record good one, only 70 cases being recorded, as against the previous lowest record of 139 in 1915 and the annual average of 262 cases during the four years, 1914–17. That this improvement was in no way due to a reduction in the virulence of the infection is indicated by the fact that the case mortality has risen each year since the disease appeared and reached its maximum in 1918, when 96·6 per cent. of the recorded cases proved fatal. As hitherto, the largest number of cases occurred amongst young adults, males being attacked much more frequently than females. Out of a total of 21,000 rats examined bacteriologically 61, or 0·29 per cent., were plague infected.

Ankylostomiasis is extremely prevalent in Ceylon, both among the indigenous population and among the immigrant Tamils working on the estates in the planting districts of the island. 50,800 coolies were treated during the year, and 44,718 were cured. As an indication of the prevalence of the disease in the villages, even in the comparatively healthy Western Province, it may be stated that in Gora Kapoli 639 out of 679 villages were found to be infected.

High Estate Mortality.

The estimated population of Ceylon on Dec. 31st, 1918, was 4,686,381, the Europeans numbering between 7000 and 8000. The birth-rate for 1918 was equal to 39·2 per 1000 and the death-rate

31·9 per 1000 of the estimated population. 149,408 deaths were registered—the highest total ever recorded in any single year. The total number of deaths reported for registration from the estates amounted to 30,998, and corresponded to a standardised rate of 75·2 per 1000 of the estate population, as against 46·3 in 1917. Thus the mortality rate in estates during the year is not only considerably higher than the rate of the previous year, but also is more than double the island rate. Of the total deaths registered 23 per cent. were those of infants under 1 year of age, corresponding to a mortality rate of 188 per 1000 births registered. The infant mortality in the estates was 231 per 1000, and in the principal towns it was 252. The proportion of deaths per 1,000,000 of the estimated population from certain causes was as follows: Influenza, 4084; pneumonia, 3585; infantile convulsions, 2847; diarrhœa, 2134; phthisis, 810; dysentry, 519; ankylostomiasis, 498; puerperal septicæmia, 369; premature birth and congenital defects, 364; bronchitis, 291; malaria and malarial cachexia, 241; enteric fever, 113; cancer, 103; accidental drowning, 92; falls from trees, 77; snake-bite, 43. 235 deaths resulted from suicide, 204 from homicide, and 34 from judicial hanging.

There are 84 Government hospitals, in addition to the lunatic and the two leper asylums, equipped with modern hospital furniture and surgical appliances. There are also 447 Government outdoor dispensaries. Owners of estates have provided 58 estate hospitals and 432 dispensaries. At the close of the year the sanatorium for consumptives at Kandana was ready to receive patients, and the hospital at Aranayaka was almost completed. A new leper asylum at Mantivu in the Eastern Province was under construction, as were also hospital buildings at Agrapatna in the Central Province, and at Alutnuwara and Lunugala in the Province of Uva.

The full course of training at the Ceylon Medical College is five years for the medical students and two years for the apothecary students. A diploma in medicine, surgery, and midwifery (which can be registered in the United Kingdom) is granted to the successful medical students; the apothecary students are employed by Government after they qualify in the examination. During the past two years the medical passes numbered 43 and the apothecary passes 33. In Colombo there are a bacteriological institute, a Pasteur institute, a general hospital of 687 beds, an ophthalmic hospital, a lying-in home, a hospital for women and children, and one for infectious diseases. There is an establishment for the manufacture of calf lymph. There are special dispensaries at Kandy and Galle for the treatment of eye diseases. There is, further, an anti-tuberculosis institute in Colombo fitted with an up-to-date X ray apparatus.

THE HOSPITAL SATURDAY FUND JOURNAL.

With the New Year the *Hospital Saturday Fund Journal* assumes the importance of a 16-page pamphlet, well printed and interesting. Among the writers are Mr. Pett Ridge, Mr. Arthur Mee, Mr. J. K. Jerome, and the Dean of Canterbury, the latter in the "Motive Power of Hospitals" entering a powerful plea for the continuation of the voluntary system. Sir William Collins contributes an article on the "State and the Voluntary Hospitals." There are portraits of Lord Burnham, Sir T. Vezey Strong, and Mr. William G. Titmas, chairman of council. The price of the journal is 1*d.*

SMITH'S VISITING LIST.

From Messrs. Hazell, Watson, and Viney, Long Acre, W.C., we have received a specimen of Smith's Medical Visiting Lists, which are bound in cloth or leather according to price, with two pockets, pencil, and tuck fastening. These diaries, arranged for 25 to 100 patients, may be obtained with or without journal rulings. Space is provided for obstetric and vaccination engagements, addresses of patients, nurses, and so forth, along with useful information with regard to professional fees, infectious diseases notification, average weights of organs of the body, average heights and body weights, an obstetric table, and a compendium of the British Pharmacopœia.

CHRISTMAS GREETINGS TO THE EX-SERVICE MAN.

The Ex-Service Man, a paper devoted to the interests of the class which gives to the paper its name, has received from Field Marshal Earl Haig, Admiral Earl Beatty, Air Marshal Sir Hugh Trenchard, General Lord Byng (chairman, United Services Fund), Lord Lee of Fareham (Minister of Agriculture), Sir L. Worthington-Evans (Minister of Pensions), and Sir Robert Horne (Minister of Labour) sympathetic messages for those who have served in the forces. Sir L. Worthington-Evans says that the Ministry is doing its level best to cut out difficulties and delays; Sir Robert Horne, that his chief concern during the coming 12 months will be to see that every man able and willing has his opportunity; and Lord Lee, that the Board of Agriculture will provide, as rapidly as circumstances permit, adequate opportunities for ex-Service men to acquire and cultivate "the bit of land" which has been promised them by Parliament.

BUCCAL CONTAMINATION.

With the relaxation of the control over the uses to which rubber may be put we notice the reappearance in the London streets of the toy balloons and squeaking models of grotesques which have so great a fascination for the juvenile mind. And with these there reappears a danger which may as well be guarded against even if it has not, as yet, taken its toll of the unwary. It is customary for the vendor of the wares to which we have just alluded to demonstrate their attractiveness by inflating them with his breath, so that the customer may himself learn how to restore the collapsing sphere to its pristine plumpness, or how to produce that eerie long-drawn wail which seems to tickle the ears of youth so pleasantly. Without casting aspersions on the moral character of street hawkers we may suppose that among them, as among the population generally, syphilis is not unknown. To transfer a wooden mouthpiece from the lips of a person of doubtful antecedents to those of his own children is the kind of thing the average man would admit the undesirability of, if he stopped to think about the matter at all. Perhaps now that the subject has been brought to his notice he will ponder over the possibilities of contamination. As regards another source of danger of allied origin he may not be able to protect himself and his family so easily, though fortunately this danger is more remote. Much of our food is stored in tins, and in provision shops there may be exhibited for sale in small quantities many preparations which have been kept in this way. The practice of facilitating the discharge of a tin's contents by making a hole in the bottom and blowing through it, which we recently came across, may be sufficiently general to make a warning advisable on grounds both of sentiment and health.

"A STRAIGHT TALK TO A COLD."

Mr. E. V. Knox's collection of verse entitled "A Little Loot" (George Allen and Unwin, Ltd., price 3*s.* 6*d.*) is brimful of wit and gentle satire turned on the common things of life. This apostrophe to the common cold may instruct as well as amuse by reminding us of our inability to deal in any effective way with the commonest of minor ailments.

Cold, hast thou ever thought, I wonder,
  How earnestly for thee men toil,
What woods, what wildernesses plunder,
  To rid them of thy coil?
How the fell bane that here hath gripped us
  Makes hunters, lean and spare,
In lands afar (whose name has slipped us)
Follow the frightful eucalyptus
  Into his low-dug lair?

How chemists, snatching up the pestle,
  Ammoniate the mild quinine;
How many a jujube-laden vessel
  In London docks is seen;
How men buy comforters and pin 'em on,
  How Scotchmen in the Fleet
Are heard to say to waiters, "Dinna, mon;
I'll tak' a twa three draps of cinnamon,
  And no the whuskey neat"?

(Not that I've ever heard 'em do so
  But still I rather like that rhyme.)
O Cold, surrounded by thy trousseau
  Of handkerchiefs, what crime
Have I committed that thou huggest
  This bosom in thy hold?
Was I the fondest form, the snuggest
To cling to, and defy the druggist,
  Thou fair and cruel Cold?

In vain the menthol and the camphor,
  The mustard and the Shetland shawl,
These things thou dost not care a damn for,
  Thou hast me in thy thrall;
What art thou, Cold, and whence arisen?
  How did I take thee first?
Whose eyes of old didst thou bedizen
With tear-drops, and what brain imprison,
  O sorceress accurst?

Was it, in fact, some total stranger
  From whom I caught this vile catarrh,
Or was some loved one the exchanger?
  'Twere comfort from afar,
Howe'er so obstinate the chill is,
  To dream, to muse, to think,
"This was the cold of Amaryllis
That makes my cheeks as white as lilies,
  My nose a salmon pink."

But no! Importunate arrival,
  I may not track thee to thy start,
I may not shorten thy survival
  By drugs from any mart;
This much remains, with spice and essence
  And odours of the East
To modify thy effervescence
And make men cower before thy presence;
  That is some fun at least.

Many of Mr. Knox's pieces have appeared in *Punch.* We acknowledge, in reproducing the ode to a cold, the courteous permission of the publishers.

SUPPLEMENT to THE LANCET, NOV. 15th, 1919

METEOROLOGICAL OFFICE

Advisory Committee on Atmospheric Pollution

REPORT ON OBSERVATIONS IN THE YEAR ENDING MARCH 31, 1919

Forming the Fifth Report of the Committee for the Investigation of Atmospheric Pollution

INTRODUCTION.

THIS is the Fifth Annual Report of the Committee. It follows the lines of previous Reports, except as indicated below.

As mentioned in previous Reports, great delay has been incurred in the publication due to the returns from the Observing Stations not being sent in in time. The delay in sending in such returns has been due to war conditions, and it is, therefore, expected that in the future the Reports will be issued within three or four months of the termination of the year dealt with. The authorities who have set up deposit gauges have been asked to see that the returns for any particular month are sent in within two months of that date. If this is carried out, as the Committee have no reason to doubt will be the case, there should be no difficulty in getting the Reports out in good time.

It is satisfactory to be able to report that the number of Observing Stations has suffered no serious diminution during the last year, and it is confidently expected that further Stations will be set up in the near future. The Committee would like again to draw attention to the advantages arising from the setting up of Observing Stations. It is, for example, impossible to say whether the air of a city is improving as a result of the efforts of the Local Sanitary Authorities unless accurate data are obtainable. Again, there are doubtless many cities, especially in the manufacturing districts, which suffer from impurities in the air which have their source in neighbouring centres and which are carried by the wind; it would obviously be of importance to ascertain whether the impurity in a city is due to its own smoke and sources of pollution or whether it is derived from some other city not far removed.

It should be very much to the advantage of health resorts also to be able to show that the air is not polluted, and some, at least, of our health resorts, especially in the large seaside towns, might find some improvement desirable.

The health of the community is probably its most important asset. This has been recognised by the Government in the appointment of a Ministry of Health which took over the duties from the Local Government Board on July 1st. It is to be hoped that the purification of the air we have to breathe will be regarded by the new Ministry as one, at least, of their important duties, and it is obvious that to obtain a measure of the improvement in purity of the air the collection of data such as this Committee has undertaken is of the highest importance.

As in the later Reports during the war, the full tables of results from each Station are not given, but they are available for reference in THE LANCET, and the following is a list of the dates of the issues in which these returns may be found :—

Return for—

April,	1918.	Published in	THE LANCET	of	July	5th,	1919.
May,	,,	,,	,,	,,	,,	,,	,,
June,	,,	,,	,,	,,	Aug.	2nd,	,,
July,	,,	,,	,,	,,	,,	,,	,,
Aug.,	,,	,,	,,	,,	,,	16th,	,,
Sept.,	,,	,,	,,	,,	,,	,,	,,
Oct.,	,,	,,	,,	,,	Sept.	13th,	,,
Nov.,	,,	,,	,,	,,	,,	,,	,,
Dec.,	,,	,,	,,	,,	Oct.	18th,	,,
Jan.,	1919.	,,	,,	,,	,,	,,	,,
Feb.,	,,	,,	,,	,,	Nov.	1st,	,,
Mch.,	,,	,,	,,	,,	,,	,,	,,

Full returns are given for two stations which have been selected as giving the lowest and highest total deposits for the year.

TABLE I.—*Monthly Deposit at Two Selected Stations, Newcastle-on-Tyne and London, Wandsworth Common.*

Month.	Station.	Rainfall in millimetres.	Metric tons per square kilometre.								
			Insoluble matter.			Soluble matter.		Included in soluble matter.			
			Tar.	Carbonaceous other than tar.	Ash.	Loss on ignition.	Ash.	Total solids.	Sulphates as (SO_3).	Chlorine (Cl).	Ammonia (NH_3).
1918.											
April	Newcastle-on-Tyne ...	31	0·18	4·23	7·71	1·50	2·87	16·48	1·42	0·44	0·15
,,	Wandsworth Common	20	Trace	0·27	1·40	0·77	1·72	4·15	0·93	0·32	0·04
May	Newcastle-on-Tyne ...	35	0·28	3·19	8·83	1·89	2·31	16·50	1·56	0·36	0·13
,,	Wandsworth Common	20	Nil	1·30	7·83	0·01	2·14	11·27	0·85	0·24	0·04
June	Newcastle-on-Tyne ...	14	0·11	1·12	2·43	0·97	1·92	6·55	0·94	0·26	0·02
,,	Wandsworth Common	12	0 02	0·44	1·18	0·72	1·50	3·85	0·57	0·24	0·03
July	Newcastle-on-Tyne ...	93	0·16	5·24	7·35	3·63	11·21	27·61	4·16	0·92	0·14
,,	Wandsworth Common	13	—	0·01	—	0·58	0·91	1·51	0·36	0·14	0·04
Aug.	Newcastle-on-Tyne ...	31	0·16	3·16	7·80	1·43	3·24	15·77	1·50	0·30	0·07
,,	Wandsworth Common	50	0·01	0·01	0·10	1·49	3·27	4·88	1·23	0·42	0·01
Sept.	Newcastle-on-Tyne ...	112	0·10	2·86	4·33	2·23	4·46	13·99	2·45	0·91	0·28
,,	Wandsworth Common	18	0·05	0·87	4·66	0·58	1·26	7·42	0·44	0·12	0·04
Oct.	Newcastle-on-Tyne ...	55	0·12	4·36	5·91	1·85	2·94	15·19	1·61	0·39	0·18
,,	Wandsworth Common	—	—	—	—	—	—	—	—	—	—
Nov.	Newcastle-on-Tyne ...	30	0·10	3·16	9·05	1·79	4·42	18·51	2·05	0·42	0·09
,,	Wandsworth Common	19	Trace	0·02	0·15	0·52	1·76	2·46	0·87	0·17	0·03
Dec.	Newcastle-on-Tyne ...	71	0·14	3·16	6·23	2·57	2·57	14·67	1·71	0·48	0·24
,,	Wandsworth Common	—	—	—	—	—	—	—	—	—	—
1919.											
Jan.	Newcastle-on-Tyne ...	60	0·24	5·87	8·84	2·03	6·33	23·30	2·15	0·76	0·13
,,	Wandsworth Common	6	Nil	Nil	Nil	0·33	0·54	0·88	0·34	0·13	0·01
Feb.	Newcastle-on-Tyne ...	29	0·06	2·79	4·35	2·46	2·91	12·56	1·38	0·43	0·12
,,	Wandsworth Common	18	Nil	0·15	0·42	0·78	1·48	2·84	1·00	0·44	0·04
Mar.	Newcastle-on-Tyne ...	55	0·17	7·15	12·49	2·40	4·58	27·24	1·93	0·77	0·12
,,	Wandsworth Common	6	Nil	Nil	Nil	0·33	0·40	0·73	0·30	0·07	0·01

List of tables.—The tables published in this Report are similar to those in the Fourth Report. One new table is, however, included showing average monthly deposit of each element for the last four years. A list of the tables is given below:—

1. Monthly deposit for two selected stations—i.e., Wandsworth Common (London) and Newcastle-on-Tyne. Newcastle-on-Tyne gives about the highest and Wandsworth Common the lowest deposit in the stations for which complete analyses are available.

. Total solids deposited monthly at all stations.

3. Mean monthly deposits at all stations for summer half year April to September, 1917 and 1918.

4. As No. 3, but for the winter half years October to March, 1917–18 and 1918–19.

5 and 6. Classification of the stations under Groups A, B, C, and D, according to the amount of the various elements of pollution for the same periods as in Nos. 3 and 4.

7 and 8. Totals of stations classed A, B, C, and D for each element of pollution for summer and winter months. These totals are prepared from Nos. 5 and 6, and cover the same periods.

9. Comparison of mean monthly deposit during summer and winter.

10. Average deposit of each element of pollution for each month for the following groups of stations:—
    (*a*) Nine stations as given in Table VII.
    (*b*) Two London stations.
    (*c*) Five Glasgow stations.

11. Average deposit of each element of pollution for each month for the four-year period ending March 31st, 1919, for a group of nine stations.

The inequality in the number of days in a month has been dealt with as in the Fourth Report—i.e., where a comparison is to be made between different months the figures given are for a standard 30-day month, thus eliminating any errors in comparison due to the different number of days per month.

In Table I., giving specimen returns for two Stations, some difficulty has arisen in selecting the Stations showing the highest and lowest deposits. The two Stations given—i.e., Wandsworth Common and Newcastle-on-Tyne—were selected on a basis of total solids deposited. It will be seen from Table II. that Malvern made no returns during this year, owing to Captain Thorpe's absence on War service. It will be remembered that in all previous Reports Malvern showed the lowest deposit of any Station. The actual highest figures for total solids for this year were as follows:—

		Tons per K²
Rochdale	with a monthly deposit of	30·28
London:		
Embankment Gardens	,, ,, ,,	22·20
St. Helens	,, ,, ,,	17·77
Newcastle-on-Tyne ...	,, ,, ,,	17·28

Rochdale unfortunately does not return a complete analysis, while Embankment Gardens and St. Helens were not considered as giving such reliable results for this year as Newcastle-on-Tyne. The last Station was, therefore, selected as representing a high deposit.

Some of the returns for this year must be regarded as of somewhat doubtful value owing to the reasons set forth in the last Report, and any such results which were thought to be of doubtful accuracy have been marked in the Tables by an asterisk in front of the name of the Station, in a way similar to that adopted in the Fourth Report.

TABLE II.—*Total Solids Deposited Monthly at all Stations, in Metric Tons per Square Kilometre.*

Station.	1918.									1919.			Mean monthly deposit for year.
	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov	Dec.	Jan.	Feb.	March.	
Leicester (*a*	19·85	—	—	—	—	—	—	—	—	—	—	—	—
London :—													
Meteorological Office(*b*)	17·04	15·81	5·10	15·01	4·79	—	—	—	9·79	4·16	14·95	11·61	10·90
*Embankment Gardens	15·99	12·24	6·86	—	8·21	20·20	26·57	17·36	51·93	18·80	21·15	44·93	22·20
*Finsbury Park	19·56	22·01	6·32	14·07	10·77	—	17·45	19·44	13·55	20·33	21·59	15·63	16·43
*Ravenscourt Park ...	10·11	17·14	5·45	20·19	4·32	12·04	6·09	13·05	12·31	12·40	13·45	13·03	11·63
*Southwark Park... ...	16·36	8·74	8·93	18·02	8·54	23·73	13·32	21·68	8·05	18·44	25·00	30·24	16·75
Wandsworth Common	4·15	11·27	3·85	1·51	4·88	7·42	—	2·46	—	0·88	2·84	0·73	3·99
Golden Lane	18·24	14·08	7·33	12·98	9·34	12·37	11·23	14·84	10·91	12·04	18·79	13·58	12·99
Victoria Park	7·59	24·39	—	14·15	8·27	6·95	7·29	12·78	14·10	—	—	7·02	11·39
Malvern (*a*)	—	—	—	—	—	—	—	4·55	—	—	—	—	—
Manchester :—													
Queen's Park (*c*)... ...	6·50	14·10	—	—	—	—	—	—	—	—	—	—	—
Whitworth Street (roof of College) (*d*)	—	—	—	—	12·00	26·10	11·30	15·70	15·90	—	—	—	—
Whitworth Street (garden)	12·70	16·80	12·50	14·30	12·20	24·90	10·40	15·80	16·80	—	—	—	15·16
Newcastle-on-Tyne... ...	16·48	16·50	6·55	27·61	15·77	13·99	15·19	18·51	14·67	23·30	12·56	27·24	17·28
Rochdale (*e*)	34·80	34·80	34·80	32·88	32·88	32·88	23·16	23·16	23·16	—	—	—	30·28
*St. Helens	10·72	19·09	21·07	12·80	14·01	21·09	17·36	17·25	18·10	25·03	21·54	15·17	17·77
Southport :—													
Hesketh Park	3·28	7·04	4·64	6·67	6·01	11·80	3·89	13·33	9·75	8·29	3·25	7·72	7·17
Woodvale Moss	4·02	7·51	4·36	7·22	5·51	9·35	2·73	5·73	9·86	6·44	2·69	6·41	5·99
Coatbridge	6·64	14·12	11·38	15·40	25·97	19·98	17·55	24·43	19·57	—	13·67	—	16·87
Glasgow :—													
Alexandra Park	8·84	11·24	6·83	14·35	9·26	10·67	14·61	16·12	13·99	13·29	11·34	9·27	11·68
Bellahouston Park ...	4·27	14·79	8·68	9·28	10·57	—	—	—	—	—	—	13·75	—
Blythswood Square ...	6·78	11·87	6·13	6·04	11·32	11·70	17·92	15·04	13·69	17·24	13·90	16·20	12·32
Botanic Gardens	6·23	18·78	8·40	12·26	13·46	15·77	34·26	20·55	17·16	18·44	16·82	17·23	16·61
Richmond Park	4·62	10·80	8·58	12·24	16·95	—	—	—	—	—	—	12·90	—
Ruchill Park	6·14	15·34	7·63	6·43	12·55	12·04	14·83	12·82	11·83	10·98	7·24	11·65	10·79
South Side Park	3·87	15·45	7·45	11·07	11·70	10·86	19·79	12·67	9·26	9·44	8·53	14·32	11·20
Tollcross Park	8·33	13·15	9·91	16·70	14·16	—	—	—	—	—	—	13·27	—
Victoria Park...	4·36	16·03	7·86	10·24	12·39	—	—	—	—	—	—	15·71	—

(*a*) Observations suspended. (*b*) Sept.-Oct.-Nov. results lost: bottles overflowed. (*c*) Use of this gauge discontinued. (*d*) Roof gauge 96′ 0″ above garden gauge. Observations started in August. (*e*) Deposit collected quarterly. Water lost, probably July, Aug., and Sept. are underestimated. Glasgow records not taken owing to pressure of war work. * See p. ii.

It will be understood that the steps taken to correct such possible inaccuracies could not take effect until after the year now under consideration; the Committee have arranged for a careful annual inspection to be made of all deposit gauges in the future, with a view to ensuring that they are kept in good condition.

THE STANDARD GAUGE.

The Standard Gauge, which was fully described in the Committee's First Report, for the year 1914–15, has developed certain minor defects, which defects and the methods of remedying them have been under the careful consideration of the Committee for some time.

It will be remembered that in all cases the work of the Observing Station, including care of the gauge, collection of deposited matter, and analyses, has been the duty of the local authorities. The Department of Scientific and Industrial Research have urged the Committee, however, to arrange for periodical inspection of these stations, and the first of these inspections was made early this year when certain defects to be described below were discovered.

The actual collecting vessels are made of cast iron enamelled on the inside with a vitreous enamel, which had been carefully tested and was expected to withstand the effects of weathering; but recently this enamel has shown some evidence of deterioration, especially in cities with heavy deposits.

The selection of this form of vessel in preference to a smaller one of glass was made owing to the extremely small quantity of certain of the elements of deposit collected in a month. The catchment area of the Standard Gauge is about four square feet, and even with this large area the quantity of tarry matter, chlorine, and ammonia is so very small that any reduction would make it extremely difficult to obtain results of useful accuracy. For example, the following figures for Wandsworth Common (London) show the total insoluble matter per month during the six summer months of 1918 and the amount of tarry matter soluble in CS_2.

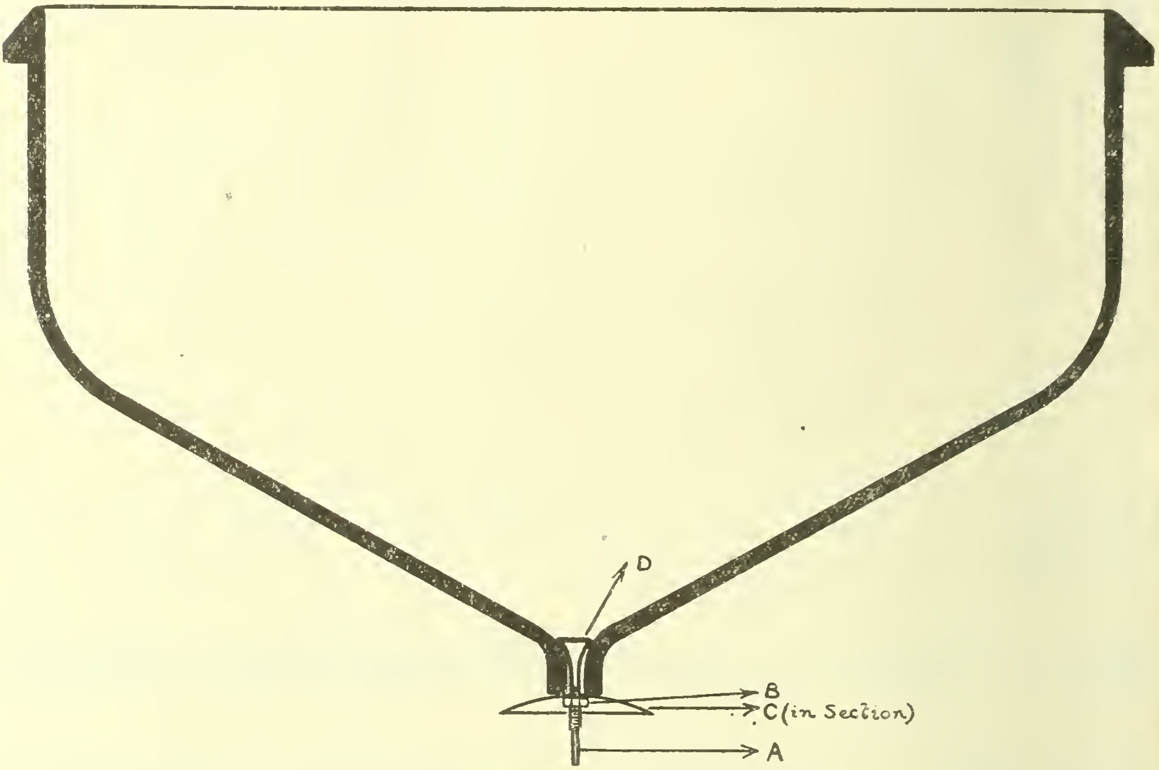
Wandsworth Common (London) 1918, Deposit in Grammes.

—	April.	May.	June.	July.	August.	Sept.
Total insoluble matter...	0·64	3·51	0·63	0·003	0·047	2·15
Tarry matter ...	Trace	0	0·007	0	0·004	0·109

It will be seen from this that the area of the gauge is at present none too big.

The enamelled surfaces of these gauges were found in all cases, except Malvern, our only country station during 1918, to have lost their bright glazed surface, and to have developed a slight coating of white powder which could be detected on rubbing with the fingers. This, of course, necessitated great care in the analyses to avoid error.

Gauge Vessel with Copper Connexion.



In order to remedy this defect the Committee have experimented with different varnishes which could be applied to the existing gauges to protect the surface of the enamel, and also to protect parts where the enamel had become chipped off, exposing the metal underneath. A varnish has now been found which appears to fulfil the necessary conditions, and is under test on the Committee's experimental gauge at the Meteorological Office. If it proves finally satisfactory the other gauges will be coated with it.

Such a remedy is, naturally, not as satisfactory as if an enamel which would resist the acids of the air had initially been found. As such an enamel is now available, mainly owing to researches conducted during the war, future gauges for new stations will be coated with this acid proof enamel.

Another slight defect arose in connexion with the glass communicating-tube between the gauge vessel and the bottles. This was originally cemented into the outlet opening of the gauge vessel, but it was found too liable to breakage, also no provision could be made for preventing the tube being pushed up into the vessel when attaching the rubber connexion.

To remedy this a copper connexion has been designed, as shown in the illustration below. This shows a section through the gauge vessel and connexion. A small copper tube, D, is cemented into the gauge opening and held in position by a lock nut, B, which effectually prevents it being pushed up into the gauge. Between the lock nut, B, and the gauge vessel, an inverted saucer, shown in section at C and about 4 inches in diameter, is fixed, the function of this being to divert drips from the outside of the gauge vessels from entering the necks of the collecting bottles. In some of the gauges used during the war, owing to the impossibility of getting stoppered bottles, open-neck carboys had to be used, and there is a suspicion that in some cases drips from the outside of the gauge vessel obtained access to the bottle through the open neck. With the copper connexion above described these difficulties should disappear.

In a few cases the position of the standard gauge was such that it was subject to artificial pollution, in some cases by boys throwing dirt into the vessel, and in others by leaves blown from trees. It is impossible to avoid entirely such artificial pollution, but great care is taken in compiling the results to eliminate any figures showing evidence of such.

During the war it was impossible for the different authorities to devote as much attention as they otherwise would have done to the gauges and collection, hence defects arose such as above described, but it is believed that such defects need not be anticipated in the future.

RESULTS OF YEAR 1918–19.

Comparison with Previous Figures.

Reference must now be made to Tables III. and IV., which show a comparison of the year 1917–18 with 1918–19.

In these tables all the elements of deposit are dealt with, but, as in the Fourth Report, the deposit of total solids will be used as a basis of comparison. Tables III. and IV. have been further analysed into two groups showing for the summer and winter months respectively the stations in which the deposit was increased and those in which it was diminished in the year 1918–19 as compared with 1917–18. Tables A and B show this analysis.

TABLE A.—*Total Solids Deposited in Summer Months, 1918, expressed as Percentages of Deposit in the same months 1917.*

Deposit.			
Increased in 1918.		Diminished in 1918.	
London :—		London :—	
Meteorological Office	108	Embankment Gardens.	55
Wandsworth Common.	102	Finsbury Park	88
		Ravenscourt Park	67
		Southwark Park	82
		Golden Lane	94
		Manchester :—	
		Queen's Park	87
		Whitworth-street (garden)	99
		Newcastle-on-Tyne	63
		Rochdale	98
		St. Helens	83
		Coatbridge	98
Glasgow :—		Glasgow :—	
Victoria Park	111	Alexandra Park	83
		Bellahouston Park	72
		Blythswood Square	51
		Botanic Gardens	90
		Richmond Park	76
		Ruchill Park	72
		South Side Park	94
		Tollcross Park	79
		Victoria Park	93

Stations not included: Victoria Park (London), Manchester (roof of College), and Southport Stations—all new stations in 1918. Malvern: Observations suspended. Leicester: Only one record.

Referring to this analysis for the summer months, it is obvious that there is a considerable diminution of the deposit in 1918 as compared with 1917 in the majority of stations. The figures opposite each station show the total deposit as percentages of that in 1917. Referring now to the right-hand column, which shows the stations in which the deposit is diminished, the greatest diminution was shown opposite Blythswood-square, Glasgow, where only 51 per cent. of the deposit of 1917 was reported. It is noticeable that there is indication of distinct improvement of the Glasgow air this year as compared with 1917. Reference to last Report will show that in the summer of 1917 nearly all Glasgow stations showed a heavier deposit than in the previous year.

Turning now to the winter months, and neglecting the Glasgow figures, as there was only a single month's record available for 1918–19, we see that the position of affairs is reversed, the winter deposit being greater in 1918–19 than in 1917–18 in the majority of stations. Ravenscourt Park heads the list for increased deposit with a figure showing 149 per cent. of the 1917–18 figure, whereas Wandsworth Common shows only 32 per cent. of the total solids deposited in 1917–18.

TABLE B.—*Total Solids Deposited in Winter Months 1918–19 expressed as Percentages of Deposits in the same months 1917–18.*

Deposit.			
Increased in 1918–19.		Diminished in 1918–19.	
London :—		London :—	
Finsbury Park	137	Wandsworth Common	32
Ravenscourt Park	149		
Southwark Park	110		
Golden Lane	107		
Embankment Gardens	118		
Manchester :—			
Whitworth Street (garden)	110		
Newcastle-on-Tyne	117	St. Helens	91
Coatbridge	111	Rochdale	91
Glasgow :—		Glasgow :—	
Botanic Gardens	114	Alexandra Park	89
Blythswood Square	107	Ruchill Park	77
		South Side Park	94

Stations not included:—Glasgow: Bellahouston, Richmond, Tollcross and Victoria Parks, also Malvern, as there is only one record for winter months; Manchester (roof of College) and Southport—new stations.

Although the stations have been compared above on the basis of total solids deposited, it is not suggested that this is the only basis on which a comparison should be made. Tables III. and IV., however, give the figures and enable comparisons to be made on the basis of any of the elements of deposit, such, for example, as tar or sulphate. But unfortunately all the stations do not provide complete analyses; hence it has been thought better to limit the comparison here to that of total solids deposited. By the classification of stations under letters A, B, C, and D, which will next be considered, a simple method is provided for comparing the results of the year with previous years for any of the elements of pollution.

In Tables V. and VI. the stations are classified under the letters A, B, C, and D, the units being similar to those used in the Committee's previous Reports. The classification units are here given for convenience of reference.

Class A includes the stations which have less than 1 unit of deposit per square kilometre.

Class B, the stations which have between 1 and 3 units of deposit per square kilometre.

Class C, the stations which have between 3 and 5 units of deposit per square kilometre.

Class D, the stations which have 5 or more units of deposit per square kilometre.

The unit has been adjusted to suit each separate element, but the proportional division has been

TABLE III.—SUMMER RESULTS.

Comparison of Mean Monthly Deposit for each Station for Half Years April to September, 1917 and 1918.

Station.	—	Rainfall in millimetres.	Metric tons per square kilometre.									No. of months used for mean.
			Insoluble matter.			Soluble matter.		Total solids.	Included in soluble matter.			
			Tar.	Carbonaceous other than tar.	Ash.	Loss on ignition.	Ash.		Sulphate as (SO_3).	Chlorine (Cl).	Ammonia (NH_3).	
Leicester	1917	57	0·13	3·42	7·15	1·53	2·82	15·04	1·47	0·44	0·19	6
	1918	61	0·18	3·33	6·10	3·62	6·62	19·85	1·83	0·62	0·22	1
London :—												
Meteorological Office	1917	83	0·10	1·42	3·30	2·02	3·87	10·72	1·56	0·63	0·15	6
	1918	70	0·10	1·91	2·76	2·00	4·78	11·55	1·59	0·69	0·22	5
*Embankment Gardens	1917	64	0·29	4·61	8·34	3·42	6·31	22·97	3·41	0·84	0·19	5
	1918	38	0·10	1·60	2·31	2·87	5·83	12·70	2·69	0·72	0·13	5
*Finsbury Park	1917	76	0·09	2·63	8·01	2·05	3·80	16·57	2·16	0·55	0·09	6
	1918	51	0·06	1·59	7·86	1·69	3·34	14·55	1·45	0·37	0·07	5
*Ravenscourt Park	1917	86	0·29	2·71	8·80	1·98	3·46	17·23	1·93	0·55	0·13	6
	1918	57	0·07	1·74	5·10	1·75	2·89	11·54	1·35	0·40	0·16	6
*Southwark Park	1917	48	0·04	2·27	6·71	2·83	5·18	17·03	2·89	0·65	0·12	6
	1918	43	0·08	1·83	5·61	2·74	3·80	14·05	2·21	0·53	0·14	6
Wandsworth Common	1917	33	0·02	0·24	0·78	2·05	2·29	5·37	1·10	0·32	0·05	6
	1918	22	0·01	0·50	2·53	0·69	1·80	5·51	0·73	0·25	0·03	6
Golden Lane	1917	70	0·06	2·29	4·80	2·03	4·01	13·17	2·01	0·69	0·26	6
	1918	77	0·10	2·63	3·63	1·75	4·29	12·39	2·07	0·86	0·28	6
Victoria Park	†1917	—	—	—	—	—	—	—	—	—	—	—
	1918	40	0·06	1·84	7·20	1·12	2·06	12·27	1·20	0·25	0·09	5
Malvern	1917	69	0·00	0·30	0·49	0·73	1·66	3·09	0·74	0·18	0·03	6
	†1918	—	—	—	—	—	—	—	—	—	—	—
Manchester :—												
Queen's Park	1917	59	—	—	—	—	—	11·91	—	—	—	6
	1918	64	—	—	—	—	—	10·30	—	—	—	2
Whitworth-street (roof of College)	1917	—	—	—	—	—	—	—	—	—	—	—
	1918	145	—	—	—	—	—	19·05	—	—	—	2
Whitworth-street (garden)	1917	65	—	—	—	—	—	15·70	—	—	—	6
	1918	98	—	—	—	—	—	15·60	—	—	—	6
Newcastle-on-Tyne	1917	71	0·24	5·30	12·69	2·52	4·96	25·71	2·44	0·45	0·17	6
	1918	53	0·17	3·30	6·41	1·94	4·34	16·15	2·00	0·53	0·13	6
Rochdale	1917	—	—	—	—	—	—	34·62	—	—	—	5
	1918	112	—	—	—	—	—	33·84	—	—	—	6
*St. Helens	1917	68	0·29	3·33	8·03	2·18	6·00	19·83	2·72	1·23	0·22	6
	1918	90	0·32	2·49	5·54	2·74	5·34	16·46	2·63	1·60	0·23	6
Southport :—												
Hesketh Park	†1917	—	—	—	—	—	—	—	—	—	—	—
	1918	90	0·02	0·37	0·48	1·58	4·18	6·63	1·67	0·67	0·08	6
Woodvale Moss	†1917	—	—	—	—	—	—	—	—	—	—	—
	1918	83	—	—	—	—	—	6·33	—	—	—	6
Coatbridge	1917	63	0·10	1·98	6·75	2·29	4·71	15·82	2·51	0·27	0·20	6
	1918	61	0·15	2·37	6·04	2·47	4·55	15·58	2·28	0·28	0·18	6
Glasgow :—												
Alexandra Park	1917	51	0·47	2·03	4·81	1·45	3·60	12·36	1·76	0·15	0·16	6
	1918	56	0·11	2·53	3·85	1·21	2·54	10·26	1·39	0·18	0·12	6
Bellahouston Park	1917	60	0·26	2·45	5·05	1·22	4·23	13·21	1·70	0·15	0·10	6
	1918	52	0·10	1·39	4·02	1·31	2·69	9·52	1·42	0·16	0·04	5
Blythswood Square	1917	61	0·23	2·54	6·19	4·39	4·35	17·70	2·25	0·19	0·20	6
	1918	62	0·10	1·61	3·30	1·48	2·48	8·97	1·49	0·19	0·15	6
Botanic Gardens	1917	76	0·28	2·24	4·36	1·92	5·04	13·84	2·40	0·17	0·16	6
	1918	72	0·17	1·73	3·97	2·58	4·03	12·48	1·83	0·20	0·07	6
Richmond Park	1917	61	0·23	1·68	6·38	1·73	4·04	14·06	2·15	0·17	0·17	6
	1918	50	0·13	1·49	4·14	1·94	2·93	10·64	1·63	0·26	0·12	5
Ruchill Park	1917	68	0·21	2·02	5·96	1·45	4·34	13·98	2·07	0·15	0·12	6
	1918	58	0·16	1·88	3·53	1·62	2·85	10·02	1·59	0·16	0·07	6
South Side Park	1917	61	0·16	1·60	3·28	1·50	4·14	10·67	1·69	0·10	0·08	6
	1918	69	0·11	1·13	3·02	1·79	4·03	10·07	1·64	0·22	0·07	6
Tollcross Park	1917	52	0·21	1·89	7·52	1·50	4·62	15·73	2·37	0·13	0·10	4
	1918	48	0·16	1·73	4·86	2·52	3·19	12·45	1·57	0·17	0·08	5
Victoria Park	1917	66	0·25	1·40	4·09	1·70	3·54	10·98	1·87	0·11	0·17	6
	1918	60	0·11	1·49	3·93	2·09	2·54	10·18	1·56	0·25	0·09	5

* See p. ii. † No records.

TABLE IV.—WINTER RESULTS.

Comparison of Mean Monthly Deposit for Each Station for Half Years October to March, 1917–18, and 1918–19.

Station.	—	Rainfall in millimetres.	Metric tons per square kilometre.									No. of months used for mean.
			Insoluble matter.			Soluble matter.		Total solids.	Included in soluble matter.			
			Tar.	Carbonaceous other than tar.	Ash.	Loss on ignition.	Ash.		Sulphate as (SO_3).	Chlorine (Cl).	Ammonia (NH_3).	
Leicester	1917–18	28	0·19	2·71	4·22	1·28	4·37	12·77	2·55	0·31	0·09	6
	†1918–19	—	—	—	—	—	—	—	—	—	—	—
London :—												
Meteorological Office ...	1917–18	42	0·14	2·18	3·50	1·44	4·15	11·41	1·46	0·63	0·05	6
	1918–19	46	0·14	1·72	4·59	1·33	3·56	10·13	1·33	0·62	0·04	4
*Embankment Gardens	1917–18	43	0·14	2·76	5·48	4·92	12·10	25·40	5·69	1·50	0·24	5
	1918–19	38	0·18	6·89	9·17	4·76	9·11	30·12	4·70	1·15	0·16	6
*Finsbury Park	1917–18	48	0·10	1·08	4·26	2·49	5·16	13·08	3·25	0·54	0·16	6
	1918–19	75	0·19	1·36	4·25	4·38	7·90	17·99	4·79	1·49	0·11	6
*Ravenscourt Park ...	1917–18	31	0·06	1·15	3·68	1·10	1·87	7·86	1·27	0·27	0·08	6
	1918–19	56	0·08	1·25	2·45	3·13	4·80	11·72	2·83	0·85	0·13	6
*Southwark Park	1917–18	38	0·04	1·67	8·21	2·79	4·92	17·63	2·97	0·63	0·10	6
	1918–19	46	0·13	1·83	3·98	6·79	6·70	19·46	6·35	1·05	0·45	6
Wandsworth Common	1917–18	24	0·02	0·52	2·33	0·79	1·78	5·42	0·98	0·28	0·04	4
	1918–19	12	—	0·04	0·14	0·49	1·05	1·73	0·63	0·20	0·02	4
Golden Lane	1917–18	43	0·11	2·50	4·25	1·82	4·04	12·72	1·85	0·86	0·28	6
	1918–19	57	0·09	3·24	4·08	1·68	4·47	13·57	2·11	0·84	0·18	6
Victoria Park...	†1917–18	—	—	—	—	—	—	—	—	—	—	—
	1918–19	32	0·03	0·95	2·27	2·11	4·91	10·29	1·86	0·40	0·05	4
Malvern	1917–18	41	—	0·07	0·21	0·54	1·29	2·12	0·53	0·19	0·01	6
	1918–19	39	—	0·33	1·36	0·61	2·24	4·55	0·90	0·23	0·01	1
Manchester :—												
Queen's Park...	1917–18	70	—	—	—	—	—	7·52	—	—	—	6
	†1918–19	—	—	—	—	—	—	—	—	—	—	—
Whitworth-street (roof of College)	†1917–18	—	—	—	—	—	—	—	—	—	—	—
	1918–19	64	—	—	—	—	—	14·30	—	—	—	3
Whitworth-street (garden)	1917–18	54	—	—	—	—	—	12·32	—	—	—	6
	1918–19	64	—	—	—	—	—	13·67	—	—	—	3
Newcastle-on-Tyne... ...	1917–18	41	0·20	3·65	6·99	1·99	3·07	15·90	1·53	0·61	0·08	6
	1918–19	50	0·14	4·41	7·89	2·18	3·96	18·58	1·81	0·54	0·15	6
Rochdale	1917–18	—	—	—	—	—	—	35·00	—	—	—	5
	1918–19	144	—	—	—	—	—	23·16	—	—	—	3
*St. Helens...	1917–18	71	0·59	4·13	6·07	3·09	7·10	20·97	3·89	1·86	0·33	5
	1918–19	83	0·20	2·22	3·73	3·71	9·20	19·08	4·63	2·21	0·05	6
Southport :—												
Hesketh Park	†1917–18	—	—	—	—	—	—	—	—	—	—	—
	1918–19	95	0·03	0·68	1·51	1·28	4·21	7·71	1·63	0·92	0·01	6
Woodvale Moss	†1917–18	—	—	—	—	—	—	—	—	—	—	—
	1918–19	71	—	—	—	—	—	5·64	—	—	—	6
Coatbridge	1917–18	61	0·10	2·03	5·47	2·93	6·35	16·88	3·22	0·58	0·21	5
	1918–19	73	0·47	2·86	6·00	3·51	5·96	18·80	3·78	0·64	0·18	4
Glasgow :—												
Alexandra Park	1917–18	87	0·18	2·38	4·58	2·02	5·61	14·75	2·92	0·43	0·19	5
	1918–19	66	0·09	2·20	3·81	2·35	4·66	13·10	2·32	0·38	0·14	6
Bellahouston Park ...	1917–18	99	0·12	1·37	2·84	3·39	5·07	12·79	3·25	0·58	0·14	5
	1918–19	79	0·04	1·57	2·69	3·30	6·15	13·75	2·99	0·38	0·10	1
Blythswood Square ...	1917–18	99	0·17	2·14	4·10	1·65	6·58	14·63	3·43	0·51	0·21	5
	1918–19	86	0·19	2·82	4·55	2·48	5·62	15·67	3·14	0·42	0·22	6
Botanic Gardens	1917–18	90	0·28	0·90	4·73	3·15	5·77	14·83	4·15	0·41	0·12	4
	1918–19	96	0·13	2·52	4·32	4·97	8·82	20·74	4·64	0·61	0·18	6
Richmond Park	1917–18	93	0·22	2·45	6·50	2·88	5·09	17·14	3·31	0·29	0·27	6
	1918–19	61	0·09	1·88	3·03	3·29	4·61	12·90	3·32	0·32	0·16	1
Ruchill Park	1917–18	92	0·28	1·73	4·46	2·60	6·00	15·06	3·36	0·50	0·14	5
	1918–19	92	0·11	1·79	2·63	2·37	4·65	11·56	2·79	0·36	0·17	6
South Side Park	1917–18	102	0·18	0·23	4·14	2·15	4·38	13·08	2·72	0·33	0·12	6
	1918–19	84	0·08	1·48	3·13	2·31	5·33	12·33	2·68	0·36	0·18	6
Tollcross Park	1917–18	91	0·26	1·88	5·45	3·76	5·18	16·54	3·44	0·40	0·13	5
	1918–19	61	0·08	1·76	4·33	2·10	5·00	13·27	2·95	0·38	0·16	1
Victoria Park...	1917–18	93	0·17	1·55	4·09	3·30	6·18	15·28	3·56	0·37	0·20	4
	1918–19	98	0·04	1·29	2·55	3·95	7·88	15·71	5·44	0·55	0·13	1

* See p. ii. † No records.

kept the same throughout. Thus for "total solids" the unit is 5 tons and the law of classification is—

Class A, less than 5 tons per square kilometre per month.

Class B, from 5 to 15 tons per square kilometre per month.

Class C, from 15 to 25 tons per square kilometre per month.

Class D, 25 or more tons per square kilometre per month.

It will be understood that the figure 5 belongs to Class B, not Class A, and so on.

The units and limits in the several cases are shown in the next column.

Unit.		Limits.			
—	Tons per K^2 per month	A Less than	B	C	D over
Insoluble Matter.					
Tar	0·05	0·05	0·05 to 0·15	0·15 to 0·25	0·25
Carbonaceous other than tar	1	1	1 to 3	3 to 5	5
Ash	2	2	2 to 6	6 to 10	10
Soluble Matter.					
Loss on ignition	0·75	0·75	0·75 to 2·25	2·25 to 3·75	3·75
Ash	1·5	1·5	1·5 to 4·5	4·5 to 7·5	7·5
Total solids	5	5	5 to 15	15 to 25	25
Sulphates ...	1	1	1 to 3	3 to 5	5
Chlorine ...	0·3	0·3	0·3 to 0·9	0·9 to 1·5	1·5
Ammonia ...	0·05	0·05	0·05 to 0·15	0·15 to 0·25	0·25

TABLE V.—*Classification (Summer Months), April to September, 1918.*

Station.	Rain-fall in mm.	Metric tons per square kilometre.									Summary.				No. of months.
		Insoluble matter.			Soluble matter.			Included in soluble matter.							
		Tar.	Carbonaceous other than tar.	Ash.	Loss on ignition.	Ash.	Total solids.	Sulphates as (SO_3).	Chlorine (Cl).	Ammonia (NH_3).	A	B	C	D	
Leicester	61	C	C	C	C	C	C	B	B	C	0	2	7	0	1
London:—															
Meteorological Office	70	B	B	B	B	C	B	B	B	C	0	7	2	0	5
*Embankment Gardens	38	B	B	B	C	C	B	B	B	B	0	7	2	0	5
*Finsbury Park	51	B	B	C	B	B	B	B	B	B	0	8	1	0	5
*Ravenscourt Park ...	57	B	B	B	B	B	B	B	B	C	0	8	1	0	6
*Southwark Park ...	43	B	B	B	C	B	B	B	B	B	0	8	1	0	6
Wandsworth Common	22	A	A	B	A	B	B	A	A	A	6	3	0	0	6
Golden Lane	77	B	B	B	B	B	B	B	B	D	0	8	0	1	6
Victoria Park	40	B	B	C	B	B	B	B	A	B	1		1	0	5
Malvern	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Manchester:—															
Queen's Park	64	—	—	—	—	—	B	—	—	—	0	1	0	0	2
Whitworth-street (roof of College)...	145	—	—	—	—	—	C	—	—	—	0	0	1	0	2
Whitworth-street (garden)	98	—	—	—	—	—	C	—	—	—	0	0	1	0	6
Newcastle-on-Tyne ...	53	C	C	C	B	B	C	B	B	B	0	5	4	0	6
Rochdale...	112	—	—	—	—	—	D	—	—	—	0	0	0	1	6
*St. Helens	90	D	B	B	C	C	C	B	D	C	0	3	4	2	6
Southport:—															
Hesketh Park	90	A	A	A	B	B	B	B	B	B	3	6	0	0	6
Woodvale Moss... ...	83	—	—	—	—	—	B	—	—	—	0	1	0	0	6
Coatbridge	61	B	B	C	C	C	C	B	A	C	1	3	5	0	6
Glasgow:—															
Alexandra Park ...	56	B	B	B	B	B	B	B	A	B	1	8	0	0	6
Bellahouston Park ...	52	B	B	B	B	B	B	B	A	A	2	7	0	0	5
Blythswood Square...	62	B	B	B	B	B	B	B	A	B	1	8	0	0	6
Botanic Gardens ...	72	C	B	B	C	B	B	B	A	B	1	6	2	0	6
Richmond Park ...	50	B	B	B	B	B	B	B	A	B	1	8	0	0	5
Ruchill Park	58	C	B	B	B	B	B	B	A	B	1	7	1	0	6
South Side Park ...	69	B	B	B	B	B	B	B	A	B	1	8	0	0	6
Tollcross Park	48	C	B	B	C	B	B	B	A	C	1	5	3	0	5
Victoria Park	60	B	B	B	B	B	B	B	A	B	1	8	0	0	5

* See p. ii.

This classification is based upon the figures shown in the two previous tables (III. and IV.) and covers the same periods—i.e., summer and winter. In Tables VII. and VIII. a group of nine stations have been selected which gave returns over the whole period considered, and the totals of the different classes A, B, C, and D for each element of pollution are given. Again, to enable a more rapid comparison to be made, the two tables (VII. and VIII.) have been reduced by the addition of the A's and B's and the C's and D's, and the results given below.

To compare the two years all we need do now is to examine the column showing the sum of the C's and D's, which figures vary directly with the amount of the deposit, whereas the sum of the A's and B's bears an inverse relation to the deposit.

Comparing the two years 1917–18 and 1918–19 upon this basis, we get the following results:—

Total Solids, *Soluble Loss on Ignition*, *Ash and Ammonia* show a diminution in the summer and an increase in the winter of 1918–19 as compared with the previous year.

Tar deposit is less both in the winter and summer of 1918–19 than in the previous year.

Carbonaceous Insoluble shows little difference in the two years, the summer figures being the same, whereas the winter figures show a slight increase in 1918–19.

Insoluble Ash gave smaller deposit in the summer of 1918, whereas the winter deposit of the two years was equal.

Sulphates were the same for the two summers but slightly less for the winter of 1918–19 than the previous winter.

Chlorine gave the same deposits in the two years. It is of interest to observe the great diminution in the deposit of the tar, which may possibly be attributed to improvements in combustion, the increased use of smokeless fuels such as gas, coke, anthracite, or possibly to a reduction in the total

TABLE VI.—*Classification (Winter Months), October, 1918, to March, 1919.*

Station.	Rain-fall in mm.	Metric tons per square kilometre.									Summary.				No. of months.
		Insoluble matter.			Soluble matter.		Total solids.	Included in soluble matter.							
		Tar.	Carbonaceous other than tar.	Ash.	Loss on ignition.	Ash.		Sulphates as (SO_3).	Chlorine (Cl).	Ammonia (NH_3).	A	B	C	D	
†Leicester			—	—	—	—	—	—	—	—	0	0	0	0	0
London:—															
Meteorological Office	46	B	B	B	B	B	B	B	B	A	1	8	0	0	4
*Embankment Gardens	38	C	D	C	D	D	D	C	C	C	0	0	5	4	6
*Finsbury Park ...	75	C	B	B	D	D	C	C	C	B	0	3	4	2	6
*Ravenscourt Park...	56	B	B	B	C	C	B	B	B	B	0	7	2	0	6
*Southwark Park ...	46	B	B	B	D	C	C	D	C	D	0	3	3	3	6
Wandsworth Common	12	A	A	A	A	A	A	A	A	A	9	0	0	0	4
Golden Lane	57	B	C	B	B	B	B	B	B	C	0	7	2	0	6
Victoria Park	32	A	A	B	B	C	B	B	B	A	3	5	1	0	4
Malvern	39	A	A	A	A	B	A	A	A	A	8	1	0	0	1
Manchester:—															
†Queen's Park	—	—	—	—	—	—	—	—	—	—	0	0	0	0	0
Whitworth Street (roof of College)...	64	—	—	—	—	—	B	—	—	—	0	1	0	0	3
Whitworth Street (garden)	60	—	—	—	—	—	B	—	—	—	0	1	0	0	3
Newcastle-on-Tyne ...	50	B	C	C	B	B	C	B	B	B	0	6	3	0	6
Rochdale...	144	—	—	—	—	—	C	—	—	—	0	0	1	0	3
*St. Helens	83	C	B	B	C	D	C	C	D	A	1	2	4	2	6
Southport:—															
Hesketh Park	95	A	A	A	B	B	B	B	C	A	4	4	1	0	6
Woodvale Moss ...	71	—	—	—	—	—	B	—	—	—	0	1	0	0	6
Coatbridge	73	D	B	B	C	C	C	C	B	C	0	3	5	1	4
Glasgow:—															
Alexandra Park ...	66	B	B	B	C	C	B	B	B	B	0	7	2	0	6
Bellahouston Park...	79	A	B	B	C	C	B	B	B	B	1	6	2	0	1
Blythswood Square...	86	C	B	B	C	C	C	C	B	C	0	3	6	0	6
Botanic Gardens ...	96	B	B	B	D	D	C	C	B	C	0	4	3	2	6
Richmond Park ...	61	B	B	B	C	C	B	C	B	C	0	5	4	0	1
Ruchill Park	92	B	B	B	C	C	B	B	B	C	0	6	3	0	6
South Side Park ...	84	B	B	B	C	C	B	B	B	C	0	6	3	0	6
Tollcross Park	61	B	B	B	B	C	B	B	B	C	0	7	2	0	1
Victoria Park	98	A	B	B	D	D	C	D	B	B	1	4	1	3	1

* See p. ii. † No records.

TABLE VII.—*Comparison of Totals of Classes A, B, C, D for Each Element of Pollution for the Two Half Years, April-September, 1917 and 1918, for 9 Stations.*

—		—	A	B	C	D
	Total solids	1917	0	6	2	1
		1918	0	7	2	0
Insoluble.	Tar	1917	1	2	4	2
		1918	1	5	3	0
	Carbonaceous other than tar	1917	1	7	0	1
		1918	1	7	1	0
	Ash	1917	1	5	2	1
		1918	0	7	2	0
Soluble.	Loss on ignition	1917	0	6	2	1
		1918	1	6	2	0
	Ash	1917	0	6	3	0
		1918	0	8	1	0
	Sulphates	1917	0	9	0	0
		1918	1	8	0	0
	Chlorine	1917	6	3	0	0
		1918	7	2	0	0
	Ammonia	1917	0	3	5	1
		1918	1	6	1	1

TABLE VIII.—*Comparison of Totals of Classes A, B, C, D for Each Element of Pollution for the Two Half Years October-March, 1917-18, and 1918-19, for 9 Stations.*

—		—	A	B	C	D
	Total solids	1917-18	0	6	3	0
		1918-19	1	4	3	1
Insoluble.	Tar	1917-18	1	2	4	2
		1918-19	1	6	1	1
	Carbonaceous other than tar	1917-18	2	6	1	0
		1918-19	1	6	2	0
	Ash	1917-18	0	8	1	0
		1918-19	1	7	1	0
Soluble.	Loss on ignition	1917-18	0	6	3	0
		1918-19	1	2	5	1
	Ash	1917-18	0	4	5	0
		1918-19	1	2	5	1
	Sulphates	1917-18	1	4	4	0
		1918-19	1	5	3	0
	Chlorine	1917-18	1	8	0	0
		1918-19	1	8	0	0
	Ammonia	1917-18	1	4	3	1
		1918-19	1	2	6	0

List of Stations used in Tables VII. and VIII.

London:—
Wandsworth Common.
Golden Lane.
Newcastle-on-Tyne.
Coatbridge.
Glasgow:—
Alexandra Park.
Blythswood Square.
Glasgow (*Continued*):—
Botanic Gardens.
Ruchill Park.
South Side Park.

TABLE C.—*Comparison of Deposits for 1917–18 with 1918–19.*

—		Year.	April to Sept. (9 stations).		Oct. to March (9 stations).	
			A & B.	C & D.	A & B.	C & D.
	Total solids	1917–1918	6	3	6	3
		1918–1919	7	2	5	4
Insoluble.	Tar	1917–1918	3	6	3	6
		1918–1919	6	3	7	2
	Carbonaceous other than tar	1917–1918	8	1	8	1
		1918–1919	8	1	7	2
	Ash	1917–1918	6	3	8	1
		1918–1919	7	2	8	1
Soluble.	Loss on ignition	1917–1918	6	3	6	3
		1918–1919	7	2	3	6
	Ash	1917–1918	6	3	4	5
		1918–1919	8	1	3	6
	Sulphates	1917–1918	9	0	5	4
		1918–1919	9	0	6	3
	Chlorine	1917–1918	9	0	9	0
		1918–1919	9	0	9	0
	Ammonia	1917–1918	3	6	5	4
		1918–1919	7	2	3	6

fuel consumption, especially in domestic fires, which are known to be responsible for the greatest production of tar. The reduction in the deposit of sulphates points in the direction of reduced consumption of coal. It ought, however, to be borne in mind that for the production of an equal number of B.T.U.'s gas yields on combustion less than 1/10th of the amount of sulphurous substances yielded by coal. Account should also be taken of the fact that gas can be applied with a thermal efficiency at least twice as high as is obtainable in the case of coal, so that apart from the necessity of burning coke, the quantity of sulphates yielded by gas would be of the order of only 1/20th of that of its practical equivalent of coal. It has not been found possible to relate the deposits to the operation of the fuel rationing order, as when dealing with comparatively short periods, such as a year the impossibility of fixing the date from which the reduction in fuel consumption might be supposed to take effect makes it impracticable. Although the date when the rationing order took effect is easily fixed, it does not follow that this coincides with a reduction in fuel consumption. Should, however the rationing order be continued over a long period then some useful data might be obtained, as errors due to the vagueness of the starting point would be reduced. The Coal Rationing Order became effective on Oct. 1st, 1918.

COMPARISON OF STATIONS.

In the following table (D) the highest and lowest mean monthly deposits for the year for different stations are given for each element of pollution Rochdale heads the list with the highest deposit of total solids. It must be noted, however, that only nine months are available for this station These may, however, be regarded as fairly representative of the year. The deposit is also probably under-estimated, since during July, August, and September the bottles overflowed and some of the water collected was lost. Since this station does not return a complete analysis, it is excluded from the comparison based on the different elements of the deposit.

TABLE D.—*Highest and Lowest Mean Monthly Deposits in 1918–19, in Tons per Square Kilometre.*

—		Highest.	Lowest.
Total solids		Rochdale ... 30·28 London—Embankment Gardens ... 22·20	London—Wandsworth Common ... 3·99 Southport—Woodvale Moss ... 5·98
Insoluble.	Tar	Coatbridge ... 0·28 St. Helens ... 0·25	Wandsworth Common ... 0·01 Southport—Hesketh Park ... 0·02
	Carbonaceous other than tar	Embankment Gardens ... 4·49 Newcastle-on-Tyne ... 3·86	Wandsworth Common ... 0·30 Hesketh Park ... 0·53
	Ash	Newcastle-on-Tyne ... 7·15 Coatbridge ... 6·03	Hesketh Park ... 0·99 Wandsworth Common ... 1·57
Soluble.	Loss on ignition	London—Southwark Park ... 4·76 Embankment Gardens ... 3·90	Wandsworth Common ... 0·61 Southport—Hesketh Park ... 1·42
	Ash	Embankment Gardens ... 7·62 St. Helens ... 7·18	Wandsworth Common ... 1·49 London—Victoria Park ... 3·33
Sulphates		Southwark Park ... 4·28 Embankment Gardens ... 3·79	Wandsworth Common ... 0·69 London—Victoria Park ... 1·49
Chlorine		St. Helens ... 1·90 Finsbury Park ... 0·98	Wandsworth Common ... 0·23 Glasgow—Ruchill Park ... 0·26
Ammonia		Southwark Park ... 0·29 London—Golden Lane ... 0·23	Wandsworth Common ... 0·03 Hesketh Park ... 0·04

The lowest, or second lowest, deposit is in all cases shown by Wandsworth Common, London. It will be remembered that in last year's Report Wandsworth Common was second lowest in 7 cases out of 9, the lowest being Malvern, which has made no returns during this year.

SEASONAL VARIATIONS.

In considering the seasonal variations, reference must be made to Table IX. which gives a comparison of the mean monthly deposits for the summer and winter of the year 1918–19.

Table IX. is summarised below omitting some of the doubtful figures, and referring to this summary we may now consider each element of pollution separately. (See Table E.)

Rainfall.—Out of the 25 stations, 13 showed a heavier rainfall in the winter, 11 a heavier summer fall, and in 1 station the rainfall in summer and winter was equal.

Total Solids.—19 out of 25 stations gave a greater winter deposit, while in 6 the summer deposit was the higher.

Tar.—Out of 21 stations, we find 8 with a higher winter deposit, and 13 in which the summer deposit exceeded the winter. This is a very curious state of affairs, and on reference to the Committee's last Report it will be seen that out of 16 stations considered in 1917–18, 6 showed a greater winter deposit, 6 a greater summer deposit, and n 4 the deposit was equal. It is not easy to understand why the year 1918–19 should show a greater deposit of tar in the summer than in the winter, unless due to the severity of the rationing of coal during the winter months, or dust from tarred roads during the summer.

Carbonaceous Matter other than Tar.—Out of 21 stations, 11 gave a greater winter deposit, in 1 the deposits were equal and in 9 the summer deposit was the greater. It is not to be supposed that the carbonaceous matter and tar should vary together, as the former, although it includes soot, includes also other vegetable matter.

Insoluble Ash.—In 8 out of 21 stations, the deposit in winter was the greater, and in 13 the summer deposit was the greater. This is in line with the results obtained in previous years, the summer, being the season for dust, would naturally provide a great proportion of ash in the deposit.

TABLE E.—*Comparison of Summer and Winter Deposits for the Year April, 1918, to March, 1919.*

—		Winter deposit greater in:	Deposits equal.	Summer deposits greater in:
		Stations.		Stations.
Rainfall		13*	1	11
Total solids		19*	0	6
Insoluble.	Tar	8	—	13
	Carbonaceous other than tar	11	1	9
	Ash	8	—	13
Soluble.	Loss on ignition	16	—	5
	Ash	18	—	3
Sulphates		17	—	4
Chlorine		18	—	3
Ammonia		13	1	7

* Glasgow.

TABLE IX.—*Comparison of Mean Monthly Deposit for Summer and Winter Months of the Year 1918–19.*

Station.	—	Rainfall in millimetres.	Metric tons per square kilometre.									No. of months used for mean.
			Insoluble matter.			Soluble matter.		Total solids.	Included in soluble matter.			
			Tar.	Carbonaceous other than tar.	Ash.	Loss on ignition.	Ash.		Sulphates as (SO_3).	Chlorine (Cl).	Ammonia (NH_3).	
Leicester	Apl.-Sep.	61	0·18	3·33	6·10	3·62	6·62	19·85	1·83	0·62	0·22	1
	Oct.-Mch.	—	—	—	—	—	—	—	—	—	—	—
London— Meteorological Office	Apl.-Sep.	70	0·10	1·91	2·76	2·00	4·78	11·55	1·59	0·69	0·22	5
	Oct.-Mch.	46	0·14	1·72	4·59	1·33	3·56	10·13	1·33	0·62	0·04	4
*Embankment Gardens	Apl.-Sep.	38	0·10	1·60	2·31	2·87	5·83	12·70	2·69	0·72	0·13	5
	Oct.-Mch.	38	0·18	6·89	9·17	4·76	9·11	30·12	4·70	1·15	0·16	6
*Finsbury Park	Apl.-Sep.	51	0·06	1·59	7·86	1·69	3·34	14·55	1·45	0·37	0·07	5
	Oct.-Mch.	75	0·19	1·36	4·25	4·38	7·90	17·99	4·79	1·49	0·11	6
*Ravenscourt Park	Apl.-Sep.	57	0·07	1·74	5·10	1·75	2·89	11·54	1·35	0·40	0·16	6
	Oct.-Mch.	56	0·08	1·25	2·45	3·13	4·80	11·72	2·83	0·85	0·13	6
*Southwark Park	Apl.-Sep.	43	0·08	1·83	5·61	2·74	3·80	14·05	2·21	0·53	0·14	6
	Oct.-Mch.	46	0·13	1·83	3·98	6·79	6·70	19·46	6·35	1·05	0·45	6
Wandsworth Common	Apl.-Sep.	22	0·01	0·50	2·53	0·69	1·80	5·51	0·73	0·25	0·03	6
	Oct.-Mch.	12	—	0·04	0·14	0·49	1·05	1·73	0·63	0·20	0·02	4
Golden Lane	Apl.-Sep.	77	0·10	2·63	3·63	1·75	4·29	12·39	2·07	0·86	0·28	6
	Oct.-Mch.	57	0·09	3·24	4·08	1·68	4·47	13·57	2·11	0·84	0·18	6
Victoria Park	Apl.-Sep.	40	0·06	1·84	7·20	1·12	2·06	12·27	1·20	0·25	0·09	5
	Oct.-Mch.	32	0·03	0·95	2·27	2·11	4·91	10·29	1·86	0·40	0·05	4
Malvern	Apl.-Sep.	—	—	—	—	—	—	—	—	—	—	—
	Oct.-Mch.	39	—	0·33	1·36	0·61	2·24	4·55	0·90	0·23	0·01	1
Manchester— Queen's Park	Apl.-Sep.	64	—	—	—	—	—	10·30	—	—	—	2
	Oct.-Mch.	—	—	—	—	—	—	—	—	—	—	—
Whitworth Street (roof of College)	Apl.-Sep.	145	—	—	—	—	—	19·05	—	—	—	2
	Oct.-Mch.	64	—	—	—		—	14·30	—		—	3
Whitworth Street (garden)	Apl.-Sep.	98	—	—	—	—	—	15·60	—	—	—	6
	Oct.-Mch.	60	—	—	—	—	—	13·67	—	—	—	3
Newcastle-on-Tyne	Apl.-Sep.	53	0·17	3·30	6·41	1·94	4·34	16·15	2·00	0·53	0·13	6
	Oct.-Mch.	50	0·24	4·41	7·89	2·18	3·96	18·58	1·81	0·54	0·15	6
Rochdale	Apl.-Sep.	112	—	—	—	—	—	33·84	—	—	—	6
	Oct.-Mch.	144	—	—	—	—	—	23·16	—	—	—	3
*St. Helens	Apl.-Sep.	90	0·32	2·49	5·54	2·74	5·34	16·46	2·63	1·60	0·23	6
	Oct.-Mch.	83	0·20	2·22	3·73	3·71	9·20	19·08	4·63	2·21	0·05	6
Southport— Hesketh Park	Apl.-Sep.	90	0·02	0·37	1·48	1·58	4·18	6·63	1·67	0·67	0·08	6
	Oct.-Mch.	95	0·03	0 68	1·51	1·28	4·21	7·71	1·63	0·92	0·01	6
Woodvale Moss	Apl.-Sep.	83	—	—	—	—	—	6·33	—	—	—	6
	Oct.-Mch.	71	—	—	—	—	—	5·64	—	—	—	6
Coatbridge	Apl.-Sep.	61	0·15	2·37	6·04	2·47	4·55	15·58	2·28	0·28	0·18	6
	Oct.-Mch.	73	0·47	2·86	6·00	3·51	5·96	18·80	3·78	0·64	0·18	4
Glasgow— Alexandra Park	Apl.-Sep.	56	0·11	2·53	3·85	1·21	2·54	10·26	1·39	0·18	0·12	6
	Oct.-Mch.	66	0·09	2·20	3·81	2·35	4·66	13·10	2·32	0·38	0·14	6
Bellahouston Park	Apl.-Sep.	52	0·10	1·39	4·02	1·31	2·69	9·52	1·42	0·16	0·04	5
	Oct.-Mch.	79	0·04	1·57	2·69	3·30	6·15	13·75	2·99	0·38	0·10	1
Blythswood Square	Apl.-Sep.	62	0·10	1·61	3·30	1·48	2·48	8·97	1·49	0·19	0·15	6
	Oct.-Mch.	86	0·19	2·82	4·35	2·48	5·62	15·67	3·14	0·42	0·22	6
Botanic Gardens	Apl.-Sep.	72	0·17	1·73	3·97	2·58	4·03	12·48	1·83	0·20	0·07	6
	Oct.-Mch.	96	0·13	2·52	4·32	4·97	8·82	20·74	4·64	0·61	0·18	6
Richmond Park	Apl.-Sep.	50	0·13	1·49	4·14	1·94	2·93	10·64	1·63	0·26	0·12	5
	Oct.-Mch.	61	0·09	1·88	3·03	3·29	4·61	12·90	3·32	0·32	0·16	1
Ruchill Park	Apl.-Sep.	58	0·16	1·88	3·53	1·62	2·85	10·02	1·59	0·16	0·07	6
	Oct.-Mch.	92	0·11	1·79	2·63	2·37	4·65	11·56	2·79	0·36	0·17	6
South Side Park	Apl.-Sep.	69	0·11	1·13	3·02	1·79	4·03	10·07	1·64	0·22	0·07	6
	Oct.-Mch.	84	0·08	1·48	3·13	2·31	5·33	12·33	2·68	0·36	0·18	6
Tollcross Park	Apl.-Sep.	48	0·16	1·73	4·86	2·52	3·19	12·45	1·57	0·17	0·08	5
	Oct.-Mch.	61	0·08	1·76	4·33	2·10	5·00	13·27	2·95	0·38	0·16	1
Victoria Park	Apl.-Sep.	60	0·11	1·49	3·93	2·09	2·54	10·18	1·56	0·25	0·09	5
	Oct.-Mch.	98	0·04	1·29	2·55	3·95	7·88	15·71	5·44	0·55	0·13	1

* See p. ii.

TABLE X.—*Average Deposit of Each Element of Pollution for Each Month Reduced to a Standard of 30 Days for the Following Groups: (x) 9 Stations; (y) 2 London Stations; (z) 5 Glasgow Stations.*

(x) 9 Stations.

Deposit in Tons per Square Kilometre.

	—	1918.									1919.			Ratio $\frac{\text{Max.}}{\text{Min.}}$
		April.	May.	June.	July.	August.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March.	
	Rainfall in mm. ...	22	47	20	69	61	127	100	83	78	68	27	67	6·35
	Total solids	8·59	13·81	7·28	11·57	12·32	12·74	17·59	15·27	13·42	12·75	12·58	13·34	2·43
Insoluble.	Tar	0·10	0·20	0·15	0·08	0·12	0·06	0·12	0·12	0·11	0·12	0·26	0·11	4·33
	Carbonaceous other than tar ...	2·27	2·24	1·13	2·24	2·14	1·51	2·42	2·16	1·95	2·77	2·92	2·34	2·58
	Ash	3·64	6·05	3·08	3·61	4·23	3·13	4·40	4·78	3·76	3·38	3·85	4·38	1·96
	Total insoluble ...	6·01	8·49	4·36	5·93	6·49	4·70	6·94	7·06	5·82	6·27	7·03	6·83	1·95
Soluble.	Loss on ignition ...	0·91	2·48	0·87	1·66	1·98	2·22	3·52	2·56	2·60	1·71	2·16	2·41	4·05
	Ash	1·67	2·86	2·05	3·98	3·85	5·82	7·13	5·65	5·00	4·77	3·39	4·10	4·27
	Total soluble ...	2·58	5·34	2·92	5·64	5·83	8·04	10·65	8·21	7·60	6·48	5·55	6·51	4·13
	Sulphates	0·91	1·49	0·98	1·92	1·87	2·65	3·29	3·27	2·49	2·56	1·90	2·45	3·62
	Chlorine...	0·29	0·25	0·25	0·31	0·34	0·47	0·63	0·60	0·41	0·43	0·31	0·52	2·52
	Ammonia	0·09	0·11	0·05	0·13	0·11	0·22	0·23	0·15	0·21	0·13	0·10	0·13	4·06

(y) 2 London Stations.

Deposit in Tons per Square Kilometre.

	—	1918.									1919.			Ratio $\frac{\text{Max.}}{\text{Min.}}$
		April.	May.	June.	July.	August.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March.	
	Rainfall in mm. ...	48	42	19	59	44	74	30	34	53	35	35	43	3·90
	Total solids... ...	11·18	12·27	5·58	7·01	6·88	9·88	10·88	8·64	10·54	6·25	11·56	6·94	2·20
Insoluble.	Tar	0·13	0·05	0·03	0·04	0·03	0·04	0·04	0·03	0·13	0·09	9·05	0·03	4·34
	Carbonaceous other than tar ...	2·37	2·29	1·01	1·20	0·96	1·33	2·47	1·82	2·07	1·37	2·95	1·42	3·08
	Ash	3·05	6·15	1·70	2·03	1·51	3·69	3·68	2·26	2·66	1·57	3·70	1·84	4·06
	Total insoluble ...	5·55	8·49	2·74	3·27	2·50	5·06	6·19	4·11	4·86	3·03	6·70	3·29	3·40
Soluble.	Loss on ignition ...	2·05	0·92	0·92	1·21	1·04	1·07	0·97	0·96	1·68	0·96	1·42	1·39	2·23
	Ash	3·58	2·86	1·92	2·53	3·34	3·75	3·72	3·57	4·00	2·26	3·44	2·26	2·08
	Total soluble ...	5·63	3·78	2·84	3·74	4·38	4·82	4·69	4·53	5·68	3·22	4·86	3·65	2·00
	Sulphates	1·80	1·31	0·87	1·31	1·29	1·69	1·46	1·54	1·81	1·15	1·90	1·35	2·16
	Chlorine	0·90	0·53	0·46	0·42	0·42	0·54	0·53	0·46	0·71	0·58	0·74	0·51	2·14
	Ammonia	0·24	0·14	0·09	0·16	0·08	0·21	0·12	0·10	0·10	0·10	0·13	0·09	3·00

(z) 5 Glasgow Stations.

Deposit in Tons per Square Kilometre.

	—	1918.									1919.			Ratio $\frac{\text{Max.}}{\text{Min.}}$
		April.	May.	June.	July.	August.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March.	
	Rainfall in mm	12	54	20	67	70	150	118	96	100	83	24	75	12·5
	Total solids	6·38	14·06	7·30	9·70	11·35	12·20	19·62	15·43	12·77	13·43	12·36	13·00	3·08
Insoluble.	Tar	0·08	0·25	0·23	0·08	0·11	0·04	0·13	0·13	0·12	0·12	0·11	0·12	6·25
	Carbonaceous other than tar...	2·13	2·09	1·12	2·21	1·66	1·23	2·19	1·77	1·61	2·75	2·76	1·79	2·46
	Ash	3·25	5·55	3·28	3·04	3·68	1·99	4·25	3·85	2·99	3·08	4·00	3·76	2·78
	Total insoluble ...	5·46	7·89	4·63	5·33	5·45	3·26	6·57	5·75	4·72	5·95	6·87	5·67	2·42
Soluble.	Loss on ignition ...	0·31	3·33	0·76	1·34	2·13	2·31	4·40	3·18	2·60	1·98	2·10	2·86	14·20
	Ash	0·61	2·84	1·91	3·03	3·77	6·63	8·65	6·50	5·45	5·50	3·39	4·77	14·20
	Total soluble ...	0·92	6·17	2·67	4·37	5·90	8·94	13·05	9·68	8·05	7·48	5·49	7·63	14·20
	Sulphates	0·40	1·42	0·89	1·63	1·97	3·02	3·90	3·87	2·36	3·20	2·04	3·01	9·75
	Chlorine	0·06	0·14	0·13	0·15	0·32	0·33	0·58	0·66	0·35	0·31	0·14	0·44	11·00
	Ammonia	0·03	0·09	0·03	0·09	0·11	0·21	0·25	0·17	0·23	0·13	0·10	0·15	8·33

Soluble Loss on Ignition, Ash, Sulphates, Chlorine, and Ammonia all show a greater winter deposit, and this result is identical with that of the previous year.

Turning now to a consideration of the incidence of deposit during the different months of the year; for this purpose reference must be made to Table X.

This table has been prepared on similar lines to the table of the same number in last year's Report —i.e., for a group of:

(*x*) 9 stations, scattered over the country and including Glasgow and London.
(*y*) 2 London stations.
(*z*) 5 Glasgow stations.

The number of stations available for the purpose of this table has been somewhat reduced as, owing to difficulties arising from reduction of staff during the war, it has not been possible to get complete records of a reliable nature for a larger number.

Table X. has been analysed by selecting for each element of pollution the months of highest and second highest deposits; also those giving the lowest and second lowest. This analysis is given below.

Analysis of Table X. showing Months of Highest and Lowest Deposit for Each Element of Pollution.

	—	(*x*) 9 Stations.				(*y*) 2 London Stations.				(*z*) 5 Glasgow Stations.			
		Highest.	Second highest.	Lowest.	Second lowest.	Highest.	Second highest.	Lowest.	Second lowest.	Highest.	Second highest.	Lowest.	Second lowest.
	Rainfall	Sept.	Oct.	June.	April.	Sept.	July.	June.	Oct.	Sept.	Oct.	April.	June.
	Total solids ...	Oct.	Nov.	,,	,,	May.	Feb.	,,	Jan.	Oct.	Nov.	,,	,,
Insoluble.	Tar	Feb.	May.	Sept.	July.	Dec. & April.	Jan.	June, Aug., Nov.,& March.	July, Sept.,& Oct.	May.	June.	Sept.	April & July.
	Carbonaceous other than tar...	Feb.	Jan.	June.	Sept.	Feb.	Oct.	Aug.	June.	Feb.	Jan.	June.	Sept.
	Ash	May.	Nov.	,,	,,	May.	Feb.	,,	Jan.	May.	Oct.	Sept.	Dec.
	Total insoluble...	,,	,,	,,	,,	,,	,,	,,	June.	,,	Feb.	,,	June.
Soluble.	Loss on ignition	Oct.	Sept.	,,	April.	April.	Dec.	May & June.	Nov. & Jan.	Oct.	May	April.	,,
	Ash	,,	,,	April.	June.	Dec.	Oct.	June.	Jan. & March.	,,	Sept.	,,	,,
	Total soluble ...	,,	,,	,,	,,	April.	Feb.	,,	Jan.	,,	Nov.	,,	,,
	Sulphates	,,	Nov.	,,	,,	Feb.	Dec.	,,	,,	,,	,,	,,	,,
	Chlorine	,,	,,	May & June.	April.	April.	Feb.	July & Aug.	June & Nov.	Nov.	Oct.	,,	,,
	Ammonia	,,	Sept.	June.	,,	,,	July.	Aug.	May & March.	Oct.	Dec.	April & June.	May & July.

In considering this analysis it is important to note that group *x* includes under it the stations shown in groups *y* and *z*, so that it will not be advisable at present to compare group *x* with *y* or *z*, and in what follows attention will be confined to a comparison of the London and Glasgow stations only.

Taking each element of deposit as shown on this analysis, we find that the incidence was as follows:—

Rainfall.—In both Glasgow and London the highest rainfall occurred in September and the lowest in June or April. It is noticeable, however, that while in the London stations the second lowest rainfall was registered in October, in the group of Glasgow stations October showed the second highest rainfall during the year.

Total Solids.—In London the highest deposit of total solids was registered in May, the lowest in June; whereas in Glasgow the highest deposit was in October and the lowest in April.

Tar.—In London the maximum deposit of tar occurred in December and April, the lowest in June, August, November, and March. In Glasgow, May showed the highest deposit, September the lowest. This may be regarded as fairly normal for London, but presents certain anomalies; for example, we find a maximum in April and a minimum in November, whereas it might be expected that tar would make its maximum deposit during the months when domestic fires were most required. The carriage by the wind of dust from the surfaces of tarred roads may provide some of the tar noted, and this source would naturally be most productive in the summer; possibly it has something to do with the anomalous distribution referred to.

Insoluble Carbonaceous Matter.—In both groups *y* and *z* the maximum deposit occurs in February, while the lowest, or second lowest, is found in June. Here, again, we find no relation between the deposit of carbonaceous matter and of tar, which is doubtless explainable on the basis that they differ in their sources, as already pointed out. While tar is probably derived mainly from the products of combustion, carbonaceous matter is partly derived from the same sources, but also from wind-blown organic vegetable matter.

Insoluble Ash.—This deposit follows the lines indicated by practically all previous observations—i.e., it makes its highest deposit in May in both groups and its lowest in August or September. It is curious, however, to observe that a second maximum occurs in February in London with a minimum in January, while in Glasgow the second maximum occurs in October and the second minimum in December. We have already pointed out that insoluble ash is largely derived from wind-blown dust, which is naturally a summer product. It must also be remembered that an important source is ash and grit carried up the chimney-stacks from boiler and other furnaces. This source should, however, provide a comparatively uniform amount each month and will hardly explain the distribution. If, however, we compare the incidence of deposit of insoluble ash with rainfall, it is noticeable that in London the highest rainfall was in September, the lowest ash deposit in August. The lowest rainfall was in June, the highest ash in May. This is not exactly an inverse relationship, but it points distinctly in that direction. Referring to Group z, the highest rainfall is in September, the lowest ash is also in September. Again, the lowest rainfall is in April and the highest ash deposit May, still pointing towards the inverse relationship already indicated in previous reports.

TABLE XI.—*Average Deposit Each Element of Pollution for Each Month Reduced to a Standard of 30 Days for Group of 9 Stations for Four Years, April, 1915–March, 1919.*

	—	1915–1919.												Ratio Max./Min.
		April.	May.	June.	July.	August.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March.	
	Rainfall in mm. ...	41	61	44	74	71	55	88	78	80	71	58	48	2·12
	Total solids	11·78	13·74	12·45	11·34	12·87	10·76	16·79	14·80	15·85	13·45	13·50	12·68	1·56
Insoluble.	Tar	0·12	0·15	0·19	0·17	0·11	0·11	0·12	0·13	0·24	0·17	0·19	0·11	2·18
	Carbonaceous other than tar ...	2·39	2·08	1·98	2·00	2·02	1·72	2·67	2·29	2·11	2·25	2·24	2·18	1·55
	Ash	4·51	4·98	5·09	3·55	4·58	3·58	4·38	4·50	4·00	3·68	4·08	4·26	1·43
	Total insoluble ...	7·02	7·21	7·26	5·72	6·71	5·41	7·17	6·92	6·35	6·10	6·51	6·55	1·34
Soluble.	Loss on ignition ...	1·64	2·21	2·01	1·91	2·16	1·57	3·39	2·77	3·08	2·43	2·42	2·16	2·16
	Ash	3·12	4·32	3·18	3·71	4·00	3·78	6·23	5·01	6·42	4·92	4·57	3·97	2·06
	Total soluble ...	4·76	6·53	5·19	5·62	6·16	5·35	9·62	7·88	9·50	7·35	6·99	6·13	2·02
	Sulphates	2·24	2·36	1·65	1·99	2·40	1·65	3·12	2·92	3·25	2·44	2·53	2·05	1·97
	Chlorine...	0·40	0·29	0·23	0·24	0·47	0·27	0·75	0·59	0·50	0·80	0·68	0·47	3·48
	Ammonia	0·12	0·15	0·12	0·14	0·15	0·12	0·19	0·15	0·14	0·14	0·15	0·13	1·58

Considering now the total of insoluble matter. This makes its highest in both groups in May and its lowest in both in either August or September, the second lowest in each case being in June. There is no relationship detectable here between the rainfall and the deposit of insoluble matter.

Soluble Loss on Ignition.—In London the highest deposit was in April, whereas in Glasgow the lowest deposit was in April.

Soluble Ash made its maximum deposit in London in December, its minimum in June, while in Glasgow the maximum was in October and the minimum in April. There was, however, a second minimum in June.

Total Soluble Matter.—Considering this together with the rainfall, we find the highest deposit in London in April, which does not correspond with the highest rainfall. The lowest deposit of soluble matter was in June, corresponding with the lowest rainfall. In Glasgow the highest deposit was in October and the lowest in April, corresponding fairly with the months of highest and lowest rainfall.

Sulphates, Chlorine, and Ammonia.—As these are included under total soluble, the distribution will naturally be somewhat similar. Sulphates show a maximum in the winter and a minimum in the summer months in both groups, corresponding with the periods of maximum and minimum use of domestic fires. Chlorine gave its maximum deposit in London in April, whereas the same month showed a minimum deposit in Glasgow. The same remark applies to ammonia.

RELATION OF DEPOSITS.

Curves have been plotted, as in previous Reports bringing out the relationship of the different deposits to each other; these are shown in Figs. 1 and 2. Referring first to the relationship between rainfall and the deposit of soluble atmospheric impurities, the curves in Fig. 2 have been plotted from the figures shown for the groups x, y, z of Table X., and a straight line, A B, on the curve has been drawn through the points, as in the last Report. In considering this curve it must be remembered that the group x includes y and z and cannot be regarded as showing independent observations. The line A B, however, is fairly correct for the groups x and z, while possibly group y would be better represented by a line of less slope.

On working out an equation to the line A B, as in last year's Report, and calling the rainfall "R," the deposit of soluble matter "S," we get the following result:—

$$S = 0{\cdot}069\ R + 2.$$

Referring to the last Report the equation of the line for 1917–18 was—

$$S = 0{\cdot}058\ R + 2{\cdot}5.$$

While not identical, these are sufficiently alike to indicate that the expression is fairly representative of the relationship between rainfall and soluble deposit. It will be remembered that in last year's Report the formulæ for 1915–16 and 1916–17 were also given and were of the same type. The logical inference to be drawn apparently is that while we may expect a small and fairly constant deposit of soluble matter during dry weather, this is rapidly increased by rainfall, the increase being roughly directly proportional to the amount of rain.

Referring now to Fig. 1, the curves there shown are intended to bring out the relationship of the different deposits to each other. The left hand lower set of curves for the soluble matter and rainfall shows very clearly the existence of a

1918–19.

FIG. 1.—CURVES OF AVERAGE DEPOSIT OF EACH ELEMENT OF POLLUTION FOR EACH MONTH FOR GROUP OF NINE STATIONS.

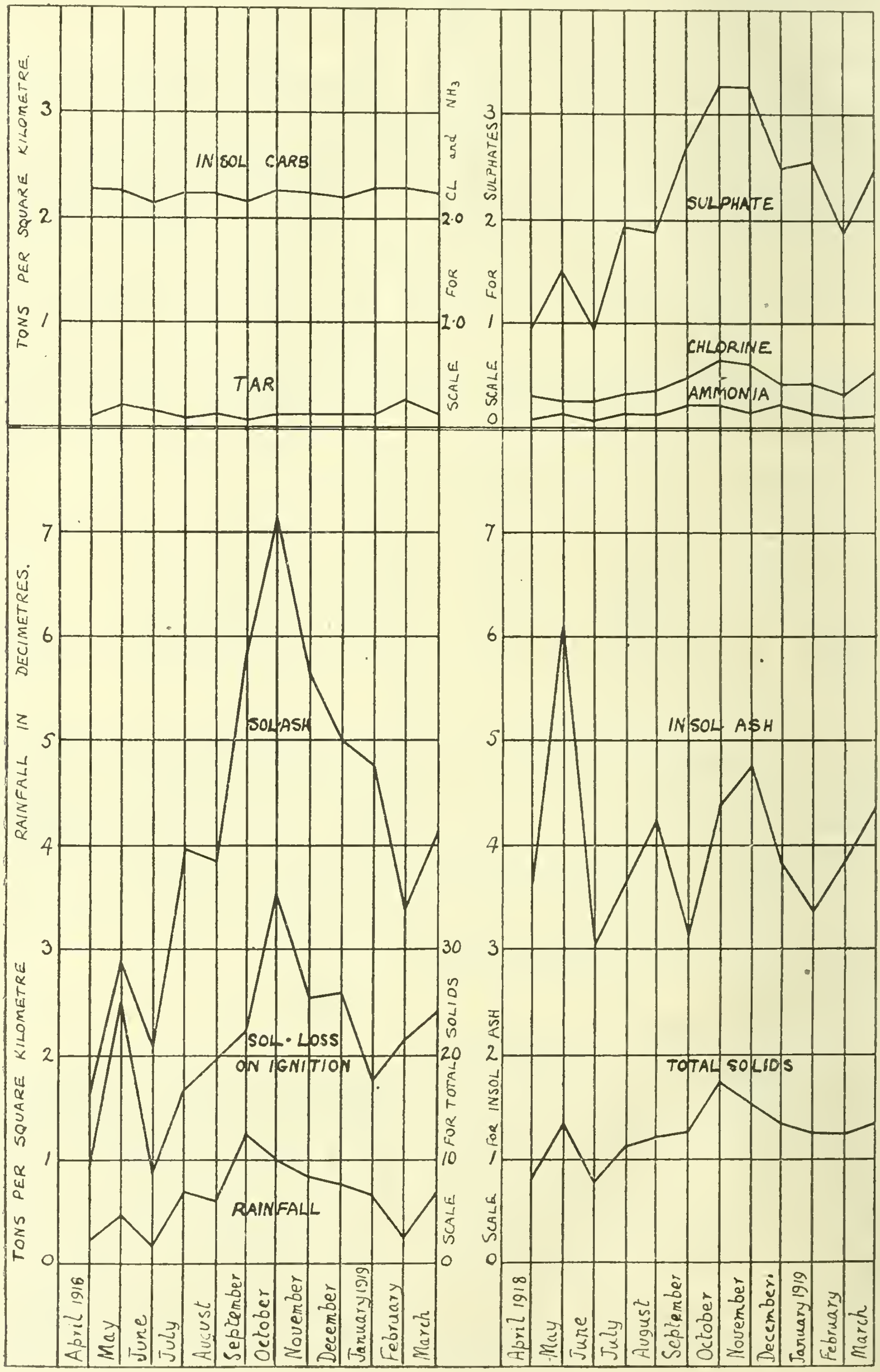
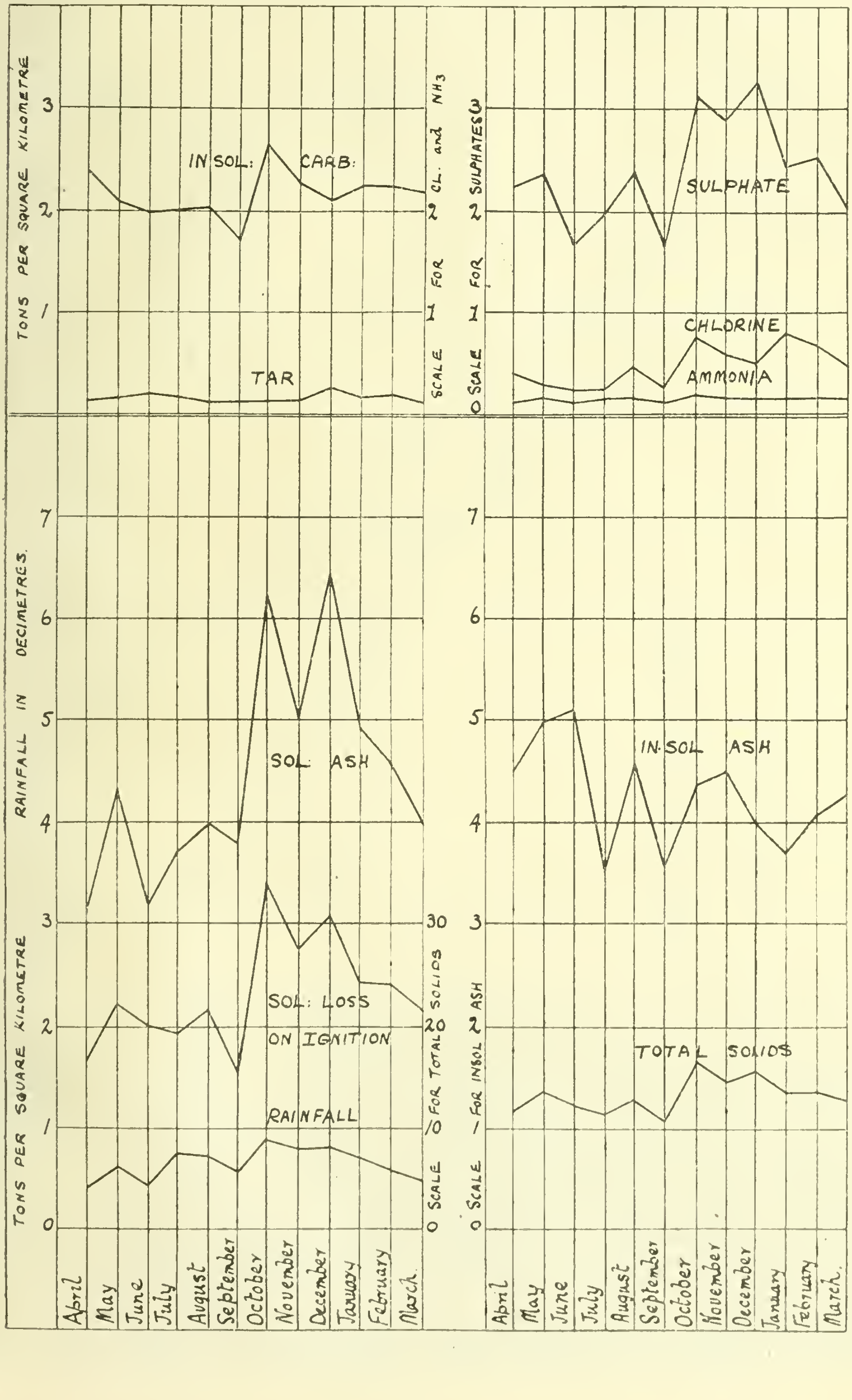


FIG. 1A.—CURVES OF AVERAGE DEPOSIT OF EACH ELEMENT OF POLLUTION FOR EACH MONTH FOR GROUP OF NINE STATIONS FOR FOUR YEARS, APRIL, 1915–MARCH, 1919.



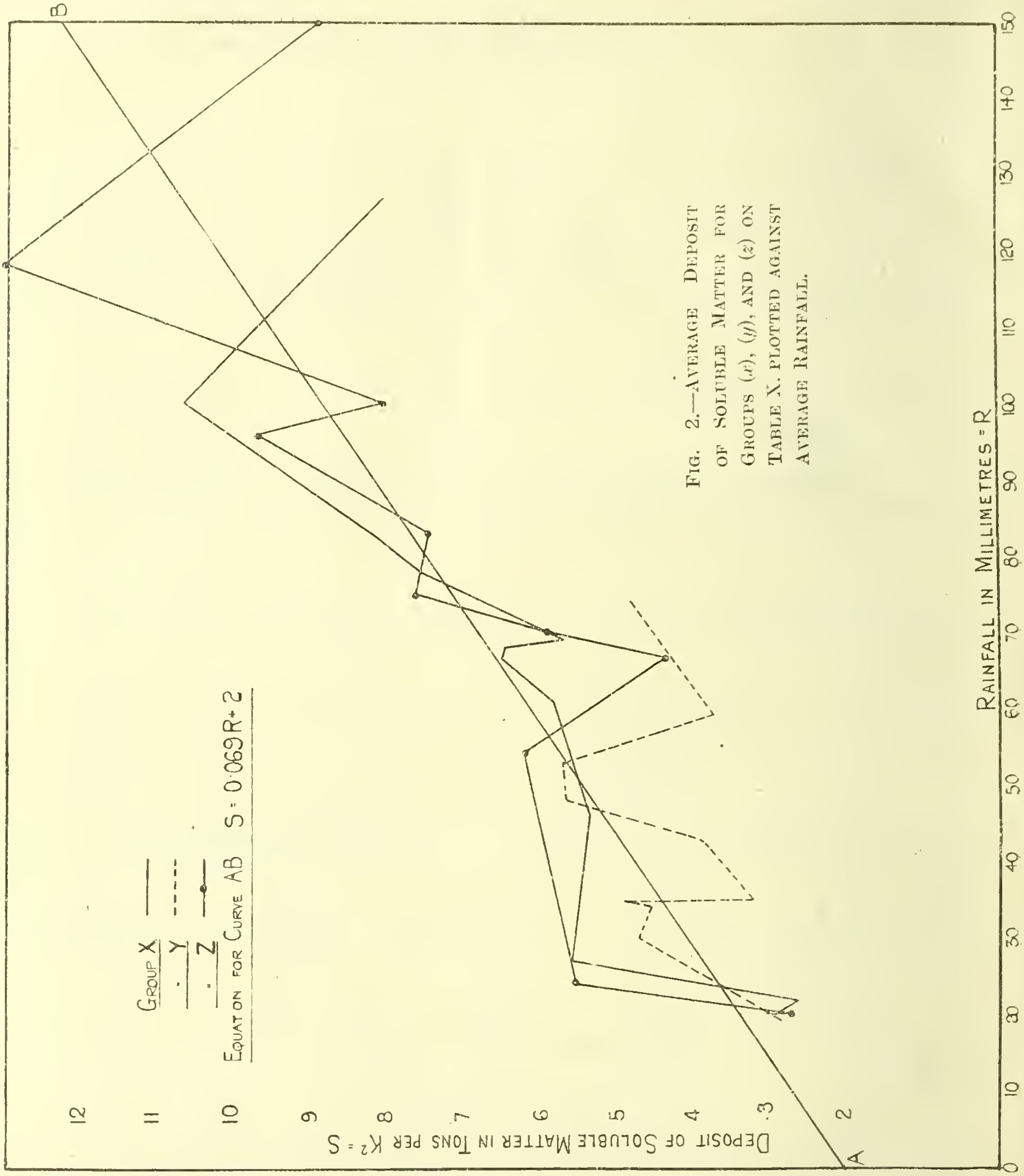


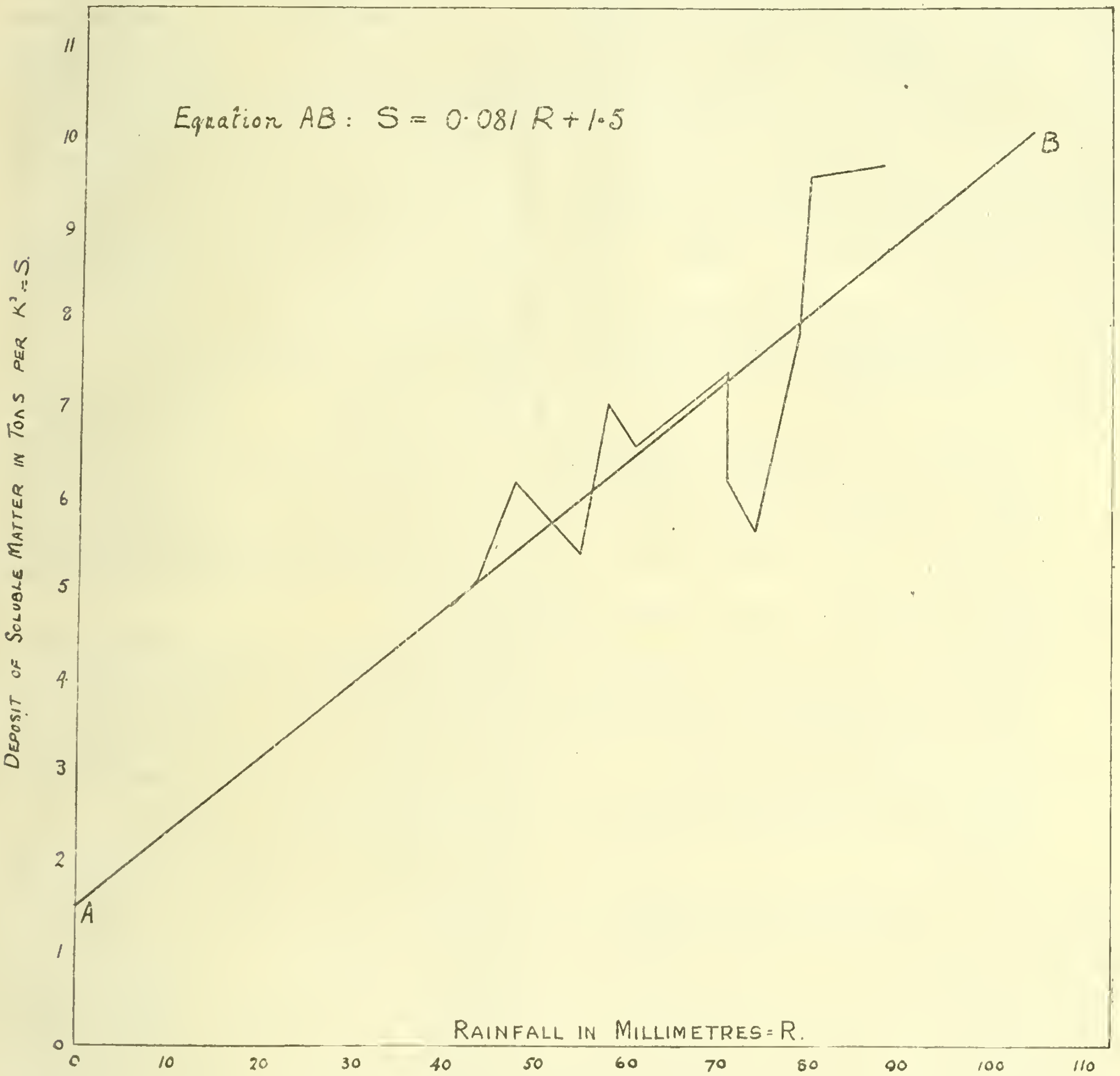
FIG. 2.—AVERAGE DEPOSIT OF SOLUBLE MATTER FOR GROUPS (x), (y), AND (z) ON TABLE X. PLOTTED AGAINST AVERAGE RAINFALL.

relationship between them. This relationship again appears in the top right hand set of curves for some of the constituents of the soluble deposit. On the other hand, total solids, which represents both soluble and insoluble matter, has its relationship to the rainfall influenced by its soluble contents, and, therefore, varies to some extent with the rainfall. Insoluble ash gives a curve which is indicative of an inverse relation to the rainfall, as is to be expected. The months of maximum and minimum deposit are also brought out clearly in this set of curves.

Tables and curves have been prepared for a group of four years. Table XI. and Figs. 1A and 2A show the results. It was not possible to get at present a complete quinquennial period owing to the necessity for using the same stations for the whole period. A group of nine stations was selected which gave continuous records over the whole period of four years. These are the same stations shown in group x, Table X. Referring now to the curves, Fig. 1A and Table XI., and observing the months of maximum and minimum deposit, we get the results shown below.

It is curious how many of the elements of deposit make their maximum in October and minimum in September. Insoluble ash is the only one with a summer maximum, while in all cases the minimum occurs between April and September.

FIG. 2A.—AVERAGE DEPOSIT OF SOLUBLE MATTER FOR GROUP X. ON TABLE XI. PLOTTED AGAINST AVERAGE RAINFALL FOR FOUR YEARS, APRIL, 1915–MARCH, 1919.



	Maximum deposit.		*Minimum deposit.*
Rainfall	October	....	April.
Total solids	,,	....	September.
Tar	December	....	Aug., Sept., March.
Carbonaceous insoluble ...	October	....	September.
Insoluble ash	June	....	July.
Total insoluble	,,	....	September.
Soluble loss on ignition ..	October	....	,,
Soluble ash	December	....	April.
Total soluble	October	....	,,
Sulphates	December	....	Sept., June.
Chlorine	January	....	June.
Ammonia	October	....	April, June, Sept.

Fig. 2A is of a special interest, as it shows the relation between soluble deposit and rainfall. In the four years' result, using the same notation as before, the relationship is expressed by the equation:—

$$S = 0{\cdot}081\ R + 1{\cdot}5.$$

The curve is very irregular and does not seem to approach the straight line any nearer than that shown in Fig. 2. The relationship indicated by both Figs. 2 and 2A—i.e., that the soluble deposit is equal to some function of the rainfall plus a constant—would naturally be obscured by variations in the amount of soluble matter contained by the air; it could only be under special circumstances, such as when the production of soluble impurity was constant throughout the whole period considered, that we could expect to find an exact relation between the soluble matter and the rainfall. It is obvious that, however effective the rain may be in bringing down soluble matter, the amount brought down must also be some function of the amount present in the air, and so the curves shown in Figs. 2 and 2A could never be expected to show anything more than approximation to a definite relationship. Strictly speaking, the line A B must be some form of curve which approaches a limiting value, as the supply of soluble impurity in the air becomes reduced by its removal; its length is, however, too short to give any indication of this.

EXPERIMENTAL WORK.

There are several problems in connexion with the pollution of the air which the Committee felt could only be adequately dealt with by the careful and undivided attention of a skilled physical chemist. Much research was needed in dealing with these problems, and the Committee, therefore, secured the services of Mr. G. M. Watson, B.Sc., A.R.C.S., who has carried out the work described below, under the general direction of the Chemical Subcommittee, which consisted of the following members: J. G. Clark, Esq., F.I.C., Dr. E. J. Russell, S. A. Vasey, Esq., F.C.S., F. J. W. Whipple, Esq., W. S. Curphey, Esq., Professor H. B. Baker, F.R.S., Professor W. H. Gee.

The more important questions requiring investigation were considered, and a scheme of research drawn up indicating the lines which might be followed. The chief aspects which it was decided to investigate were as follows:—

(1) The acidity of the air, making the attempt to separate the acidity which existed in the form of free gas and that which was held by the suspended matter of the air.
(2) Vertical distribution of suspended impurities.
(3) The relation between bacterial and smoke contents of the air.
(4) Pollution by motor as compared with horse traffic.
(5) Microscopic examination of the impurities suspended in the air, particularly with a view to measurement of size of particles and the distance from their source to which different sized particles are carried.
(6) The selective action of rain or snow in bringing down certain constituents of suspended impurity in preference to others.
(7) The effect of suspended impurity in obstructing light.

It was decided to commence work on the measurement of acidity, as being one of the most important points, and, if possible, to run concurrently with this an examination into the vertical distribution of suspended matter.

The automatic filter which was described at the end of the last Report has been in the hands of the instrument makers for several months, but owing to the difficulty in procuring a suitable clock it has not been possible to complete the apparatus, hence there is still only the single experimental instrument in use.

Vertical Distribution.

A great deal of time has been spent on the subject of vertical distribution of suspended impurities in the atmosphere, but no conclusive results have been obtained, mainly on account of the smallness of the amount of dirt at any altitude tested. The whole question has been treated in a very simple manner.

The automatic air filter was set up at the back of the Royal College of Science on the ground level. Simple spot records were taken with the two-bottle single record apparatus at different altitudes almost vertically above this, and these were compared with the shade obtained at the same time by means of the automatic filter.

Several observations were made at the top of the tower of the Imperial Institute, which stands very close to where the automatic filter was placed. Others were taken on the roof of the Royal College of Science, at an altitude of 80 feet. The height of the Imperial Institute Tower is 200 feet. These observations were made in May, 1919.

In no case was there any marked difference between the corresponding records. On only one occasion was there any fog, and, in this case, the shade was slightly darker at 80 feet than on ground level. The shade at 200 feet was the same as on the ground level, but it must be noted that whereas this was taken when the fog was constant, the one at 80 feet was taken later in the day, when the fog was rapidly clearing away. Several results, which should be much more reliable, were obtained in a similar way, but using two 15 litre aspirators, which produced records much easier to compare than the smaller scale apparatus. One of these sets of two large bottles was placed outside the R.C.S., and the other set was arranged on the roof of the New Science Building, almost vertically above it. Each apparatus took a spot record on paper, one-eighth of an inch in diameter. In every case the shade reached was three on the standard scale, both on the roof which was at an altitude of about 120 feet, and on ground level, but the lower one seemed very slightly the darker of the two. Weather conditions during the four days in which these observations were made, remained very constant, an anti-cyclone prevailing, and the wind being steady in the East. The amount of suspended matter was very small at either altitude.

The question of suspended impurity is closely connected with weather conditions, especially fog, which is known to show a maximum density, sometimes low and sometimes at high altitudes, and consequently no conclusions can be drawn from a few isolated experiments such as have been carried out to date. The investigation of the problem of vertical distribution will be continued in the future under as varied conditions as possible.

On the question of acidity, some experimental work had already been carried out by Professor Gee, of the Advisory Committee, at Manchester. The method which he employed was to draw, at the rate of 4 cubic feet per hour, a volume of air measured by means of an ordinary gas meter through a series of absorption tubes containing distilled water, and to estimate the acidity developed in the water. The absorption apparatus consisted of three Strohmeyer tubes, a sketch of one of which is appended (Fig. 3), and it was found that whereas the water in the first tube became distinctly acid, and that in the second slightly so, the third remained quite neutral, showing that, even at this rapid rate of passing the air, distilled water was a quite effective agent in washing out the acid.

Alkalinity of Glass.

Professor Gee recommends the use of silica apparatus to overcome the difficulty of alkalinity of ordinary glass, which, when one is dealing with the excessively small quantities of acid such as are found in volumes of air capable of easy manipulation, would possibly lead to considerable experimental errors. This, however, may not be necessary, for in all the experiments referred to here glass apparatus was used, and in no case was the indicator, which had been just made to change, brought back to its original colour by the glass, even after standing for two or three days. Moreover, there are means of reducing the alkalinity of glass to an inappreciable amount, such as washing with 1 per cent. hydrofluoric acid, steaming, &c.

The problem of the acidity of the atmosphere divides itself naturally into two main headings, viz.:—

(*a*) Acidity due to suspended matter;
(*b*) That due to gaseous impurities;

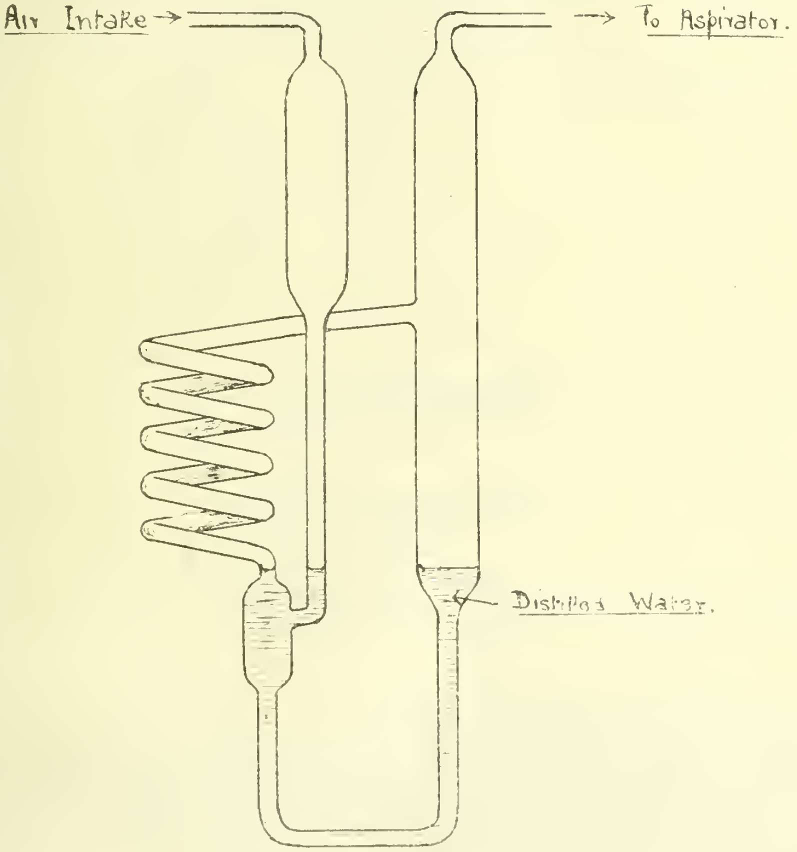
and it was decided to treat these two groups separately if possible.

The case of carbon dioxide is rather exceptional, and it was decided that it should not be estimated with the rest of the acids, since its effects upon buildings, &c., are negligible.

Combined Acids.

Acids in the form of salts would probably be encountered in the atmosphere, and as in this form they would be largely detrimental to buildings combined acids should be estimated as well as the free.

FIG. 3.—STROHMEYER TUBE.



The kinds of acids likely to be found may be predicted. The chief suspended ones would presumably be sulphuric and nitric acids, and the gaseous would be mainly sulphur dioxide. Chlorides would also be likely impurities.

The chief experimental difficulty which presented itself was due to the minuteness of the quantities of acid present in any reasonably small volume of air, and the volume was necessarily limited by considerations of time. It was not sufficient to obtain an average result over a large interval of time, because atmospheric conditions vary considerably and with great rapidity, and much of the value of the present research would lie in determining the relationship between these conditions and the amount of acid present in the air, hence the experiments must be carried out quickly and the sensitiveness of the method employed should be such that an observation may be made upon a volume of air which is capable of being passed through the apparatus in a few minutes.

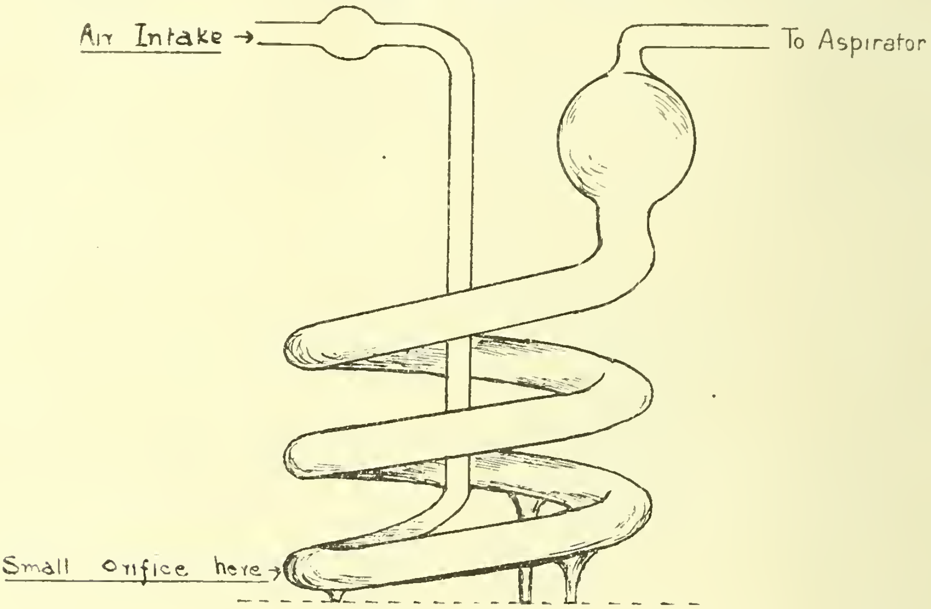
With these objects in view, the research work was commenced, and the following is a brief report of what has been done to the present date.

Preliminary Work.

It was known as a result of Professor Gee's work that under certain conditions water would absorb the acid from the air, and it was thought possible that a solution of an indicator might be made slightly alkaline and used in place of pure water, so that it would only be necessary to determine what volume of air was required to bring about a colour change in such a solution to obtain a direct and quantitative result as to the free acid in the air, which was absorbed by the water. It does not necessarily follow because two Strohmeyer tubes will apparently take the whole of the acid from the air, that the water collects all the impurities, or even all the free acid present. This subject is referred to later.

If this method could be employed it would obviously be advantageous to reduce the quantity of indicator solution to an absolute minimum, and this led to the first experiment which was to determine how such a solution might be employed. The indicator should preferably be insensitive to carbon dioxide, and for this reason methyl-orange was selected. Methyl-orange is an indicator which in the presence of an alkali gives a yellow solution, which changes to red on the addition of free acid in sufficient quantity. It is unaffected by the presence of carbonic acid. A solution of the dye was made up in distilled water, rather more concentrated than is generally used as indicator. Strohmeyer tubes were found to be unobtainable, and since the actual absorbing portion consists of a spiral glass tube the nearest approach to this was sought, and some Winkler absorption tubes, as shown on sketch appended, were procured (Fig. 4). Air was aspirated through these tubes by means of two Winchester quart bottles, and later by means of a large eight-litre aspirator. Three tubes were connected in series and through these the air was passed. It was found that air could be drawn at the rate of eight litres in five minutes, when if 1·5 c.cm. of liquid were present in each tube, the sides were kept moistened throughout the whole length of the spiral. The methyl-orange sold as indicator is the sodium salt of the dye, and this is what was present in the solution made up. Consequently the addition of alkali was superfluous, as the addition of an infinitely small amount of acid to the solution should begin to produce a change of colour. The sensitiveness of the indicator was tested by adding a very minute quantity of dilute sulphuric acid, which produced a perfectly definite colour change. It was found that under the conditions named above, a change of colour was soon produced in the first tube, but apparently no trace escaped through to the second. An attempt to diminish the quantity of indicator was made as follows :—

FIG. 4.—WINKLER TUBE.



A piece of paper as used in the Owens filter was soaked in methyl-orange solution, and when nearly dry, a filter record was made in the usual way. No colour change was detectible. The same was repeated with damp litmus paper, when a red patch was obtained, no doubt due to carbon dioxide. The paper became coated with a deposit of soot, and this method was abandoned as the the deposit obscured the colour change.

Indicators.

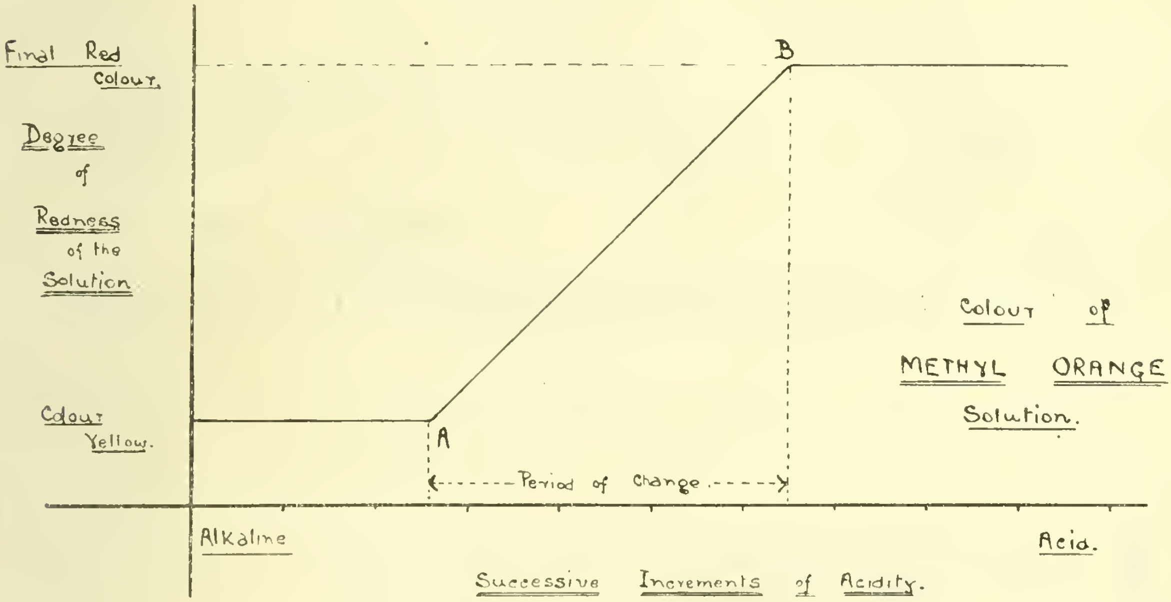
Other indicators tried were erythrosin (iod-eosin), and methyl-red, both used in a similar manner to that described above. Of these, the former was abandoned because a definite end-point can only be obtained when ether or chloroform is present, and methyl-red was found to be useless because it was sensitive to carbon dioxide, a property which is not shared by methyl-orange. It was concluded that methyl-orange was the most suitable indicator for the present purpose. Experiments with solutions of different concentrations were made, with a view to finding the best strength. When the solution was very dilute it was difficult to judge the colour in the narrow diameter of the Winkler tube, and so it was preferable to make use of a fairly strong solution.

EXPERIMENTAL MEASURES.

An attempt was next made to determine the relative importance of the suspended and gaseous acids in the air by measuring the volume required to produce a change of colour in the 1·5 c.cm. of solution in a Winkler tube, and then repeating with air which had been passed through a fairly large disc of the paper such as is used in the Owens filter. Later, the two determinations were run simultaneously. It was found in all cases that a greater volume of filtered air was required than unfiltered to produce a similar change in the tubes, and the ratio of gaseous to suspended acid calculated from these data was found to vary from 2 : 1 to 16 : 3. The phenomenon may be genuine, but it is most probably due to absorption of gaseous acid by the filter-paper. which was not perfectly dry and was distinctly alkaline to methyl-orange solution. The particles of carbon collected on the paper may also contribute to the difference by effects of adsorption. The fact that air which had passed through an absorption-tube still gave a discolouration to a filter-paper, about as marked as air which had not undergone the same treatment, showed that the suspended matter could be producing little or no effect in the absorption-tube even when not filtered out. This points to the above ratio being fictitious. Before any conclusion could be drawn from the experiments a means of detecting when the methyl-orange solution began to change in colour had to be found. Moreover, when the change had begun considerable time elapsed before it was completed, when a series of shades from yellow to rose-pink were passed through. If some means of expressing the degree of redness of the solution could be developed the results would be far more comparable, and there seemed a possibility of its leading to a method of obtaining quantitative results for the following reason:—

The solution begins yellow and becomes red. If this is expressed in a graph, as Fig. 5 appended, the degree of redness being plotted vertically, and small successive increments of acidity on the horizontal axis, the graph obtained would presumably be of the type drawn, when, if a standard solution of methyl-orange were made up, and the degree of redness could be expressed in figures, the increment of acidity producing a definite colour change could be estimated, provided that the range of the whole experiment lay on the sloping part of the line.

Fig. 5.



Commencement of Colour Change.

Various methods of determining the point when the colour change began were tested.

(*a*) The method employed in all the experiments referred to above was inspection in ordinary light. A check tube was filled with the same solution as the one used for absorption, and it was retained as a standard of comparison.

From this point, by kind permission of Professor H. B. Baker, the work which had previously been carried out at the Committee's office was transferred to the Royal College of Science, South Kensington, where various appliances, such as filter pump, gas meter, and spectroscope, were available for use.

(*b*) Inspection in monochromatic light was also tried under the same conditions. Sodium yellow light and various coloured screens, made in some cases by taking a solution of a dye in a parallel-sided glass vessel, were used, but no improvement could be detected.

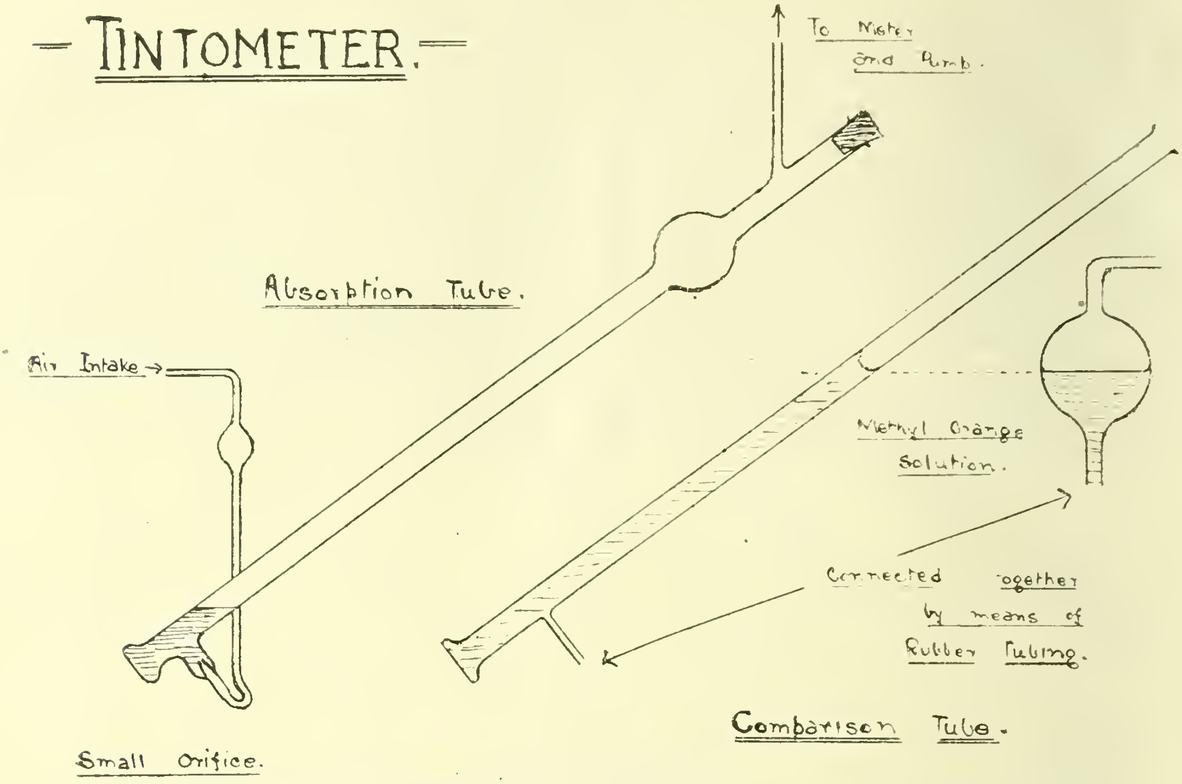
(*c*) Spectroscopic means were also tried. Solutions which were yellow, red, and intermediate colours were placed in parallel-sided glass vessels, and observations of the absorption band in the blue end of the spectrum were made. As the degree of redness increased, the end of the band certainly showed a measurable shift, but the results were rendered unreliable by the ill-defined nature of the end of the band.

(*d*) A photographic method was tried. Exposures were made on pieces of gas-light printing paper through yellow and red solutions respectively. A standard development was given, when the paper which had received the exposure through the red solution was appreciably darker than that through the yellow, but the difference was not considered to be great enough to justify further experiment along this line.

(*e*) A new method which appeared to promise better results was then tried. It was noticed that when a tube containing yellow methyl-orange solution was looked at end on, so as to see a thick layer of solution, the colour was apparently identical with that of a thin layer of red solution. A tintometer was therefore constructed on the following lines:—

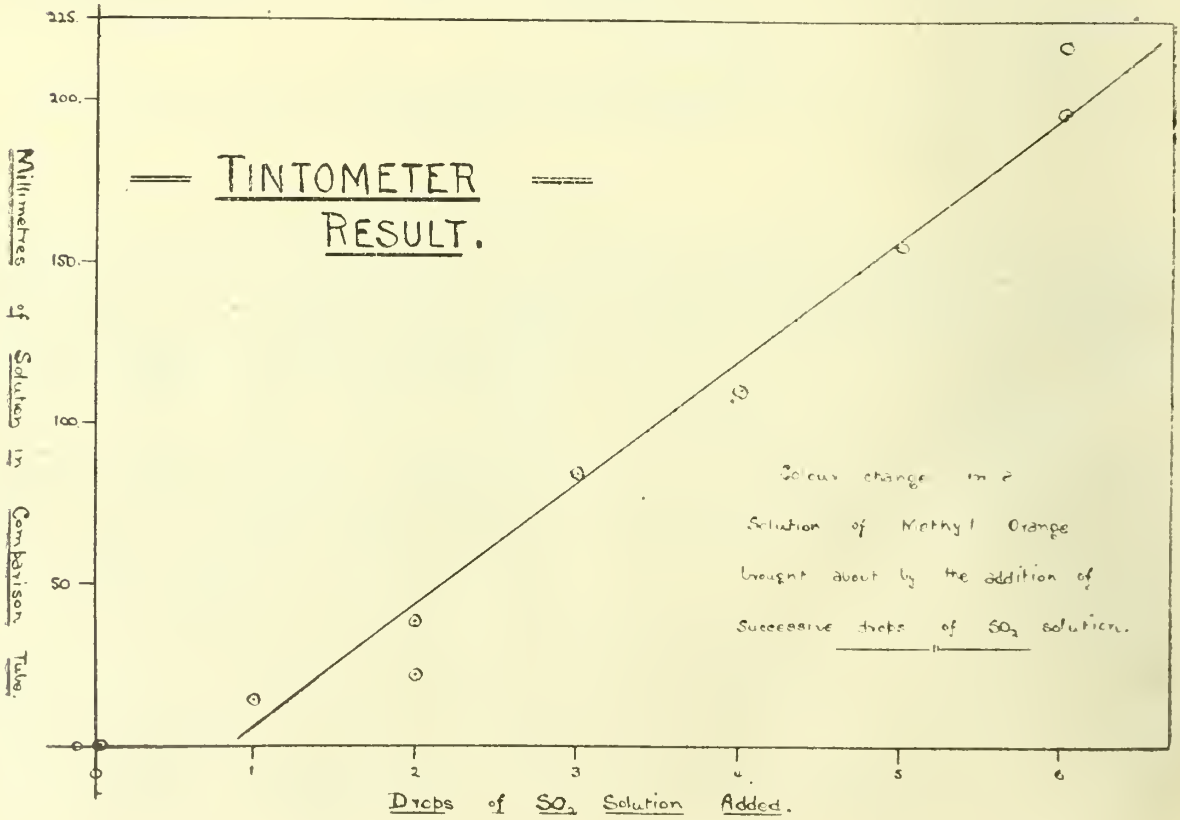
An absorption tube, very similar to a Winkler tube, was made, but the whole length was straight. The lower end terminated in a flattened bulb, and the upper was closed by means of a cork. (Fig. 6.) When the cork was in position air could be drawn through a small quantity of methyl-orange solution contained in the tube, and absorption carried on as usual. When the cork was withdrawn the solution could be seen down the length of the tube. A comparison tube was made on a similar principle, and a side bulb containing yellow methyl-orange solution was fitted, so that the level of solution inside the tube could be raised or lowered at will. This was clamped at the side of the absorption tube, and it was found that as the colour of the solution in this changed, due to the acid derived from the air, the colour in the comparison tube

FIG. 6.



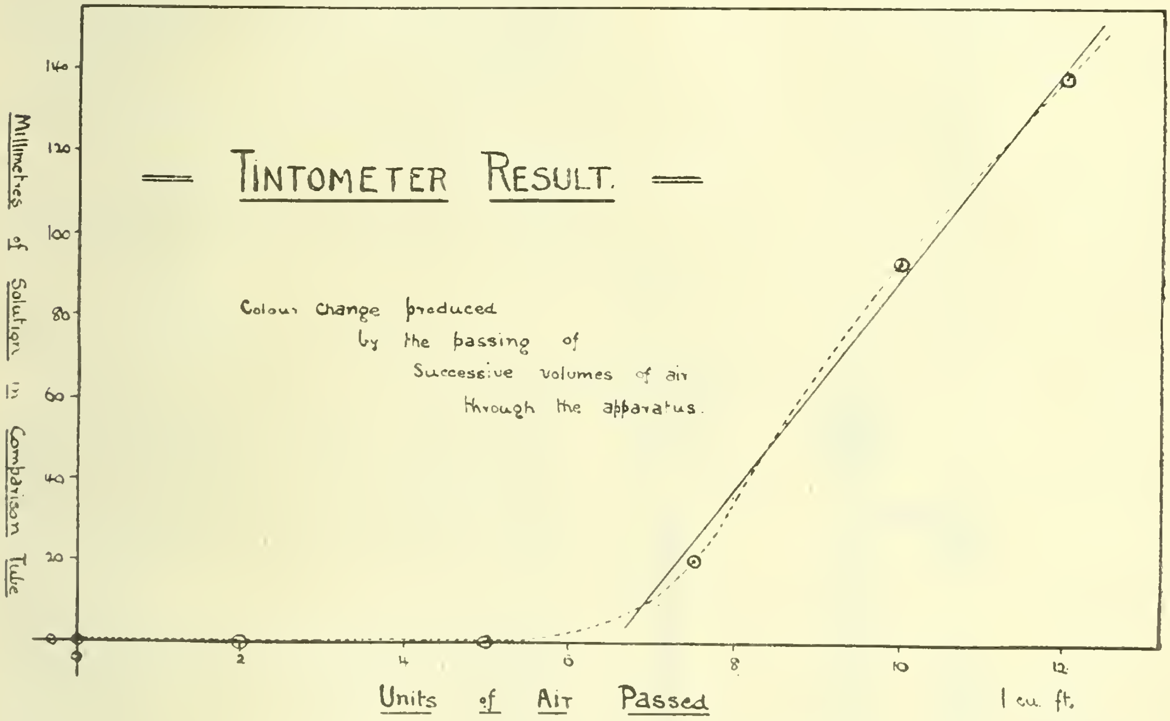
When in use the two tubes are placed side by side, and are made to point towards the same illuminant.

FIG. 7.



could be made the same by raising the level of the solution in it. Successive small quantities of air were passed through the absorption tube, and after each the colours were matched and the heights of solution in the standard tube above what it was originally were measured. These were plotted on the ordinates of a graph, and the volumes as abscissæ. (Fig. 8.) The curves gave distinct indications that there was a little alkalinity in the methyl-orange solution, presumably dissolved from the glass vessels in which the solution had been kept for weeks, or from the bottles in which the distilled water was kept, and when this was overcome the change in height of liquid in the comparison tube was directly proportional to the amount of acid added. This was borne out also by the results of an experiment in which drops of very dilute sulphurous acid were added to the indicator instead of passing air through it. (See Fig. 7.)

FIG. 8.



FINAL METHOD EVOLVED.

Several defects of the first apparatus were discovered, and so another was constructed to remedy them. In the second apparatus, which represented at that stage the final method evolved, the air inlet in the absorption tube was at the side of the flattened bulb, so that no part of the solution was allowed to remain stagnant, as possibly may have happened in the first one.

An eye-piece consisting of an arrangement of four mirrors was constructed, so that the field, in the form of a disc, was divided into two equal parts, illuminated respectively by light which had passed through the two tubes. It was hoped that by this means it would be easier to obtain a comparison than when the tubes were placed side by side. A point which introduced a good deal of difficulty in the matching of the colours was the alteration in intensity of the light transmitted, accompanying an increasing thickness in the layer of solution contained in the comparison tube and probably due to effects of reflection and refraction. An arrangement for varying the intensity of illumination without introducing any colour effects was devised and made, in which the two tubes were arranged to point towards similar sheets of white paper illuminated indirectly by the same electric light through the medium of two mirrors arranged in such a manner that the path of the rays could be lengthened or shortened at will. Both mirrors were mounted on the same sliding-piece, so that as the intensity of illumination on one sheet of paper was increased, that on the other was automatically decreased. Later, a larger tintometer, sketched in Fig. 9, was constructed, the object of increasing the size being two-fold. It was possible to pass the air through the absorption tube at a much greater rate than before, and yet have it broken up into small bubbles and thoroughly agitated with the solution, of which there was a much greater volume than in the former apparatus. With the increased diameter of the tubes the colour could be judged more easily, and the eye-piece and arrangement for varying the intensity of the light were dispensed with. The method of using this apparatus is given below, reference being made to Fig. 9.

The complete apparatus consists of two main portions, viz.:—

(*a*) The absorption tube.

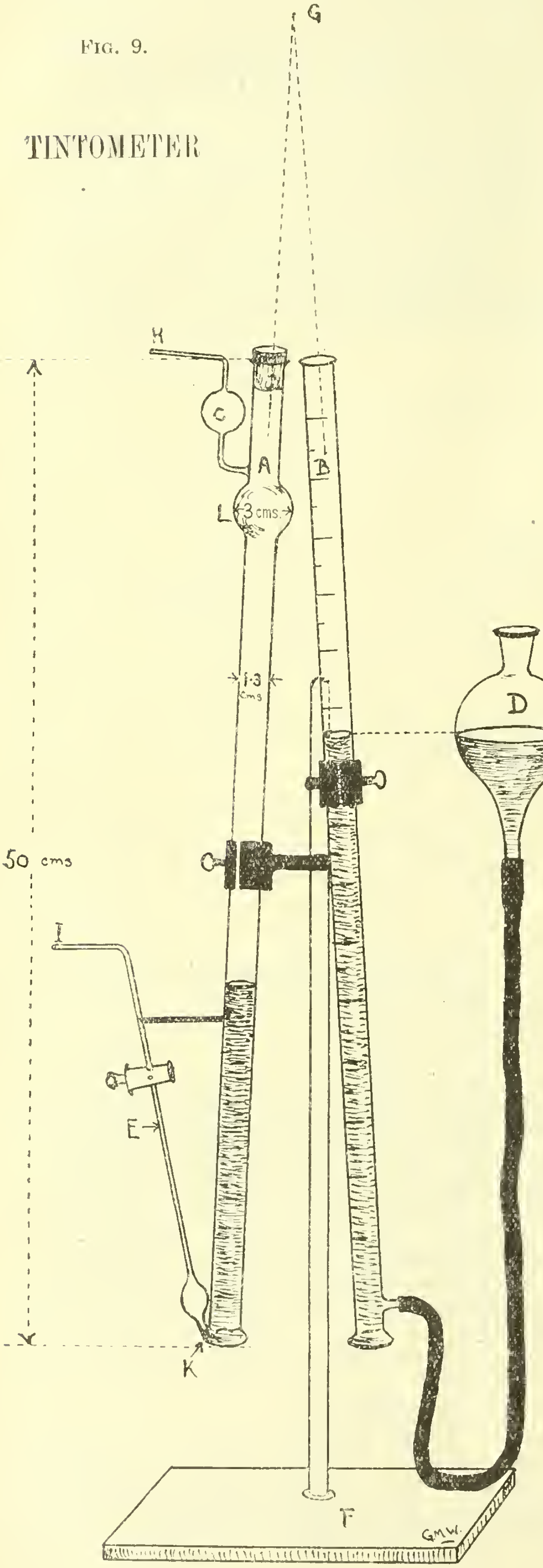
(*b*) The comparison tube.

These are held in position by means of clamps on an iron stand. Both terminate in flattened bulbs, and are made to point towards a sheet of white paper placed on the base of the stand F.

The method of using the instrument is as follows.

Fig. 9.

TINTOMETER



The top of A is closed by means of a cork. The tap on the inlet tube E is opened, and a current of air is made to pass into the apparatus at I. The bottom of the tube E is constricted at K, and this causes the air to be broken into small bubbles as it passes into a neutral solution of methyl-orange contained in A, and the rate of passing is great enough thoroughly to agitate the bubbles with the liquid. Higher up in the tube the liquid forms a series of pistons which are pushed upwards, and keep the sides of the tube wetted as far as the bulb L, where the pistons are broken.

The washed air then leaves the apparatus at H, the object of the side tube and bulb C being to eliminate any tendency for the solution to be carried from the tube by the current of air.

When sufficient volume of air has been passed the cock on E is closed, and the solution does not run back past the constriction K, but remains in the larger tube, when, after removing the cork at the top, the whole of the solution can be seen by looking down the tube.

By raising or lowering the bulb D, full of a slightly alkaline solution of methyl-orange, the level of liquid in the comparison tube B is altered until the colours seen by looking down the two tubes simultaneously, by placing the eye at the point G, appear the same.

Before passing the air the colours are matched in this way, and the level of the solution in B is read by means of the scale on the glass.

The amount by which the level of the liquid must be raised in B above its initial position is a measure of the amount of acidity introduced into the tube A. The value of the division of the scale on B are being ascertained by direct calibration with known mixtures of air and sulphur dioxide.

Scope of the Method.

It is realised that there are very definite limitations to the present method, however successfully it may work.

Assuming, as is highly probable, that the only acidity indicated in the tintometer apparatus is due to gaseous impurity in the atmosphere, this method does not give any indications, qualitative or quantitative, as to the acidity of suspended matter. Again, it is not at all certain that different acids, in equivalent amounts would produce the same effect on the indicator, and this opens up a new field for future investigation. Under the most favourable conditions this method will not give any indications as to the nature of the acid measured. Only the free acid will have any effect, and the combined will be neglected entirely. Other shortcomings, which should not be difficult to surmount, are as follows:—

Fatigue of the eye becomes very noticeable, and differences of colour readily seen at the first glance rapidly become inappreciable. This, however, is easily overcome by the intermittent interposing and withdrawing of a piece of blue glass between the eye and the instrument. After the passing of a volume of air, sufficient to produce a change in the indicator, the final colour is not attained at first, but gradually develops, as if the reaction between the indicator and the acid were so nearly balanced as to take an appreciable time to complete. The change, however, appears to end after about 10 minutes or even less, so that all that is necessary is to allow the solution to stand for a short time between the passing of the air, and the matching of the colours, to overcome the difficulty.

But, on the other hand, the method offers distinct possibilities in the estimation of gaseous acid from a quantitative standpoint, because if, as has been indicated above, the height of solution in the comparison tube varies directly as the amount of acid introduced into the absorption part of the apparatus all that remains is that the apparatus shall be calibrated, and it will furnish a quick and easy method of determining the acidity of the air.

Experiments made by drawing air which had already passed through the absorption tube of the apparatus through an air filter, and comparing the shade of the paper with that obtained in a similar experiment without interposing the tube of liquid, gave distinct indications that the amount of solid matter trapped in the solution was extremely small.

It was proposed to draw, by means of a filter pump, a measured volume of air through a paper filter, then to repeat quickly, having connected in series with the filter, the absorption tube the efficiency of which was to be tested, so that the air was passed first through the tube, then through the paper filter. The shades of the filter records could then be compared. In practice the use of a filter pump was found to be unsuitable, since the reduced pressure in the meter due to the resistance of the filter-paper to the entering air caused the circular front of the meter to bulge inwards as soon as the pump was started working.

Instead of the filter pump a 15-litre bottle was fitted up as an aspirator by means of glass tubes and a rubber stopper. In this way about 15 litres of air could be drawn through the filter at one filling. The filter first used was 12 mm. in diameter, but since 15 litres of air on a fine day only produced the smallest possible discolouration on a disc of paper this size, the aperture was reduced to one-eighth of an inch. When this was done a satisfactory spot record was produced.

The method first adopted was to aspirate the air through a disc of paper, and then repeat as quickly as possible, with the absorption tube interposed. The automatic filter was set working so that any variations during the time of the experiment could be detected. Later this was abandoned, and two large 15-litre bottles were converted into aspirators. The two determinations, with and without the absorption tube, could then be made simultaneously.

After many experiments it was found that a Winkler tube full of water removed only a small fraction of the suspended matter, and a very effective absorption apparatus of another pattern was no better. It was thought that the inability of water to stop the particles might be due to the fact that they were of a tarry nature, and incapable of being wetted by water. An absorption tube of paraffin oil, chosen on account of its comparative non-volatility, was therefore tested, but found to trap no more of the suspended matter than did the water. A solution of caustic soda was found to be no better.

It was therefore concluded that, as a means of absorbing solid matter from the air, any apparatus depending upon the bubbling of air through a liquid was unsuitable. This is not really surprising, because the suspended matter will be distributed throughout the whole of a bubble, and consequently only that which is in contact with the water at the surface will have any chance of being absorbed. Even this may not be capable of being wetted if water is used, and the time taken by a bubble to pass through the apparatus is too small to hope for any appreciable settling of the particles to take place.

A rough calibration of the first tintometer has been effected by adding to the absorption tube successive drops of sulphur dioxide solution which had been standardised by titration with very dilute iodine solution. The volume of 100 such drops was measured, and it was calculated that the amount of sulphur dioxide represented by a height of 10 mm. of solution as then used in the tintometer comparison tube was of the order of $1{\cdot}9 \times 10^{-6}$ grammes.

The tintometer was compared in sensitiveness with a Winkler tube as used in the earliest experiments, when it was established that the height of liquid in the comparison tube corresponding to the amount of acid required to produce the least apparent change in colour of the solution in the Winkler tube was of the order of 65 mm., whereas in the tintometer (Fig. 6) an increment of 10 mm. is easily detected, thus proving the tintometer to be by far the more sensitive of the two pieces of apparatus.

Electrical Method of Precipitations.

An electrical means of precipitating the solid particles was tested with rather more success. The principle embodied was the same as in the Cottrell smoke-precipitating device.

A copper tube about ½ in. in diameter was fitted with a stopper at each end, through which glass tubes projected. Down the central line of the tube was stretched a piece of cotton-covered copper wire, chosen because the fine strands stood out from the electrified metal and acted as points, which probably facilitated the discharge. The tube and wire were maintained at a considerable difference of potential by means of a large induction coil. It was found that when the central wire was positively charged, and the outside tube negatively, a slow stream of smoke, blown in from a gasholder, was completely stopped, but the effect was not nearly so good when the electric current was reversed.

It was found that a glass tube about 1 in. in diameter, fitted inside from end to end with two parallel cotton-covered wires, as far apart as possible, would precipitate smoke very readily, and since the interior of such an apparatus could be seen this type was used in preference to the copper tube.

When the tube was filled as densely as possible with tobacco smoke—so that 1 mm. appeared quite opaque—and the current was switched on the whole of the smoke was removed in about three seconds.

Tested in the way already described, with the paper filter in series, this apparatus proved to be useless, the record obtained from air which had passed through it being actually much darker than that which had not undergone treatment. The effect was undoubtedly spurious, and was eventually traced to the cotton covering of the wire. The electrical potential was adjusted so that sparks only very occasionally jumped across the gap inside the tube. Presumably these sparks burnt the projecting cotton, thus giving rise to the soot which produced the black filter record. When bare copper wires were used every trace of suspended matter was removed from the air.

Complications arose from the fact that a great deal of ozone was produced. This could very readily be destroyed by gentle warming, but it remained to ascertain whether or not the sulphur dioxide would be oxidised by the ozone and precipitated, or whether this apparatus afforded a means of separating the solid and gaseous constituents of the impurities in the atmosphere.

The gaseous acids of the air can be absorbed in water, and if a means of measuring the total acidity or that due to suspended matter only could be evolved it would be possible to find the relative amounts of suspended and gaseous acid present.

The importance of this separation is great, since the solid particles will settle on buildings and plants when the gaseous impurities will remain in the air.

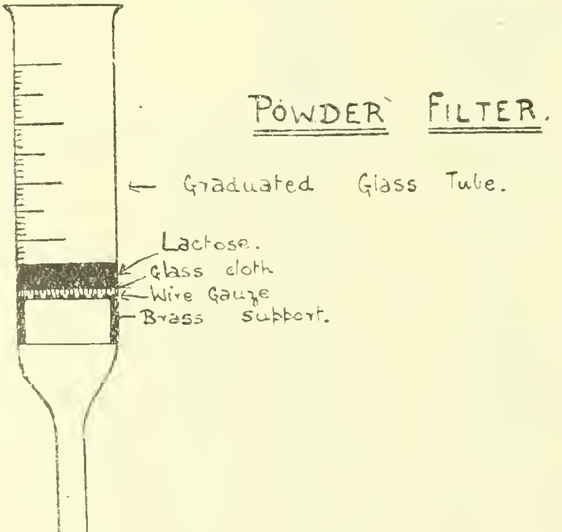
A modification of the electrical precipitation method, which has been considered but not yet put into practice, is precipitation of suspended matter in the absorption tube of a tintometer.

The tube could be fitted with two wires—say, of copper or silver, which should not be soluble in the liquid finally introduced, and instead of bubbling the air through the solution in the tube as before, pass it through the dry tube, and precipitate the suspended matter on the walls by means of a silent discharge. Then the methyl-orange solution could be added to a definite depth, which could be previously matched in the comparison tube, and any acidity due to the deposit on the walls could be measured.

Such an apparatus has been constructed, but has not yet been used.

Powder Filters.

Fig. 10.



A way of collecting the solid matter from the air and passing it into solution has been suggested by Dr. Owens. If it could be filtered, not on to a paper, but on to a neutral powder—preferably a soluble one—and the powder transferred to a tintometer of methyl-orange solution, the acidity, if any, could be measured in the way already described above. A filter was accordingly constructed out of a broken burette tube (Fig. 10), diameter 11 mm., graduated on the glass. The bottom was closed by a disc of fine wire gauze, on which rested a disc of glass-wool filter cloth, a kind of coarsely woven material made of very fine glass fibres. This was used in preference to paper because—

(*a*) It offers less resistance to air.

(*b*) It is neutral, whereas paper, as usually used, is slightly alkaline.

On this was placed the powder, and the thickness of the layer could be read by means of the scale on the glass. The powder actually used was lactose, because it apparently fulfilled the necessary conditions, and was available at the time. It was gently flattened down and made quite compact. As a filter this was satisfactory. Lactose was selected because, while soluble and neutral, it could be sterilised at 105° C. without melting, and it had no inhibitory action on bacterial growth. These points are important, since it was intended subsequently to extend the investigation to the relation between smoke pollution and bacteria in the air. As far as could be seen the whole of the dirt trapped remained on the surface of the powder, and there was no evidence whatever of the lactose being drawn through the disc of glass cloth. On inverting and gently tapping the filter the powder readily fell out on to a watch glass.

A filter was made with a very thin layer of powder, not over 0·05 inch thick, and this was placed in series with a paper filter. It was found that even then almost all of the soot was stopped by the powder; very little passed through to the paper. It is then reasonably certain than a quite thin layer of lactose will form an efficient filter.

Six cubic feet of air were drawn through the powder at the rate of 1·75 cubic feet per hour. A filter pump was used, and an apparatus was devised to measure the air by means of a gas-meter, after it had passed the pump, and thus eliminate errors of measurement due to alterations in pressure. This consisted of a bottle with arrangement at the bottom for keeping the water level constant, into which the filter pump discharged. The water ran away without altering the level inside the bottle, and the air was trapped in the upper portion and measured at atmospheric pressure by the meter. (Fig. 11.)

This volume of air brought the surface of the powder to about shade 6 or 8 as used for standard paper filter. The lactose was then transferred to a tintometer tube containing methyl-orange solution, and after warming to dissolve, it was compared with a similar comparison tube, to which had been added the same amount of pure lactose; for when in large quantity lactose alone was found to slightly deepen the colour of the solution.

The material trapped on the filter was found to deepen the shade very slightly, but just appreciably. The experiment was repeated, using just over 9 cubic feet of air, but this time the air was apparently purer, and the shade produced was almost the same as before. An identical result was obtained; the colours in the two tubes were just, but only just, appreciably different. The difference was not enough to be measured satisfactorily in the tintometer.

While, then, traces of acidity were apparently indicated in the powder, it is not known to what they are due. There are only two sources for such acidity—i.e.:

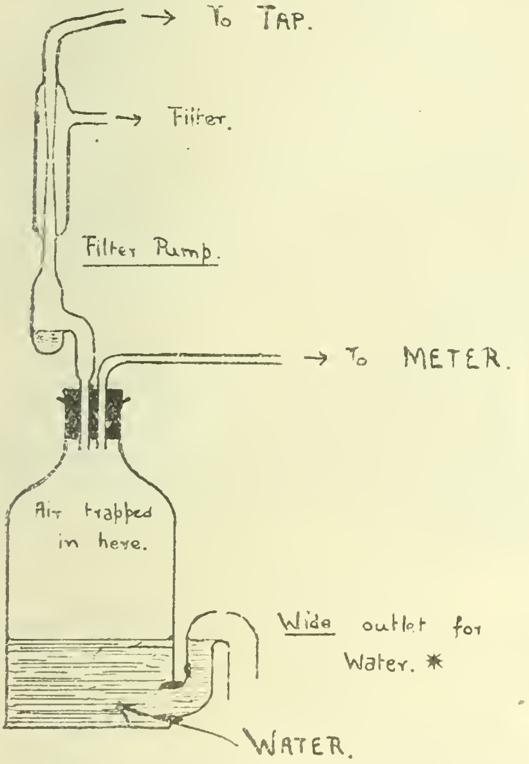
(*a*) That it is due to the suspended impurity, or

(*b*) That it is due to absorbed gaseous acid.

The lactose would certainly not be perfectly dry, and would probably tend to absorb sulphur dioxide if present. The proposed method of finding whether this was the case or not, is to use filters consisting of different thicknesses of powder, which could be measured by means of the scale on the glass, and estimate the acid absorbed. If the acid indicated in the powder were due to suspended matter only, it would be independent of the thickness of the filter layer, provided, of course, that the thickness was more than the minimum required to stop all the suspended matter. If due wholly or in part to absorbed gas, the acidity would presumably vary as the thickness of layer, in which case the acidity due to suspended matter only would be found by extrapolation.

Should it turn out that such a filter stops the whole of the solid, but none of the gaseous acid, the method of using it would be much simplified. The deepening of shade of the methyl-orange solution already referred to when the lactose, through which air had been drawn, was added, may have been due not to acidity, but to the presence of the dark-coloured impurity which certainly was present on the surface of the powder. It was therefore thought advisable, in the first instance, to test the lactose and ascertain whether or not it absorbed any of the gaseous acid, and the following sets of experiments were made.

Fig. 11.—Apparatus for Measuring Air.



* This outlet is so large that water level remains constant.

Arrangements were made to draw the air through a Winkler tube alone, then through a powder filter and Winkler tube together in series, using ordinary air. The filter pump and air-collecting device already described and sketched in Fig. 11 were used, in conjunction with the ordinary gas meter, as a means of drawing the air through the apparatus, and measuring the volume passed.

At first the method was not at all successful, for after passing more than 4 cubic feet of air through the apparatus the volume of solution was reduced by evaporation to about half of what it was originally, and when it was made up to the original volume with distilled water the colour was found to be identical with that of the solution in the similar check-tube kept for comparison. This was confirmed, and the amount of acid present, if any, seemed to be too small to be measured by this means. By burning a very small piece of sulphur near the apparatus the colour of the methyl-orange solution was just made red, and the experiment was repeated. It was found that there was a very definite indication of alkalinity in the air, for the red colour was fairly rapidly changed to yellow. This might have been due to evaporation of the sulphur dioxide from solution, and so the experiment was repeated, using indicator which had been rendered acid by the addition of the smallest possible drop of very dilute sulphuric acid.

Again, there were distinct indications of alkalinity in the air, for as small a volume as 1 cubic foot sufficed to bring back the colour of the solution to yellow. This effect, which was very unexpected, may have been spurious, and due to the liberation of alkaline matter, say ammonia, in close proximity, such as in another part of the Royal College of Science Building; or it may have been that the atmosphere at the time actually was alkaline. Whatever the cause, the phenomenon readily accounted for the failure to detect atmospheric acidity during the earlier experiments and opened up a new field for investigation. With the recurrence of the meteorological conditions which prevailed during that experiment, further examples of alkalinity will be looked for. Incidentally, it may be stated that all the experiments on this matter were carried out close by an open window and a current of fresh air from the outside was directed on to the apparatus by means of an electric fan.

In order to make possible the continuation of the investigation of the lactose filter another source of acid air was tried. A few cubic centimetres of sulphur dioxide were introduced into a steel cylinder from a syphon, and the cylinder was filled with compressed air to a pressure of 110 atmospheres. This was found to be too strongly acid for the purpose, and so the pressure was released to atmospheric and the cylinder was re-charged to the same extent as before without adding fresh SO_2. The air was then found to be quite free from smell of sulphur dioxide, but was slightly more acid than the average air in winter. A very slightly alkaline solution of methyl-orange was used in a Winkler tube in the usual manner, and the volume of air from the cylinder required to produce a change of colour was found to be about half a cubic foot. The end-point was extremely good.

The method adopted was to pass air from the cylinder through the Winkler tube of solution and then into the gas meter, using flexible metal tubing as connexion between the absorption tube and steel cylinder. The volume required to produce a change was noted and the whole was repeated, placing the filter with a layer of lactose, 8 mm. thick, between the cylinder and Winkler tube. It was necessary in this case to use a rubber stopper as connexion, and this was the only place where the air came into contact with anything but metal.

The results did not agree absolutely, but taking the mean of 20 experiments it was concluded that the lactose did absorb a little sulphur dioxide, but the quantity was negligible. Whereas 30·0 arbitrary units[*] of air were required to produce a change when the Winkler tube alone was used, the volume required to do the same with the lactose filter interposed was 31·6 units. The lactose was dissolved in a tintometer tube of neutral methyl-orange solution, but was found to produce no change of colour. The figures obtained in these experiments are given below:—

---

[*] 1 unit = 1/12 of a cubic foot.

Volumes Required to Change the Indicator.

A. Without the Powder Filter.	B. With the Powder Filter.
26·9 units.	28·5 units.
28·7 ,,	29·0 ,,
28·4 ,,	31·1 ,,
28·4 ,,	32·0 ,,
29·2 ,,	29·2 ,,
28·3 ,,	33·3 ,,
33·0 ,,	32·7 ,,
30·4 ,,	34·0 ,,
37·0 ,,	35·0 ,,
Average 30·0 ,,	Average 31·6 ,,

Experiments A. and B. run alternately.

These results are based on the assumption that the only acid in the cylinder was gaseous, which would probably be the case, for although a process of slow oxidation of the sulphur dioxide would almost certainly take place inside the cylinder, the sulphuric acid produced would be left on the walls of the vessel. The experiments took several days to complete, and so the oxidation would be so slow that the sulphuric acid would have time to settle as fast as it was formed. This explanation readily accounts for the steady increase in the figures cited above.

The lactose filter, therefore, appears to be a satisfactory means of separating the suspended and gaseous acid of the air, for if 8 mm. of powder only absorb so small a proportion of sulphur dioxide from the air, that retained by a thin layer of 1 mm., such as is necessary for the filtration of the suspended impurities, should be negligible.

The general conclusions drawn from the Acidity Research may then be summarised as follows:—

(*a*) The lactose filter has been found to provide a means of separating the suspended from the gaseous parts of the acid in the atmosphere. From this research, and the results of Professor Gee's experiments, it is known that water, in a suitable absorption apparatus, will take up a great part of the acid from the air; and, furthermore, that a limit is soon reached with such an apparatus beyond which no further acid is withdrawn from the air, so that all the acid which can be stopped is taken out practically completely by one absorption apparatus. Results have also shown that suspended matter is not trapped by such treatment, therefore the acid which is capable of being taken up by the water must be the gaseous part. It follows, therefore, since the whole of the gaseous acid can be absorbed in a tube containing an aqueous solution, that by using the tintometer in conjunction with a lactose filter we have a method by which both the acid in suspended impurities and the gaseous acid can be determined.

(*b*) It appears to be necessary to abandon the assumption that the air will be always acid, and to provide for the possibility of its being alkaline. Further investigation is required upon these lines, particularly to ascertain whether the results already obtained are due to artificial conditions, or are to be expected as an accompaniment of certain types of weather.

610.5
LA
v 2
1919
No 26

Nat. Hist.

UNIVERSITY OF ILLINOIS LIBRARY
6 1920

THE LANCET.

A Journal of British and Foreign Medicine, Surgery, Obstetrics, Physiology, Chemistry, Pharmacology, Public Health, and News.

TELEGRAPHIC ADDRESS—LANCET WESTRAND LONDON TELEPHONE NUMBER—GERRARD 5356

No. XXVI. of Vol. II., 1919.
No. 5026. Vol. CXCVII.
LONDON, SATURDAY, DECEMBER 27, 1919.
Pp. 96—Price **10d.**

J. & A. CHURCHILL'S NEW BOOKS.

NOW READY. 24s. net. postage 9d.
THE MEDICAL DIRECTORY, 1920.

"*It is almost superfluous to praise the Medical Directory, for it is well known and highly appreciated by the medical profession.*"
—BRIT. MED. JL., Dec. 6th, 1919.

BUY NOW AND SECURE A WHOLE YEAR'S USE.

VENEREAL DISEASE: ITS PREVENTION, SYMPTOMS, AND TREATMENT. By H. WANSEY BAYLY, M.C. 53 Illus. 10s. 6d. net; post. 6d.
AN ATLAS OF DENTAL EXTRACTIONS. By C. E. WALLIS, M.R.C.S., L.R.C.P., L.D.S. 2nd Edit. 11 Plates. 5s. net; post. 4d.
POST-MORTEM MANUAL. By C. R. BOX, M.D., F.R.C.P., F.R.C.S. 2nd Edit. 22 Illus. 8s. 6d. net; post. 6d.
TEXT-BOOK OF MEAT HYGIENE: With Special Consideration of Ante-mortem and Post-mortem Inspection of Food-producing Animals. By R. EDELMANN, Ph.D. 4th Edit. 5 Col. Plates. 164 Illus. 24s. net; post. 9d.
MINOR SURGERY AND BANDAGING. By GWYNNE WILLIAMS, M.S., F.R.C.S. 17th Edit. (Heath). 250 Illus. 10s. 6d. net; post. 6d.
"*A perfect mine of information.*"—THE LANCET, Dec. 20th, 1919.
London: J. & A. Churchill, 7, Great Marlborough-street, W. I.

Just Published. 3rd Ed. 79 Illustrations, 44 in Colour. With Photogravure of the late Author. 12s. 6d. net (postage 6d.).
(PORTER'S) DISEASES OF THE
THROAT, NOSE, AND EAR. For Practitioners and Students. Fully revised by A. LOGAN TURNER, M.D. Ed., M.B., C.M., F.R.C.S. Ed., Consulting Surgeon, Edinburgh Eye, Ear, and Throat Infirmary, &c.; and other Collaborators.
Bristol: John Wright & Sons Ltd. London: Simpkin & Co. Ltd.

BY LIEUT.-COL. ROBERT HENRY ELLIOT,
M.D., B.S. Lond., D.Sc. Edin., F.R.C.S. Eng., I.M.S. retd.

GLAUCOMA:
A HANDBOOK FOR THE GENERAL PRACTITIONER.
"An excellent summary of the subject in small compass."—BRITISH JOURNAL OF OPHTHALMOLOGY.
1918. Pp. xi. + 57. With 19 Illustrations. Demy 8vo.
4s. net; post free, 4s. 4d.

GLAUCOMA:
A TEXT-BOOK FOR THE STUDENT OF OPHTHALMOLOGY.
1918. Pp. xvi. + 546. With 158 Illustrations.
Demy 8vo. 25s. net. Inland postage 6d., abroad 1s.

THE INDIAN OPERATION OF COUCHING FOR CATARACT.
Incorporating the Hunterian Lectures delivered before the Royal College of Surgeons of England, February 19th and 21st, 1917.
Pp. xii. + 91. With 45 Illustrations. Royal 8vo. 7s. 6d. net.
Inland postage 5d. H. K. Lewis and Co. Ltd., London.

SCLERO-CORNEAL TREPHINING IN THE OPERATIVE TREATMENT OF GLAUCOMA.
Second Edition. 1914. Demy 8vo. 7s. 6d. Inland postage 5d.
"The book ought to take a foremost place in ophthalmological literature."—THE PRACTITIONER.
George Pulman and Sons, Ltd., London.

TROPICAL OPHTHALMOLOGY.
(In the Press.) Oxford Medical Publications.

NEW EDITION. ENTIRELY RESET. 202 Illus. and Plates. 20s. net.
THE DISEASES OF WOMEN.
By THOMAS G. STEVENS, M.D., F.R.C.S., M.R.C.P.,
Obstetric Surgeon St. Mary's, the Hospital for Women; Examiner to Central Midwives Board, &c.
University of London Press, 18, Warwick-square, E.C. 4.

MORROW'S DIAGNOSTIC
AND THERAPEUTIC TECHNIQUE.

"ESSENTIALLY PRACTICAL."

See Saunders' Advertisement on Page 3.

Second Edition, Enlarged. Crown 8vo. 7s. 6d. net.
With 31 original Photographs and 150 special Prescriptions.
TREATMENT OF DISEASES OF THE SKIN.
By KNOWSLEY SIBLEY, M.D. Camb.
London: Edward Arnold, 41 and 43, Maddox-street, W. I.

BY P. LOCKHART-MUMMERY, F.R.C.S.

DISEASES OF THE COLON AND THEIR SURGICAL TREATMENT,

AND

DISEASES OF THE RECTUM AND ANUS.

Baillière, Tindall & Cox, 8, Henrietta-street, Covent Garden.

OXFORD MEDICAL PUBLICATIONS.

In the Press. Ready First Week January.
SURGICAL OPERATIONS: A Text-Book for Nurses.
BY
E. W. HEY GROVES, M.D., B.Sc., M.S., F.R.C.S.,
Major R.A.M.C. (T.); Surgeon, Bristol General Hospital; Clinical Lecturer, University of Bristol.
Royal 8vo. Cloth. Very fully illustrated. Price 21s. net.

SYPHILIS IN CHILDHOOD.
BY
LEONARD FINDLAY, M.D., D.Sc., F.R.F.P.S.G.,
Lecturer on Medical Diseases of Infancy and Childhood, Glasgow University; Visiting Physician, Royal Hospital for Sick Children, Glasgow; Director of Child Welfare, League of Red Cross Societies,
Crown 8vo. Cloth. Fully illustrated, with 6 Colour Plates.

Henry Frowde, Hodder & Stoughton, 17, Warwick-square,
Newgate-street, London, E.C. 4.

H. K. LEWIS & CO. LTD., MEDICAL PUBLISHERS AND BOOKSELLERS

Text-Books and Works in Medical, Surgical, and General Science of all Publishers.

Orders by Post or Telephone promptly attended to.
Special attention to packing and forwarding of Books to All Parts of the World.

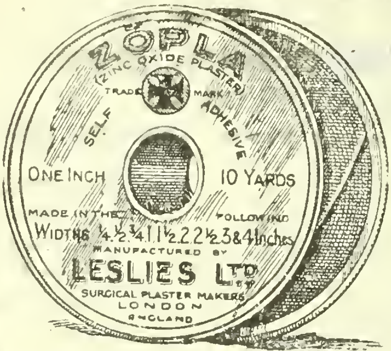
MEDICAL AND SCIENTIFIC CIRCULATING LIBRARY.

Annual Subscription, Town or Country, from One Guinea.

Revised Scale of Terms from Jan. 1st, 1920, on application.
NEW LIBRARY, READING AND WRITING ROOM (FIRST FLOOR) OPEN DAILY TO SUBSCRIBERS.

136 GOWER STREET and 24 GOWER PLACE, LONDON, W.C. 1.
Telegrams: "PUBLICAVIT, EUSROAD, LONDON
Telephone: MUSEUM 1072.

No. 5026.] REGISTERED AS A NEWSPAPER. All rights reserved. Published weekly. | FOUNDED 1823



LESLIES' ZŌPLA

(ZINC OXIDE PLASTER) **Formerly Zincoplast.**

THE PERFECTED SURGICAL PLASTER.

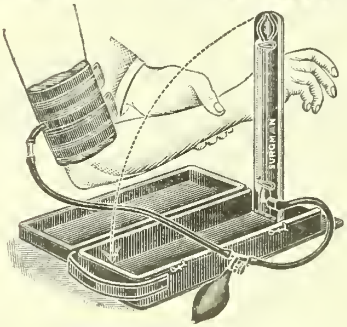
Instantly Self-adhesive. Will not slip wherever put. THE ONE REAL NON-IRRITATING PLASTER. Will keep without drying up.

Supplied on White and Flesh-colour Cloths, also on Holland on Spools ¼" to 4" wide in 5 or 10 yard lengths in rolls 7" and 12" wide. Also on moleskin, chamois leather, felt, and waterproof cloth. **SAMPLES ON REQUEST.**

ZŌPLA is made by the firm with the reputation for BROWN HOLLAND STRAPPING (Original make).

LESLIES, Ltd. (British firm throughout), **62, London Wall, E.C. 2.**

THE "SURGMAN" SPHYGMOMANOMETER



The advantages claimed for this instrument are:

Its simplicity.

The mercury cannot be spilled.

The systolic pressure can be read accurately and immediately.

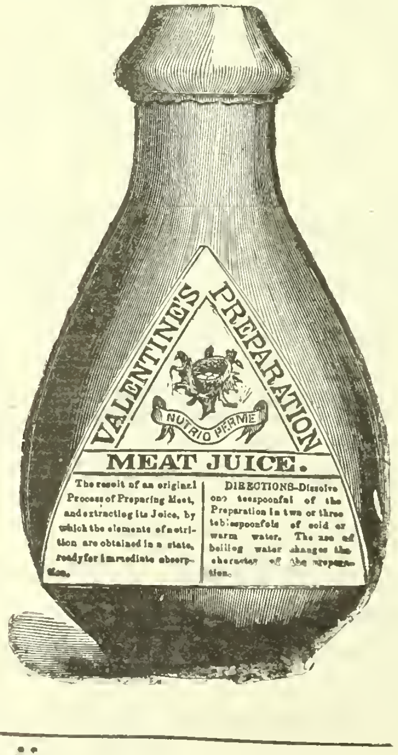
Its compactness, size of case outside being only 12 × 4⅓ × 3.

Price, complete in leather-covered case with leather handle,

£2 7s. 6d.

We shall be pleased to send on approval if desired.

THE SURGICAL MANUFACTURING CO., LTD.,
83-85, Mortimer Street, London, W. 1.
And at 8, PARK QUADRANT, GLASGOW.


VALENTINE'S PREPARATION
NUTRIO PERMÉ
MEAT JUICE.
The result of an original Process of Preparing Meat, and extracting its Juice, by which the elements of nutrition are obtained in a state ready for immediate absorption.
DIRECTIONS—Dissolve one teaspoonful of the Preparation in two or three tablespoonfuls of cold or warm water. The use of boiling water changes the character of the preparation.

Valentine's Meat-Juice

In **Hospital** and **Private Practice** during **Epidemics** and **in their own persons** when ill, **Physicians** have demonstrated the **Value of Valentine's Meat-Juice** in **Sustaining** and **Strengthening** the weakened **Vital Forces.**

Pneumonia and Influenza.

Cavalier Dr. Enrico Ballerini, *Late Surgeon to the Hospital of Rome, Italy:* "I have used Valentine's Meat-Juice in the treatment of patients and also personally after having been ill with Influenza, and I must say it is an excellent tonic in conditions of great organic weakness. I have prescribed it with the greatest satisfaction for convalescents and invalids restricted to a liquid diet."

Edward C. Seufert, M. D., *Professor Histology and Pathology, Illinois Medical College, Chicago:* "I have always been a user of the valuable preparation, Valentine's Meat-Juice. The best results that I have obtained from it have been in Typhoid Fever and Broncho-Pneumonia of children. I believe that the samples sent helped to save the child of one of my students at the College."

For Sale by European and American Chemists and Druggists.

VALENTINE'S MEAT-JUICE COMPANY,
D 175 **RICHMOND VIRGINIA, U. S. A.**

THE LANCET.

No. 5026. LONDON, SATURDAY, DECEMBER 27, 1919. Vol. CXCVII.

CONTENTS.

THE WHOLE OF THE LITERARY MATTER IN THE LANCET IS COPYRIGHT.

THE SAVILL MEMORIAL LECTURE on Mental Personality: its Integration and Disintegration. By HARRY CAMPBELL, M.D., F.R.C.P. Lond., Physician to the West End Hospital for Nervous Diseases 1181

ORIGINAL ARTICLES.

A Case of Primary Hydatid Disease of the Brain with Interesting Eye Symptoms. By N. B. B. FLEMING, M.B., Ch.B. St. And., Captain, R.A.M.C.; Eye Specialist, Bombay Brigade; and G. W. BURY, M.D.Manch., F.R.C.S.Edin., Captain, R.A.M.C.; Surgical Specialist, Bombay Brigade.—*(Illustrated)* 1186

A Study of Epidemic Influenza in Australia. Founded on Two Hundred and Fourteen Cases seen at their Homes in General Private Practice. By H. LEIGHTON KESTEVEN, D.Sc., M.D., Ch.M. Syd. 1189

Boiled Vegetables for the Use of Diabetics. By P. J. CAMMIDGE, M.D. Lond. 1192

A Clinical Study of the Treatment of Tuberculous Abscess by Aspiration. By Z. P. FERNANDEZ, B.A., M.B., Ch.B. Leeds, Leeds City Assistant Tuberculosis Officer; late Resident, Leeds City Sanatorium 1193

On the Removal of Large Cervical Tumours Occupying the Vagina. By J. F. PEART, F.R.C.S. Irel., L.R.C.P. & S. Irel., Hon. Surgeon - Gynæcologist, Battersea General Hospital 1194

CLINICAL NOTES:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A Case of Carcinoma of the Ovary in a Girl aged Nine Years. By H. M. GERSON, M.R.C.S., L.R.C.P. Lond., House Physician, Poplar Hospital for Accidents, London 1195

A Case of Suppurating Hydatid Cyst of the Liver. By R. LEONARD LEY, M.B., B.C. Cantab., Assistant Surgeon, Great Yarmouth Hospital 1195

MEDICAL SOCIETIES.

Royal Society of Medicine:
Clinical Section 1196
Section of Anæsthetics 1197

REVIEWS AND NOTICES OF BOOKS.

Immunity in Health. By Kenelm H. Digby, M.B., B.S., F.R.C.S. 1198
The Art of Anæsthesia. By P. J. Flagg. Second edition 1198
Tubercle. A Monthly Journal Devoted to all Aspects of Tuberculosis 1198
A Review of the Foreign Press 1198

LEADING ARTICLES.

LAST YEAR 1199
INDUSTRIAL MEDICINE IN AMERICA AND HERE 1199

ANNOTATIONS.

Hospitals and the Ministry of Pensions 1200
Simulation among Prisoners of War 1201
Epsom College 1201
The General Nursing Council 1201
The Prolonged Serum Treatment of Hæmophilia 1202
Voluntary Welfare Work in London 1202

SPECIAL ARTICLES.

Clinical Congress of American College of Surgeons: Ninth Annual Meeting 1203
Canada 1207
Vienna 1208
A Monthly Record of Atmospheric Pollution.—Meteorological Office: Advisory Committee on Atmospheric Pollution: Summary of Reports for the Months ending April 30th, 1919, May 31st, 1919 1212

INDEX NOTICE.

THE LANCET, Vol. II., 1919 1202

THE SERVICES.

Additional Pay and Charge Pay for Officers of the R.A.M.C. 1209
Royal Naval Medical Service 1209
Royal Army Medical Corps 1209
Royal Air Force 1209
The Honours List 1209
Foreign Decorations 1212

CORRESPONDENCE.

Epsom College (Sir Henry Morris, Bart.) 1213
The Draft Regulations for 1920 (Dr. J. Pereira Gray) 1213
The Justifiability of Therapeutic Lying (Dr. Charles S. Myers) 1213
Antimony in Filariasis (Mr. U. N. Brahmachari) 1214
Acute Pulmonary Œdema (Dr. F. de Havilland Hall) 1214
University of Durham: the Roll of Service (Mr. H. G. Theodosius) 1214
A Correction (Dr. D. W. Carmalt Jones) 1214
Achlorhydria and Gastric Carcinoma 1214

OBITUARY.

Arthur Rieussett Litteljohn, M. R. C. S., L. R. C. P., M.R.C.V.S., D.P.H., Medical Officer in the Ministry of Health 1214
Frederic Skaife, M.R.C.S. Eng., L.R.C.P. Edin. 1215

MEDICAL NEWS.

The Metropolitan Hospital Sunday Fund 1191
Cardiff Medical Society 1212
University of Oxford: Pass-list 1215
University of London: Pass-list 1215
University of Manchester: Pass-list 1215
University of Liverpool: Pass-list 1215
University of St. Andrews: Pass-list 1216
Royal College of Surgeons of Edinburgh: Pass-list 1216
United Services Medical Officers' Reunion 1216
University of Sheffield 1216
Public Lectures at University of Manchester 1216
University of Edinburgh 1216
Bread Reform 1216
Beit Memorial Fellowships .. 1216
Nurse and Resident Patient 1216

PARLIAMENTARY INTELLIGENCE.

House of Lords 1217
House of Commons 1217

NOTES, SHORT COMMENTS, &c.

Public Health in Cairo 1219
Public Health in Ceylon 1219
The Hospital Saturday Fund Journal 1220
Smith's Visiting List 1220
Christmas Greetings to the Ex-Service Man 1220
Buccal Contamination 1220
" A Straight Talk to a Cold " 1220

Appointments, Vacancies 1218
Births, Marriages, and Deaths 1218
Books, &c., received 1218
Communications received 1218

Any Reader of The Lancet

in the United Kingdom who is paying 10*d.* a week for his copy can obtain it at a little over 8¼*d.*, and have it delivered by post to his address, by entering a subscription with his local bookseller or newsagent, or direct with The Lancet Office. Subscriptions may commence at any time, and copies will be despatched promptly each week at the following rates:—

3 months, 9*s.*; 6 months, 18*s.*; 12 months, 36*s.*

Cheques and P.O.'s should be made payable to Mr. Charles Good, Manager, The Lancet Office, 423, Strand, London, W.C. 2.

With Income-tax at 6/- in the £ no Practitioner can afford to be without

THE SIMPLE MEDICAL YEAR-BOOK

OR

THE SIMPLE DENTAL YEAR-BOOK.

Being Private Ledgers containing a Concise Abstract of Daily, Weekly, Quarterly, and Yearly Receipts and Expenses.

Price, 14s. 6d. net, post free.

"One can see at a glance the profit and expenditure of a practice, everything being arranged in such a simple way."—M.D. Lond.

JOHN BALE, SONS & DANIELSSON, LTD.,

83, 85, 87, 89, & 91, GREAT TITCHFIELD ST., OXFORD ST., LONDON, W. 1.

Vanity Fair Cartoons for Sale,

Medical and Scientific.
Lists free. Any Vanity Fair Cartoon supplied.
R. Weir & Co., High-road, Woodford, London, E. 18.

Price 1s. With Illustrations

APPLICATION OF TRUSSES

to HERNIÆ. Clinical Lecture delivered at King's College Hospital. By the late JOHN WOOD, F.R.S., Senior Surgeon to King's College Hospital. Reprinted from "Medical Examiner."

London: Matthews Brothers, 10, New Oxford-street, W.C.

STAMMERING, SPEECH DEFECTS, VOICE TRAINING.

BEHNKE METHOD. Est. 1882.

Carried on by Miss BEHNKE, 39, Earl's Court-square, S.W. 5.

"Pre-eminent success in the education and treatment of stammering and other speech defects."—*The Times.*

"Thoroughly physiological principles."—*The Lancet.*

"The method is scientifically correct and perfectly effective."—*Guy's Hospital Gazette.*

From a Harley Street Specialist.—"The condition is to a great extent a psychical one, and the admirable results obtained by yourself and your parents have in my opinion been to a great extent due to your personal psychical influence over your subjects. You are at liberty to use this expression of my opinion." (*This letter may be seen.*)

"Stammering: Cleft Palate Speech: Lisping." 1s. 8d. post free. Of Miss BEHNKE, 39, Earl's Court-square, S.W. 5.

STAMMERING

W. J. KETLEY, "Tarrangower," Brondesbury, N.W.

(30 years colleague of late B. BEASLEY, Brampton Park, Huntingdon.)

Those interested in the subject should write for his book, which will be sent post free.

SMITH'S MEDICAL VISITING LISTS for 1920.

NOW READY. ORDER EARLY *to secure your copy.*

No. 1A.	25 Patients,	with Journal.	Cloth, 6/- ;	Leather, 9/-
,, 2.	50 ,,	without ,,	,, 6/6	,, 9/-
,, 2A.	50 ,,	with ,,	,, 7/-	,, 10/-
,, 3.	75 ,,	with ,,	,, 9/-	,, 12/6
,, 4.	100 ,,	without ,,	,, 10/-	,, 12/6

CONTENTS:—Ruled Pages for Visiting List and Journal—Obstetric and Vaccination Engagements — Addresses of Patients, Nurses, &c., &c.—Memoranda—Accounts asked for—Things lent: Books, Instruments, &c.—Periodoscope—Fees—Table of Fevers, Poisons, &c.

HAZELL, WATSON & VINEY, Ltd.,
52, Long Acre, London, W.C. 2.

LES LIVRES FRANCAIS

sont Rapidement Expediés Partout
PAR LA LIBRAIRIE.
Emile Bougault Successeur de O. BERTHIER Maison fondée en 1835.
Catalogues gratis pour tous les genres de livres.
48, RUE DES ECOLES, PARIS.

BURBERRYS' 1920 SALE

During JANUARY. A limited number of WEATHERPROOFS and SUITS at very advantageous prices.

THE BURBERRY WEATHERPROOF in Burberry Gabardine. Men and Women. SALE PRICE 84/-. Postage 9d.

THE TIELOCKEN Belted Topcoat, in Burberry Gabardine. Men and Women. SALE PRICE 5 Gns. Postage 9d.

URBITOR TOPCOATS (Men's) in brown, grey, and green, for Town and Country. SALE PRICE 7 Gns. Postage 9d.

FULL SALE LIST sent on request.

BURBERRYS Haymarket LONDON S.W. 1.

INFLUENZA!

USE

CONDY'S FLUID

(The Best of the Permanganates.)

The recognised antidote.

"The Best the World Produces!"

THE best the world produces is an extensive claim, let us see how Wolsey warrants it.

BEST, says the axiom, is cheapest, and best, so far as Wolsey is concerned, means best material, best workmanship, best finish, watched and judged by the most experienced and the largest makers of pure wool underwear in the world.

THE best the world produces is a phrase hall-marked with Truth.

WORLD-knowledge can provide no other fibre, texture, or material so good for next-the-body wear as wool. Wolsey is all wool.

PRODUCES is perhaps the most important word of all. The proprietors of Wolsey are the *actual manufacturers* of Wolsey, and if they speak of Wolsey with uncommon confidence it is only that they speak of what they *know.*

WOLSEY

"The Best the World Produces."

TRADE MARK THE WOLSEY UNSHRINKABLE

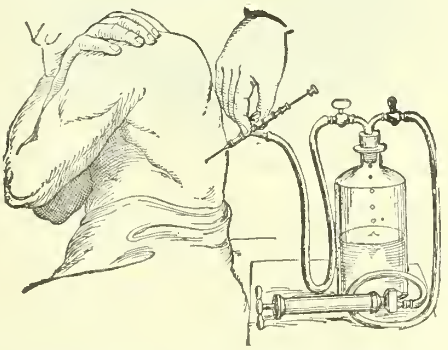
Your own Hosier, Outfitter, Draper, or Store can supply Wolsey in a size and weight to suit you. Every garment is pure wool and unshrinkable; should any prove otherwise you get a brand new garment free. If you have any difficulty in obtaining Wolsey kindly write to the manufacturers.

WOLSEY UNDERWEAR COMPANY LEICESTER

Morrow's Diagnostic and Therapeutic Technique

THE LANCET says:—

"Modern methods of diagnosis and treatment of disease in all departments of practice involve the use of minor manipulative measures, the technique of which is taken for granted or but briefly considered in many text-books. Dr. Morrow, realising the importance of the details of many of these in regard to their effective or successful employment, has collected them in the book before us, and has described them simply and practically. He has illustrated his descriptions with copious diagrams, from which all unnecessary details are eliminated. In nearly every case the instruments used are figured, so that the necessary apparatus for each procedure can be seen at a glance. It is obvious that in regard to such matters dexterity can come only from practice, but clear descriptions, including practical hints, should be useful aids to the practitioner in applying these methods, which are becoming daily of greater importance, and in avoiding the dangers or disadvantages of limited experience, since in not a few instances the causes of failure are indicated.



ASPIRATION OF PLEURA BY POTAIN APPARATUS (Reduced).

"Dr. Morrow's book is essentially practical, and should be useful to the hospital resident and to the practitioner who wishes to employ up-to-date methods in diagnosis and treatment."

Octavo of 830 pages, with 860 line drawings, mostly original. By ALBERT S. MORROW, M.D., Adjunct Professor of Surgery, New York Polyclinic. Second Edition. Cloth, 28s. net.

Recently Issued

SURGERY OF SPINAL CORD

Beautifully Illustrated

By CHARLES A. ELSBERG, M.D., Professor of Clinical Surgery, New York University. Octavo of 400 pages, with 150 illustrations, 3 coloured plates. Cloth, 24s. net.

"Professor Elsberg is to be complimented on the publication of a contribution to the subject that is both stimulating and instructive, not least in its progressive spirit and the possibilities which it suggests for the future development of the science and art of neurological surgery."—THE LANCET.

Third Edition

STOMACH, INTESTINES, PANCREAS

Recently Issued

By ROBERT COLEMAN KEMP, M.D., Professor of Gastro-Intestinal Diseases, Fordham University Medical School. Octavo of 1096 pages, with 438 illustrations. Cloth, 30s. net.

"It is in every sense a practical work, and bears ample evidence that the statements made are based on extensive clinical experience as well as on a wider study of the literature of the subject. Having repeatedly tested the value of this work for purposes of reference we can confidently recommend it."—EDINBURGH MEDICAL JOURNAL.

Recently Issued

DISEASES OF THE EYE

New (8th) Edition

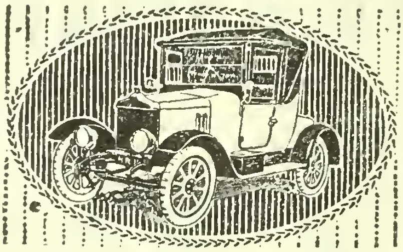
By G. E. DE SCHWEINITZ, M.D., Professor of Ophthalmology, University of Pennsylvania. Octavo of 754 pages, with 386 illustrations and 7 coloured plates. Cloth, 30s. net.

"Its outstanding merit is the abundant reference to all the most valuable contributions to the literature of the subject in recent years, and Dr. de Schweinitz succeeds in incorporating these details without marring the general perspective no easy task. ...... We can cordially recommend the book as belonging to the small group of the very best text-books on ophthalmology."

—THE LANCET.

W. B. SAUNDERS COMPANY, Ltd., 9, Henrietta St., London, W.C.2.

The All British
Standard Light Cars
Specially designed for the Owner-Driver



His Standard of Comfort, Economy,
Stability, Easy Control, & Ample Power.

Send your name & address for full details

The Standard Motor Co., Ltd.,
Coventry.

London Showrooms, 49, Pall Mall, S.W. 1.

Godbolds

Surgeons'
ADHESIVE PLASTER
on
Brown Holland.

Strong,
flexible,
and
non-
irritating.

Telephone: Oldbury 55. *Telegrams* "Dressings, Oldbury."
CUXSON, GERRARD & CO. LTD.
OLDBURY, near BIRMINGHAM.

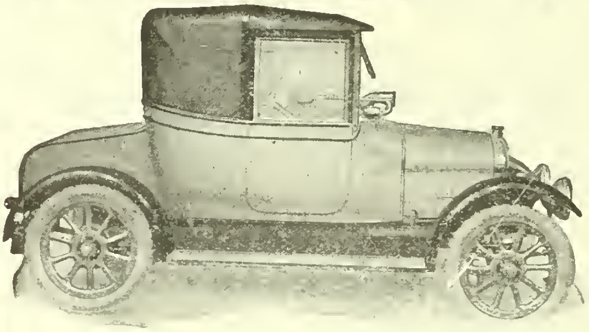
INDIA-RUBBER PLASTERS

Zinc Oxide or
Plain, all widths.

Self-adhesive,
non-irritating.

Price List on application.

THE SINGER "10." AN IDEAL DOCTOR'S CAR.

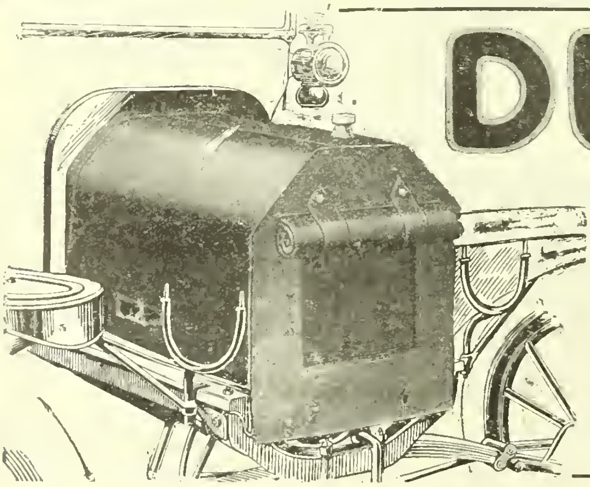


The neat and handsome design of the **SINGER "10"** will always impress the observer at a glance. Built throughout by highly skilled workmen from the finest materials procurable, we have no hesitation in recommending it to stand the hard wear and tear to which a Medical Practitioner's car is subject.

We are now booking orders, which will be placed on our waiting list, deliveries of which will be made strictly in rotation.

Write to-day for full particulars—

SINGER & CO., LTD.,
COVENTRY, ENG.
And 17, HOLBORN VIADUCT,
LONDON, E.C.



DUCO RADIATOR AND BONNET MUFFS

The use of these muffs greatly facilitates quick and easy starting in cold weather, and our illustration clearly shows their efficient design. They are strongly made in good quality leather cloth material, lined with a specially thick warm felt. Invaluable to medical men and others who have occasion to leave their car standing in the cold at frequent intervals. The finish is neat and attractive.

Ford Size, No. FR 2/32	each	27/6
Small Car Size, No. R 2/23	,,	40/-
Medium Car Size	,,	47/6
Large Car Size	,,	54/-

Descriptive Leaflet and Measurement Form sent on request.

BROWN BROTHERS, LIMITED,
With which is amalgamated JAMES THOMSON & SONS (Motor Factors) Ld.
20-34, GREAT EASTERN STREET, LONDON, E.C. 2.
Castle Works, Lady Lawson Street, Edinburgh.
Showrooms: 15, Newman Street, London, W. 1.
Branches at Birmingham, Cardiff, Dublin, Glasgow, Leeds, Manchester, Paris, and Melbourne.

EPSOM COLLEGE

Established in 1855 as a Public School with a Royal Medical Foundation.

***Patron*—HIS MOST GRACIOUS MAJESTY THE KING.**

***President*—THE RIGHT HON. THE EARL OF ROSEBERY, K.G.**

Treasurer—**SIR HENRY MORRIS, Bart., F.R.C.S., M.A., M.B.**

EPSOM COLLEGE.

Head Master—**REV. WALTER JOHN BARTON, M.A., late Scholar of New College, Oxford; formerly Assistant Master at Winchester College.**

EPSOM COLLEGE, founded by the late Mr. JOHN PROPERT in 1853, and opened in 1855, is situated fifteen miles from Charing Cross in a most healthy and picturesque position, high up on the Epsom Downs, where the air is very dry and bracing. The College stands in its own estate, consisting of over 80 acres. In front of the main buildings are large ornamental grounds, in which the Chapel forms a conspicuous feature, and there are, beyond, large playing fields of over 26 acres, well adapted for cricket, football, and all other games. There are also several good fives courts.

The closest attention is paid to the sanitary arrangements at the College, which are under the supervision of a permanent Sanitary Inspector. The water is drawn from a well on the premises sunk in the chalk, and analysis shows it to be of the greatest purity.

The College can accommodate 300 Resident Pupils, 50 of whom are the Foundation Scholars. The School is not exclusively for the sons of medical men; boys belonging to other professional and to the higher commercial classes are also educated here. A certain number of Day boys are admitted.

The Lower School, which is preparatory to the College, is a large building, distinct from the College, but within the College grounds. Here, all junior boys from eight years of age, whether ordinary boarders, Foundation Scholars, or Day boys, form a separate department from the main body of the school, both for work and games.

Particular attention is paid to the teaching of Natural Science, for which there are admirably equipped Laboratories and two Lecture Theatres.

Epsom College is on the list of Recognised Institutions approved of by the General Council of Medical Education and Registration of the United Kingdom as places at which medical study may be commenced; and the College is recognised as a "School of Science" by the Committee of the Conjoint Board of the two Royal Colleges of Physicians and Surgeons. Special instruction is given for the First Examination for Medical Degrees of the University of London and for the Matriculation Examination of the same University. Boys are also prepared for the Army, Navy, Civil Service, and for other careers.

Five Medical Scholarships, differing in value, at the Hospital Schools in London, and Twenty-two Scholarships, ranging in value from £25 to £100, are awarded under varying conditions—some of them annually, and most of them tenable for several years. Besides these there are Four Entrance Salomons Scholarships of £50 a year each; and there are awarded annually, "Hugh Vardon" Scholarships of £21 each, Junior Scholarships of £30 each, and Lower School Scholarships of £15 each. School lists, giving full information as to Scholarships, &c., with prospectuses and forms of application, may be obtained on application to the Bursar, at No. 3, The College, Epsom.

ANNUAL FEES.—Sons of medical men, 70 guineas. Those who are not the sons of medical men, 80 guineas. Day Scholars, 25 guineas. Fees are charged for special subjects, as in other schools.

W. DOUGLAS CROSSLEY, Bursar.

ROYAL MEDICAL FOUNDATION OF EPSOM COLLEGE.

The Royal Medical Foundation attached to Epsom College gives pensions of £30 each to fifty aged members, or widows of members, of the medical profession in reduced circumstances, and provides gratuitously an education of the highest class at Epsom College, together with clothing, maintenance, and pocket money, for fifty necessitous sons of medical men. It is impossible to maintain this number of Pensioners and Foundation Scholars unless a sum of at least £4500 is obtained by annual contributions.

Did the financial position of the Foundation permit, the Council would be only too glad to increase the total number both of Pensioners and Foundation Scholars, as the applicants very far exceed the number the Foundation is able to help. Many cases of the most heartrending nature, in which immediate aid is sorely needed, have to stand over for a year or two, and some fail altogether to get elected.

Nor must it be overlooked that an increased number of applications for Pensionerships and Foundation Scholarships will be received as a result of the War. Already the Governors have elected as Foundation Scholars the son of a medical officer in the Royal Navy who was killed in action on board H.M.S. *Good Hope* in 1914, and the son of another medical officer who was killed in action in 1917. Furthermore, Salomons Entrance Scholarships of £50 a year have been awarded by the Council to the son of a medical officer in the Royal Army Medical Corps who was lost in the *Royal Edward* when she was torpedoed in August, 1915, to the son of a medical officer who lost his life when the *Arcadian* was torpedoed in 1917, and to the son of a medical officer who was killed in action in 1918.

Unfortunately a very large number of annual subscriptions have been withdrawn since the outbreak of War. If the work of the Foundation is to be maintained undiminished, it is essential that new subscribers should be secured to make good the losses sustained.

If all friends of the College would take such opportunities as they have of pleading the cause of this Medical Foundation with their well-to-do relatives and friends, the Council would be safeguarded in their efforts to make provision for the wants of those who are forced to appeal for help.

The Pensioners and the Foundation Scholars are elected in June by the votes of the Governors.

Donors of Ten Guineas and Collectors of Twenty Guineas are Life Governors, and subscribers of One Guinea annually are Governors during the continuance of their subscriptions. Small contributions are gladly received.

Contributions will be received by the Treasurer, Sir HENRY MORRIS, Bart., 8, Cavendish-square, London, W. 1; by the BRITISH MEDICAL ASSOCIATION, 429, Strand, London, W.C. 2; by BARCLAY'S BANK, Ltd., 19, Fleet-street, London, E.C. 4; and by the SECRETARY, at the office of the College, 37, Soho-square, London, W. 1.

Office: 37, SOHO-SQUARE, LONDON, W. 1,
December 17th, 1919.

J. BERNARD LAMB, Secretary.

SCIENTIFIC BABY FEEDING

CHELTINE MILK AND MALTED FOOD

No. 1. From earliest Infancy to 5 months. No. 2. From 5 months onwards.

Regarding these **CHELTINE FOODS**, a well-known dietetic authority writes:—

> **"They contain all the elements necessary for a complete Food for Infants. Being a Malted Food, it may be given in early infancy without producing constipation. It is beautifully prepared, so as to be readily assimilable by the digestive organs."**

The great importance of the choice of Food for the growing, healthy Infant is fully appreciated by the Manufacturers of Cheltine Milk and Malted Food, its composition being based on the physical and physiological requirements of infant life. Experience has proved, and medical men have testified to, the value of this Food, used as directed, in the rearing of healthy babies. It is a safe and reliable tissue-builder, manufactured by food-specialists of long standing.

Packed in air-tight tins in three sizes:—6½ oz. 1/7½; 13 oz. 3/-; 26 oz. 5/9.

No. 3 CHELTINE MILK & MALTED FOOD for **INVALIDS, DYSPEPTICS, the aged, and those with enfeebled digestions**, prices as above, is being increasingly prescribed by the Medical Profession.

Should any difficulty be experienced in obtaining these Foods locally, please write, giving name and address of usual Chemist or Store, to the Manufacturers—

THE CHELTINE FOODS CO., CHELTINE WORKS, CHELTENHAM, ENGLAND.

'STOKES' Patent Nasal INHALER

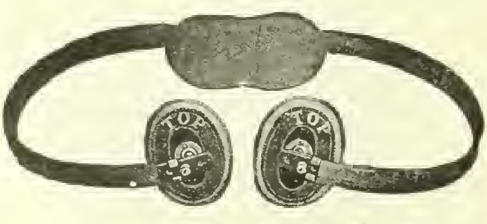
Made entirely of light rubber.

For continuous Inhalations, even during sleep.

Full particulars on application to—

OPPENHEIMER, SON & CO., LIMITED,
179, Queen Victoria Street, London, E.C. 4.
Entirely British House since Foundation in 1891.

If you have a difficult case of Hernia—



Send your Patient to be properly fitted with a Patent

BALL-AND-SOCKET TRUSS.

SALMON ODY Ltd.,
7, NEW OXFORD STREET, LONDON, W.C.1. Not Obtainable Elsewhere

"The House for Everything Electro-Medical."

LOGICAL

"THROW PHYSIC TO THE DOGS—I'LL NONE OF IT."—*Macbeth, Act v., Sc. 3.*

Prepare yourself for the Electrical Era in Medicine by adopting

THE "GALVANOSET"

forthwith. It works direct from the electric light holder

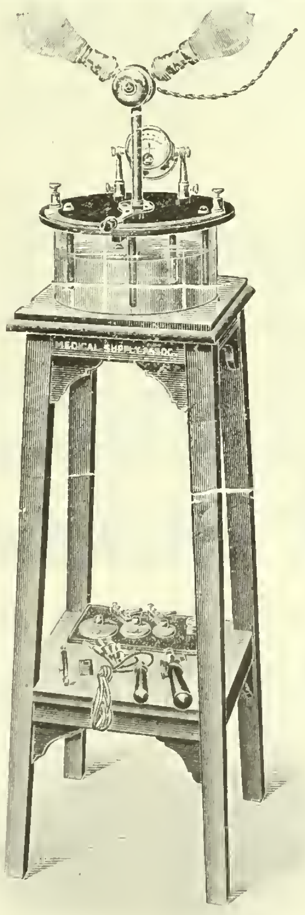
SILENT

and provides for you

True Galvanisation.
Ionisation.
Electrolysis.
Muscle Reaction Testing.
True Faradisation.
Undulating Currents.
Reversing Currents.
Interrupted Currents.
Schnee Four-Cell Bath Treatment.
Illuminates your Surgical Lamps.
Russ's Treatment for Gonorrhœa, &c., &c.

Absolute control from zero to maximum.
An instrument of precision.
A charm in the consulting room.
Nothing to get out of order.
You just fill it with tap water.

THE ACE OF TRUMPS IN ELECTRO-THERAPEUTIC APPARATUS.



GALVANOSET.

MOTIONLESS

and only costs you
£8 8 0

Faradisation attachment £1 15 0
Oak Pedestal ... £1 10 0

(The above Prices are subject to 50% war advance.)

Each set is complete with milliamperemeter, carrying case, electrodes, conducting cords, and is ready for immediate use.

THE GREAT WAR HAS PROVED THE VALUE OF THE "GALVANOSET." 7000 IN DAILY USE.

SEND FOR ILLUSTRATED CATALOGUE No. 18.

SPECIAL NOTE.—The current passing to the patient from the Galvanoset is absolutely regular, therefore **more pleasant than** the current from any other known source of supply.

Call and have a Demonstration, and we will prove our statements.

THE STANDARD

Dr. E. P. Cumberbatch states in his new book "Essentials of Medical Electricity," 1919, p. 49, describing the Galvanoset: "The advantages of this form of rheostat are the perfectly even gradation of strength of the current, the ease with which it can be reversed, the safety to the patient, and its simplicity."

THE MEDICAL SUPPLY ASSOCIATION Ltd.

THE LARGEST X RAY AND ELECTRO-MEDICAL SHOWROOMS IN GREAT BRITAIN.
167/185, Gray's Inn Road, London, W.C. 1.
Telephone. HOLBORN 1570.
Telegraphic Address: "GREVILLITE KINCROSS—LONDON."

MULFORD
FOR THE CONSERVATION OF LIFE
LABORATORIES

"An Ounce of Prevention Is Worth a Pound of Cure"

Immunize your patients against INFLUENZA and "Colds" NOW and do not wait until respiratory affections are prevalent.

INFLUENZA SEROBACTERIN Mixed Mulford will give immunity from attacks of "Colds" and influenza to a large percentage of patients suffering with periodic attacks of disease of the respiratory passages caused by the organisms used in preparing the serobacterin.

Supplied in packages containing four aseptic glass syringes.

Syringes contain killed sensitized bacteria as follows :

	Syringe A	Syringe B	Syringe C	Syringe D
B. influenzæ	125	250	500	1000 million
Staphylococcus albus	125	250	500	1000 million
Staphylococcus aureus	125	250	500	1000 million
Streptococcus	125	250	500	1000 million
Pneumococcus	125	250	500	1000 million
B. Friedländer	125	250	500	1000 million
M. catarrhalis (group)	125	250	500	1000 million

H. K. MULFORD COMPANY

Manufacturing and Biological Chemists, PHILADELPHIA, U.S.A.

Distributing Agents for Great Britain:
THOMAS CHRISTY & CO., Old Swan Lane, London, E.C.
Literature on request.

HOWARDS' "Standard" ETHER

for producing

ANÆSTHESIA

AS USED BY THE LEADING HOSPITALS. HOWARDS & SONS have supplied the London Hospital for many years past with all the Anæsthetic Ether which has been required, and it has given entire satisfaction during the whole of the period. ¶ It was from Howards that the Army Medical Department drew a very large proportion of their supplies of Anæsthetic Ether throughout the War.

ORDER THROUGH YOUR WHOLESALER
1-lb. $\frac{1}{2}$-lb. $\frac{1}{4}$-lb. patent grip bottles
MANUFACTURED BY HOWARDS & SONS LTD
ILFORD (Estab. 1797) LONDON

Makers of Howards' Quinine, Aspirin Tablets, Calomel, Pure Epsom Salts, Sodii Bicarb., &c.

THE ORIGINAL COLLOIDAL PREPARATIONS FOR MEDICINAL USE.

COLLOSOLS are pure and stable colloidal solutions, isotonic and isomorphic with the elements of the body.

CROOKES' COLLOSOLS

COLLOSOLS are tested by ultramicroscopic bacteriological and clinical experiment.

COLLOSOL FERROMALT.

PURE MALT EXTRACT WITH COLLOIDAL IRON.

FOR INTERNAL ADMINISTRATION.

THE iron in this preparation is in an extremely fine state of subdivision, and is present to the extent of 0·1 per cent. When administering iron, it should be remembered that the total iron content of the normal body does not exceed 37 grains, and although organic compounds of iron have been recommended, the inorganic iron is held by many to be the most efficient in the only true test of the value of an iron preparation—*i.e.*, increase of hæmoglobin. Collosol Ferromalt should be taken after meals. Diffusion rapidly takes place over the whole of the stomach, and the known low chemical affinity of colloids prevents too rapid absorption of iron in individual positions. Collosol Ferromalt does not cause constipation or digestive troubles.

A MEDICAL MAN writes, December 2nd, 1919:—

> "The first bottle has proved a great success. I have been using it in a case of anæmia following lactation and there is marked improvement even in a fortnight."

Literature and Reports from

THE CROOKES LABORATORIES,

22, CHENIES STREET, TOTTENHAM COURT ROAD, W.C. 1. Telephones: Museum 3663 & 3697.

CORYTONS **BRITISH COLLOIDS, LIMITED.**

"STERULES"

(REG. TRADE MARK).

The Ideal Form of Hypodermic Medication.

The extensive list of drugs manufactured in this form includes (boxes of 10 Sterules):—

Adrenalin, 15 m.	4/6
Antimony Oxide, $\frac{1}{100}$ gr. (In Tropical Parasitic Diseases)	
Arsamin (Non-toxic Arsenic) $\frac{1}{2}$ and $\frac{3}{4}$ gr.	4/6
Arsenic and Iron (in two strengths)	4/6
Cacodyl Co., E.P.	5/6
Caffeine Sod. Salicyl., 1 gr.	5/6
Camphor, $1\frac{1}{2}$ & 3 gr.	5/6
Cicatricine (Thiosinamine Comp.) 1 c.c. 5/6, 2 c.c.	7/6
Curschman's Solution—(Camphor Ether Oil) 1 c.c.	4/6
Emetine, $\frac{1}{2}$ gr.	7/-
Hydrarg. Intramusc. (Lambkin), 10 m.	4/6
Novocain, $\frac{1}{3}$ gr.	4/6
Novocain, $\frac{1}{3}$ gr., **with Adrenalin**	4/6
Quinine HCl, 2 gr.	4/6
„ **Urea HCl,** 5 c.c., 1%	4/6

Phenolsulphone-phthalein, 6 mgr. (For testing permeability of the Kidneys)	10/-
Pituitary Extract, $\frac{1}{2}$ c.c.	5/6
„ „ 1 c.c.	7/6
Sodium Cacodylate, $\frac{3}{4}$ gr.	4/6
Sodium Chaulmoograte, 2 gr. or 3 gr. (In treatment of Leprosy)	5/-
Stovaine, $\frac{1}{6}$ gr., $\frac{1}{3}$ gr., $\frac{3}{4}$ gr.	7/-
„ **Glucose,** 5%, 1 c.c.	7/-
Thiosinamine Comp., 1 c.c.	5/6
„ „ 2 c.c.	7/6

"STERULES" OF OTHER MEDICAMENTS FILLED AT SHORT NOTICE.

W. MARTINDALE, Manufacturing Chemist

10, NEW CAVENDISH STREET, LONDON, W. 1.

Telegraphic Address—"MARTINDALE, CHEMIST, WESDO, LONDON."

Telephone Nos.—GERRARD 4688. PADDINGTON 1797.

A Reliable Dispensing Service.

The Boots Chemists

WE are greatly gratified by the constant appreciation of our Dispensing Service shown by the Medical Profession; and we are satisfied that the more widely its merits are known the more widely it will be used. The keynote of this service is reliability.

First: The Dispensing Department at each branch is under the charge of a fully qualified and experienced Chemist.

Second: The Dispensing Equipment at every branch is perfect — no makeshift apparatus or arrangements are permitted.

Third: All the Drugs and Pharmaceutical Products used are guaranteed. Our unique laboratory facilities at Headquarters enable us to maintain a very strict analytical control. Nothing is taken into stock unless it satisfies the most rigorous tests.

Fourth: The Drugs at every branch are always fresh. The extent of our business and our system of regular weekly supply ensures that nothing gets stale on our shelves. Medical men will recognise that the quality of freshness is secondary only to that of purity.

We have confidence in inviting you to send your Prescriptions to

Boots The Chemists

555 BRANCHES THROUGHOUT THE COUNTRY.

SIR JESSE BOOT,
Managing Director.

Head Office: STATION ST.,
NOTTINGHAM.

ÉTABLISSEMENTS CHATELAIN

2 & 2 bis RUE DE VALENCIENNES, PARIS.

Sole Manufacturers of

URODONAL.

Powerful Uric Acid Solvent.

Rheumatism, Gout, Lumbago, Lithiasis, Arterio-sclerosis, &c.

Acute Conditions : 3 tablespoonfuls per day in half to a tumblerful of warm water. *Chronic Cases :* 3 teaspoonfuls a day.

PRICE 5/- and 12/- per bottle.

JUBOL.

"Re-education" of the Intestine.

Constipation, Enteritis, Hæmorrhoids, Indigestion, Skin Blemishes, &c., &c.

Dose : 1 to 3 tablets every night on retiring.

PRICE 5/- per box.

JUBOLITOIRES.

Scientific Suppositories.

ANTI-HÆMORRHAGIC. SEDATIVE. DE-CONGESTING.

Hæmorrhoids, Rectitis, Anal Fistula, Abscesses, and all unhealthy conditions of the Recto-anal Tissues.

One suppository to be introduced into rectum morning and night after motion of the bowels.

PRICE 5/- per box.

GYRALDOSE.

Powerful Antiseptic for Local Gynæcological Use.

RELIABLE. NON-INJURIOUS. NON-STAINING.

Leucorrhœa, Metritis, Salpingo-ovaritis, Vaginal Discharges, &c.

Prophylactic and Hygienic Use : One teaspoonful to a quart of warm water, once or twice daily. *Curative Purposes :* Two to three teaspoonfuls to a quart of hot water, twice daily, or oftener if necessary.

PRICE 4/- per box.

FANDORINE.

Internal Treatment for Women's Diseases.

Metrorrhagia, Dysmenorrhœa, Irregularities, Pains, Abnormalities, &c.

Assists Pregnancy and Lactation.

Acute Conditions : 15 to 20 tablets per day at regular intervals as required. *Chronic Conditions :* 8 tablets per day between meals.

PRICE 5/- and 11/- per bottle.

SINUBÉRASE.

Complete Treatment for Intestinal Disorders.

Enteritis, Dysentery, Diarrhœa, Cholera, Typhoid, Infectious Diseases, Dyspepsia, Constipation, &c.

Acute Conditions : 12 tablets daily at the commencement of meals. *Chronic Conditions :* 4 to 6 tablets daily.

PRICE 5/- per bottle.

GLOBEOL.

Powerful Blood Tonic.

Anæmia, Nervous Exhaustion, Neurasthenia, General Debility, Tuberculosis, Convalescence, &c.

Acute Conditions : 8 pills daily with midday meal.
Chronic Conditions : 4 pills daily with midday meal.

PRICE 5/- per bottle.

PAGÉOL.

Powerful Urinary Antiseptic.

Gonorrhœa, Cystitis, Prostatitis Catarrh of the Bladder, Renal Tuberculosis, Hypertrophy of the Prostate, and all Diseases affecting the Urinary System.

Acute Conditions : 16 capsules daily.
Chronic Conditions : 6 capsules daily.

PRICE 5/- and 11/- per box.

VAMIANINE.

New Scientific Preparation

for the Treatment of

Syphilis, Chronic Skin Affections, Psoriasis, Acne, Eczema, Erythema, &c., &c.

Dose : 4 Pills daily, or more if necessary.

PRICE 11/- per bottle.

FILUDINE.

Employed in all Liver Disorders.

Malaria, Diabetes, Cirrhosis, Sluggish Liver, Tuberculosis, &c.

Acute Conditions : 2 tablets three or four times daily before meals.
Chronic Conditions : 2 tablets twice or thrice daily before meals.

PRICE 11/- per bottle.

Can be obtained from all Chemists and Stores, or direct from the Sole British and Colonial Agents—

HEPPELL'S, PHARMACISTS AND FOREIGN CHEMISTS, **164, Piccadilly, LONDON, W. 1.**

Trial Supplies and Full Descriptive Literature sent on application to **HEPPELLS** *at the above Address.*

The Tonic Food richest in VITAMINES, and therefore of great value in all Wasting diseases. Delicate children thrive on it.

"ROBOLEINE"

Samples and Literature on application.

OPPENHEIMER, SON & CO., LTD.,
179, Queen Victoria Street,
London, E.C. 4.

Chymol

(KI-MOL)

THE FOOD THAT BUILDS

For Infants, Adults, and Invalids

Chymol is a pure, sweet, delicious food consisting of Red Bone Marrow, pure animal fat and Barley Malt. The fat is properly emulsified and partially hydrolised, so that the food is presented in a form easily assimilable to the most delicate stomach. The activity of the enzymes is not destroyed in the process of preparation; Chymol therefore contains those active vitamines which are essential to proper growth and nutrition. Chymol contains no starch.

Chymol contains no flavouring essences, its own natural flavour is a most agreeable one. Added to milk it increases the fat content, peptonises the carbohydrates and renders the proteid digestible. Chymol is used in hundreds of Infant Welfare Centres and has gained the unqualified approval of the Physicians in charge in cases of malnutrition, rickets, &c.

Extract from a letter received from the M.O.H. in charge of an Infant Welfare Centre, dated 29th May, 1919:—

> "Mrs. —— had twins on December 8th, 1918, weighing between them 5 lb. They now weigh 9 lb. 15½ and 9 lb. 8½. This, there is no doubt, is largely due to Chymol."
>
> "At both my Welfare and Nursing Home we get through, as you know, a pretty large supply, which will not only continue but increase. Would you make a note for our supply for the Winter, as there is an idea that fats will be more difficult to procure than ever."

Samples sent free to any Member of the Medical Profession on application to—

THE CHYMOL COMPANY Ltd., Kingsway, London, W.C. 2.
TEL.: HOLBORN 4990.

Glykeron and Glyco-Heroin

ARE SYNONYMOUS APPELLATIONS AND ARE NOW KNOWN AS SUCH TO ALL DISPENSING PHARMACISTS

THESE designations may now be used interchangeably by the physician when prescribing the preparation originally known only as Glyco-Heroin (Smith).

As a safeguard against having worthless imitations of the preparation dispensed, it is suggested that the physician use the name

GLYKERON

which is non-descriptive and more distinctive, when prescribing GLYCO-HEROIN (SMITH) for **Cough, Asthma, Phthisis, Pneumonia, Bronchitis, Laryngitis, Whooping-Cough, and kindred affections of the respiratory system.**

DOSE—The adult dose is one teaspoonful every two hours or at longer intervals as the individual case requires.

For children of ten years or more, the dose is from one-quarter to one-half teaspoonful; for children of three years or more, five to ten drops.

The composition of GLYCO-HEROIN (SMITH) has not been modified in the slightest degree.

MARTIN H. SMITH COMPANY

New York, U.S.A.

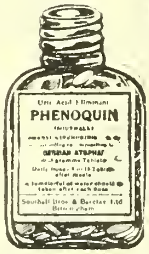
Sole British Agents:

T. CHRISTY & CO., OLD SWAN LANE, LONDON, E.C. 4.

Some Preparations of
Southall Bros. and Barclay Ltd.
Manufacturing Chemists
Birmingham

PHENOQUIN

(Southall)



is specific in the elimination of uric acid from the system. It is the one British product replacing the pre-War German Atophan.

Phenoquin has proved exceptionally efficacious in acute Gout, chronic Gout, and other forms of Arthritis, promptly causing a remarkably rapid increase in uric acid excretion.

Phenoquin has also proved its value in acute articular Rheumatism and Sciatica. Dosage—5-15 tablets daily. Descriptive circular for Medical men; post free on application.

Packed in bottles of 50 and 100 tablets. Price 6/- & 11/-

Composition: Lactose & Formaldehyde

ALDEMINT

Registered

Antiseptic Throat Tablets

Effectively replace treatment by 'gargles' in relaxed throats and laryngeal ailments generally.

Invaluable both as a prophylactic against Influenza, Diphtheria, Tonsilitis, etc., and for public speakers, actors, etc.

In bottles containing 50 *tablets*
2/-, *of all Chemists.*

A powerful urinary antiseptic.

Cystoformin

Reg. Trade Mark

Its range of usefulness is very wide, embracing practically every infected condition of the bladder or urinary tract.

Composition:- Hexamine with Sodium Acetate representing 40 per cent. of its weight of the former. In 17 gr. tablets. Taken dissolved in water.

Sold in Tubes containing about 20 tablets, 1/6 *each.*

(LYSOL BRITISH)

LYCRESOL

A Standardised Disinfectant

A well tried antiseptic in concentrated form for the use of doctors and nurses. It contains a high percentage of cresol, and is superior as a general disinfectant and deodoriser to carbolic acid.

As Lycresol forms a saponaceous solution it easily removes mucous secretions, etc., with adherent germs.

A Measuring Cup with each bottle.

Price:—4 oz. 9d.; 8 oz. 1/3; 16 oz. 2/3; 32 oz. 3/6; 1 gall. tins 14/-

Vitafer

The All-British Tonic Food

Awarded Gold Medal at the last *International Congress of Medicine.*

VITAFER, introduced before the outbreak of war, now holds the foremost place amongst tonic foods.

It is distinguished in containing the entire protein of milk, (Lactalbumen and Casein) in being the richest in assimilable phosphorus and in being non-constipating.

A doctor's sample will be sent free and post paid to any Medical Practitioner on request.

In tins,* 1/6 *&* 2/6, *of all Chemists
Larger size 4/6 & 7/6.

HIPPURATES

OF

SODIUM, AMMONIUM and LITHIUM,

indicated in cases of hypertension and in arterial pressure, and as a preventative treatment in Gout and Arterio Sclerosis.

IN POWDER AND TABLETS. *Prices and particulars on application.*

Estd 1820

Southall Bros. & Barclay Ltd, Birmingham

NOVARSENOBILLON

For intravenous or intramuscular injection in the treatment of

SYPHILIS

and other spirochætal infections.

In ampoules containing - - 0.15, 0.3, 0.45, 0.6, 0.75, or 0.9 gram.

SOME PUBLISHED OPINIONS:

"For many months now I have exclusively used Novarsenobillon with the happiest results on the patients."
The Lancet, Oct. 20th, 1917, p. 618.

"Novarsenobillon in my hands has proved a safe and most efficient remedy against the *Spirochæta pallida*."
The Lancet, Feb. 16th, 1918, pp. 243/50.

"From this wide range (of Arsenical preparations) selection will probably be a matter of personal preference, and perhaps in the end, Novarsenobillon and Disodo-Luargol will be shown to answer all requirements."
The Lancet, June 21st, 1919, p. 1056.

ARSENOBILLON

In ampoules containing - - - 0.1, 0.2, 0.3, 0.4, 0.5, 0.6 gram.

Literature and all particulars may be obtained from

MAY & BAKER, LTD., **Manufacturing Chemists**

BATTERSEA, LONDON, S.W. 11.

Taka-Diastase

INVALUABLE
IN NEARLY EVERY CASE
OF INDIGESTION

A REMARKABLY ACTIVE
DIGESTANT
OF BOTH
CARBOHYDRATE
AND
PROTEIN FOODS

The digestive action of TAKA-DIASTASE is not interfered with by the presence of small amounts either of acid or of alkali.

. . .

The fact that it is both amylolytic and proteolytic renders TAKA-DIASTASE of much greater value in **dyspepsia** than any other digestive agent.

. . .

The administration of TAKA-DIASTASE is an important aid in the treatment of **gastritis, gastric dilatation, hyperacidity, intestinal fermentation** and **chronic constipation;** also in promoting nutrition in **tuberculosis** and other **wasting diseases,** in **infantile mal-assimilation,** and in **convalescence.**

Supplied in Powder, Liquid, Elixir and Tablets (see Price List, pp. 234—236.)
Further Information, also references to Clinical Report , will be sent on request.

PARKE, DAVIS & Co.
50-54 BEAK STREET, REGENT STREET, LONDON, W.

678

"The clinical evidence is increasingly convincing that this detoxication process will revolutionise the whole subject of vaccine treatment and preventive inoculation."—LANCET, March 8th, 1919.

DETOXICATED VACCINES

(PREPARED BY GENATOSAN, LTD.)

In the Prevention and Treatment of

INFLUENZA

AND ALL BRONCHIAL AND NASAL CATARRHS.

Even those practitioners who have hitherto shunned vaccine treatment, or abandoned it after a few disappointing trials, will be interested in the results already obtained with detoxicated vaccines.

By this new method the toxins are removed from vaccines without affecting the antigens; hence, quantities from ten to one hundred times larger than the usual dosage can safely be injected, with the result that much greater amounts of immunising anti-bodies are developed.

During the devastating influenza epidemics of 1918 about 150 persons were inoculated with a compound detoxicated vaccine in a dose of 1500 millions followed by one of 3000 millions. ***No inconvenience was caused, beyond some local redness and tenderness, and no influenza or catarrhs occurred except one very mild case.*** (See THE LANCET, June 28th, 1919.)

In both the treatment and prevention of such affections it is important to "strike early and strike hard." Physicians, therefore, may confidently employ the above-mentioned large doses of Detoxicated Anti-Influenza Vaccine, consisting of a mixture of Pfeiffer's Bacillus, Hæmolytic Streptococci, Pneumococci, M. Catarrhalis, B. Friedländer, B. Septus, and Bronchial Staphylococci.

Detoxicated Vaccines have also been administered, with remarkable success, in Gonorrhœa, &c. Their trustworthiness is assured by the care, skill, and highly expert technique used in preparing them.

PRICES AND LITERATURE ON APPLICATION TO—

GENATOSAN, LTD.

(Manufacturers of Sanatogen, Formamint, Genasprin, &c.),
12, CHENIES STREET, LONDON, W.C. 1. *(Chairman: The Viscountess Rhondda.)*

THE ORIGINAL COLLOIDAL PREPARATIONS FOR MEDICINAL USE.

COLLOSOLS are pure and stable colloidal solutions, isotonic and isomorphic with the elements of the body.

CROOKES'

COLLOSOLS

COLLOSOLS are tested by ultramicroscopic bacteriological and clinical experiment.

COLLOSOL SULPHUR.

This Collosol is of proved therapeutic value in Fibrositis, Arthritis Deformans, Neuritis and in diseases of the skin such as Generalised Dermatitis, Acute Psoriasis, Acne, and Seborrhœa.

It is prepared in five different forms—for external use and bath medication, for internal administration, for injection, and as a cream, with which the affected part is gently massaged. Also as an oil for the scalp.

COLLOSOL IODINE.

This Collosol consists of Iodine in its most active form, and yet non-toxic and non-staining. It never causes nausea and never sets up iodism.

For its efficacy in parasitic affections—see *British Medical Journal*, May 12th, 1917, p. 617.

COLLOSOL IODINE OIL. For Chilblains, Ulcerations, &c. Does not stain the skin. In boiling water as inhalation for tonsillitis and bronchial catarrh.

COLLOSOL MANGANESE.

For the treatment of Boils, Carbuncles, and other Coccic Infections.

Also for the treatment of Anæmia (see *British Medical Journal*, August 2nd, 1919, pp. 135-6).

COLLOSOL ARGENTUM.

It is specially indicated in superficial bacterial infections such as **Gonorrhœa, Cystitis,** Infective Wounds, and Diseases of the **Eye, Ear, and Mouth.** Also by internal administration in intestinal affections.

COLLOSOL SELENIUM.

For Inoperable Malignant Disease. Amongst the beneficial results observed in 19 cases treated with this colloid **the earliest and most striking is diminution or disappearance of pain** (see *British Medical Journal*, October 11th, 1919, p. 463).

Prepared in two forms for Intramuscular and Intravenous injection respectively. The strength is identical—0·05 per cent.—and the "solution" is isotonized. "The bulk of my observations have been made with the 'intramuscular solution,' which seems quite harmless and efficacious given intravenously." (See *British Medical Journal*, October 18th, 1919, p. 516.)

Literature and Reports from—

THE CROOKES LABORATORIES

22, CHENIES STREET, TOTTENHAM COURT ROAD, W.C. 1.

Telephones: MUSEUM 3663 & 3697.

BRITISH COLLOIDS, LIMITED.

CORYTONS.

A New Preparation

'Allenburys' EMULSION

Cod-Liver Oil and Hypophosphites

Contains only the purest Cod-Liver Oil and has exceptional keeping qualities. It is an advance on 'Bynin' Emulsion and has now entirely replaced that preparation.

Physicians sample on request.

ALLEN & HANBURYS LTD
Lombard Street, LONDON
West End House - 7, VERE ST. W.1

TRADE MARK A.D 1715.

"Polyglandin"

Indicated in Hysteria & Uterine Disorders. Also in Neurasthenia, Melancholia & Sexual Neuroses

TREATMENT by pluriglandular extracts favours general secretory activity, and many cases of apparently monoglandular deficiency benefit more by mixed hormone treatment than by the administration of the extract from a single isolated unit of the endocrinous gland system. It is now recognised that normal metabolism depends upon the hormone balance being maintained, and that the functions of the endocrinic organs are plural rather than singular. The administration of gland substances must not be regarded from the narrow standpoint of replacing a deficient secretion, but rather as stimulating particular organs to greater activity for a longer or shorter time. "Polyglandin" enhances muscular, mental and nervous activity, and is a general stimulant to the cardio-vascular system.

CONTAINS THE ACTIVE PRINCIPLES OF THE THYROID, PARATHYROID, OVARY, TESTIS & PITUITARY GLAND SUBSTANCES :: ::

ALLEN & HANBURYS LTD
LONDON · PARIS · DURBAN
TORONTO · SYDNEY · SHANGHAI

TRADE MARK
A.D. 1715.

The VOICE OF EXPERIENCE

approves

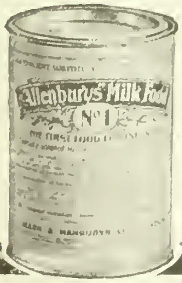
'Allenburys' Foods

		FAT	CASEIN	ALBUMEN
Cow's Milk	-	3·0	3·0	0·5
Human Milk	-	3·5	1·0	1·2
The 'Allenburys' Milk Food No. 1	-	3·33	1·12	1·00
The 'Allenburys' Milk Food No. 2	-	3·06	1·0	0·81

"It is a fatal error to expect the milk of a foreign species to be immediately adapted to and utilized by the human infant; the differences between that of the woman and that of a lower animal would indicate, even when given to the newly born with normal functions, that we must wait until the delicate digestive and assimilative organs can make use of the material designed for a more vigorous animal."

—Dr. Henry L. Coit at the English Speaking Conference on Infant Mortality.

It follows that until such time as the digestion is developed the best food is that which approximates most closely in its composition to the maternal milk.



Allen & Hanburys Ltd., London.

City House:
37, LOMBARD
STREET, E.C. 3

West End House:
7, VERE ST., W. 1

TRADE MARK
A.D. 1715.

DIARIES 1920

WE are issuing a limited number only of our Diaries for next year, which we are sending to Medical Men who have expressed a wish to receive these Diaries regularly.

We shall have a supply in excess of those so required, and shall be pleased to send copies to Members of the Medical Profession on request.

THE MALTINE MANUFACTURING CO., LTD.,
183, ACTON VALE,
LONDON, W. 3.

CARNRICK'S

"LIQUID PEPTONOIDS"

Contains the essential nutriment—Protein and Carbohydrates—derived from our principal foodstuffs—Beef, Wheat, and Milk. Its protein content is present in the form of peptones and albumoses obtained by physiological processes, and its whole nutritive content is immediately assimilable and available for nutrition. "LIQUID PEPTONOIDS" is Aseptic, slightly Stimulating, and eminently **Palatable,** and is readily tolerated by the sensitive and fastidious patient. The fact of its easy assimilability is the basis of its successful use in the dietetic treatment of the numerous types of cases in which it is indicated.

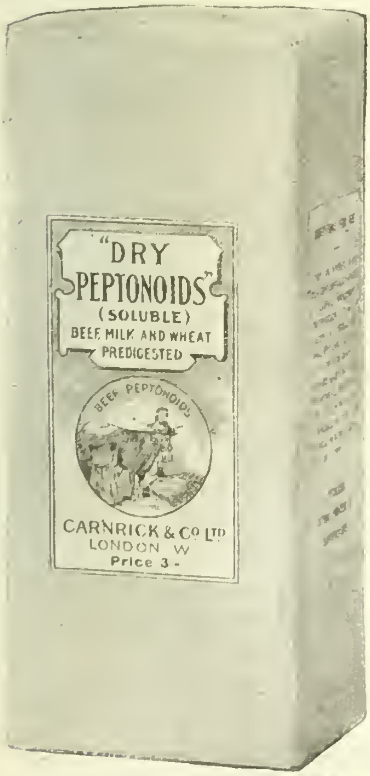
Regarding "LIQUID PEPTONOIDS"

The Lancet writes: "A very valuable food. . . . A very powerful and agreeable tonic and stimulant."

The Hospital: "An invaluable food for invalids whose digestive faculties are impaired. . . . Its most valuable feature is that clinically it has proved itself capable of absorption when everything else has been rejected by the stomach."

"DRY PEPTONOIDS" SOLUBLE (Carnrick & Co.)

BEEF, WHEAT, and MILK Pre-digested by Enzymes.



"The taste is attractive. . . . Our analysis gave the following results:—

Moisture	5·00 per cent.
Mineral matter ...	8·2 per cent.
Proteins	38·80 per cent.
and total sugars ...	48·00 per cent.

The preparation is one of distinct merit, and should serve as a rapid nutrient, especially in cases of digestion enfeebled by illness."

—THE LANCET.

INDICATIONS:

In all conditions requiring Nutritive Reinforcement without stimulation or digestive effort. In Acute Infectious Disease, Typhoid Fever, Pneumonia, Chronic Wasting Diseases, Carcinoma, Tuberculosis, Gastro- or Intestinal Ulceration, "DRY PEPTONOIDS" SOLUBLE will be found a most valuable nutrient. During Convalescence it may be used as a supplement to the ordinary diet for rapid tissue building.

It is perfectly **soluble** to a diffusible solution in all ordinary liquid media.

CARNRICK & CO., Limited, 183, Acton Vale, London, W. 3,

Will be pleased to send Samples to Medical Men Free of Charge.

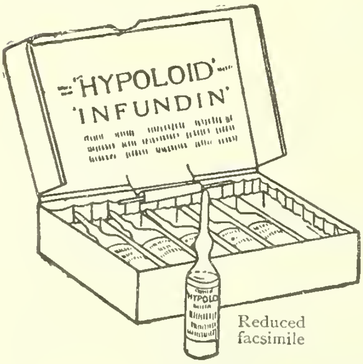
PEACE SERIES—NO. 13

TRADE 'INFUNDIN' MARK

[PITUITARY (Infundibular) EXTRACT]

In Obstetrics and in Shock

Issued under the 'Hypoloid' Brand in hermetically-sealed containers of 0·5 c.c. and 1 c.c. in boxes of 6



Reduced facsimile

After manufacture, and before issue as 'Infundin,' each batch of Pituitary Extract made by Burroughs Wellcome & Co. has to pass a physiological test of unusual stringency. Any batch which does not reach this high standard is destroyed.

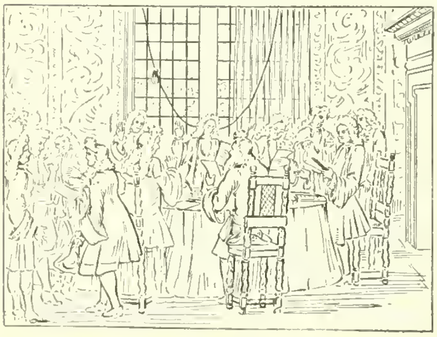
To get the best results from Pituitary Extract you must therefore specify

'INFUNDIN'

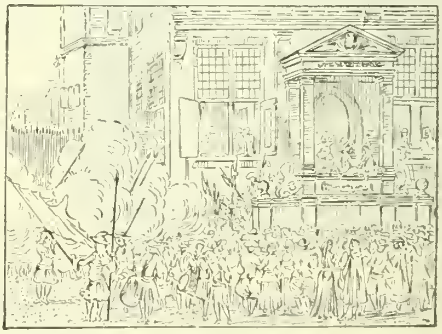
For fuller particulars, see Wellcome's Medical Diary

BURROUGHS WELLCOME & CO., LONDON
NEW YORK MONTREAL SYDNEY CAPE TOWN MILAN
SHANGHAI BUENOS AIRES BOMBAY

All communications intended for the Head Office should be addressed to SNOW HILL BUILDINGS, LONDON, E.C. 1
London Exhibition Room: 54, Wigmore Street, W.



THE CONGRESS OF UTRECHT AND DECLARATION OF PEACE.—This Congress ended the great European War of the Spanish Succession. On the part of England and the United Provinces the war was waged to prevent the union of France and Spain under one crown. It was necessary to cripple the power of Louis XIV., whose ambition threatened to overthrow the balance of power in Europe. Marlborough's great victories were the chief factor in bringing about the conclusion of peace. The Treaty of Utrecht established England as guardian of continental equilibrium and inaugurated the policy which was to rule Europe until 1789 and to be continued to some extent in the treaties following the Napoleonic wars. Spain gave England possession of Gibraltar and Minorca. France gave her Newfoundland, Nova Scotia, St. Kitt's, and Hudson Bay Territory. Her maritime power was thus secured by the opening to her of all the seas. France and England allowed each other the most favoured nation treatment, a privilege which the French also allowed the Dutch. Louis XIV. recognised the Protestant Succession in England and ceased his support of the Stuarts. Holland secured a barrier of fortresses against France. The scenes here reproduced at left and right, from an old Dutch print, depict respectively the high contracting parties engaged in the exchange and ratification of the articles of peace, and the Declaration of Peace at the Hague on May 22nd. Date, A.D. 1713.



COPYRIGHT

PEACE SERIES—No. 14

TRADE MARK 'BOROFAX' BRAND

BORIC ACID OINTMENT

Contains 10% Boric Acid in a readily absorbed base. Uniform in consistence. Never becomes rancid. Antiseptic, emollient and sedative.

Burroughs Wellcome & Co., London (Eng.)
'BOROFAX'

Reduced facsimile

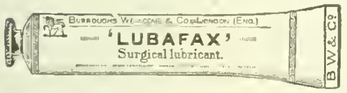
Issued in collapsible tubes of two sizes at 7½d. and 1/3 per tube

TRADE MARK 'PHENOFAX' BRAND

CARBOLIC ACID OINTMENT

Presents 3 per cent. of Pure Phenol in a combination specially convenient for application as a dressing or lubricant.

Issued in 2-ounce pots at 1/6 per pot


Burroughs Wellcome & Co., London (Eng.)
'LUBAFAX'
Surgical lubricant.
B.W.& Co.

Reduced facsimile

Issued in 2-ounce collapsible tubes at 1/3 per tube

TRADE MARK 'LUBAFAX' BRAND

SURGICAL LUBRICANT

For surgeons' hands and instruments. Contains 1–1000 mercury oxycyanide as an antiseptic. Water soluble, non-irritating, non-greasy.

For fuller particulars, see Wellcome's Medical Diary

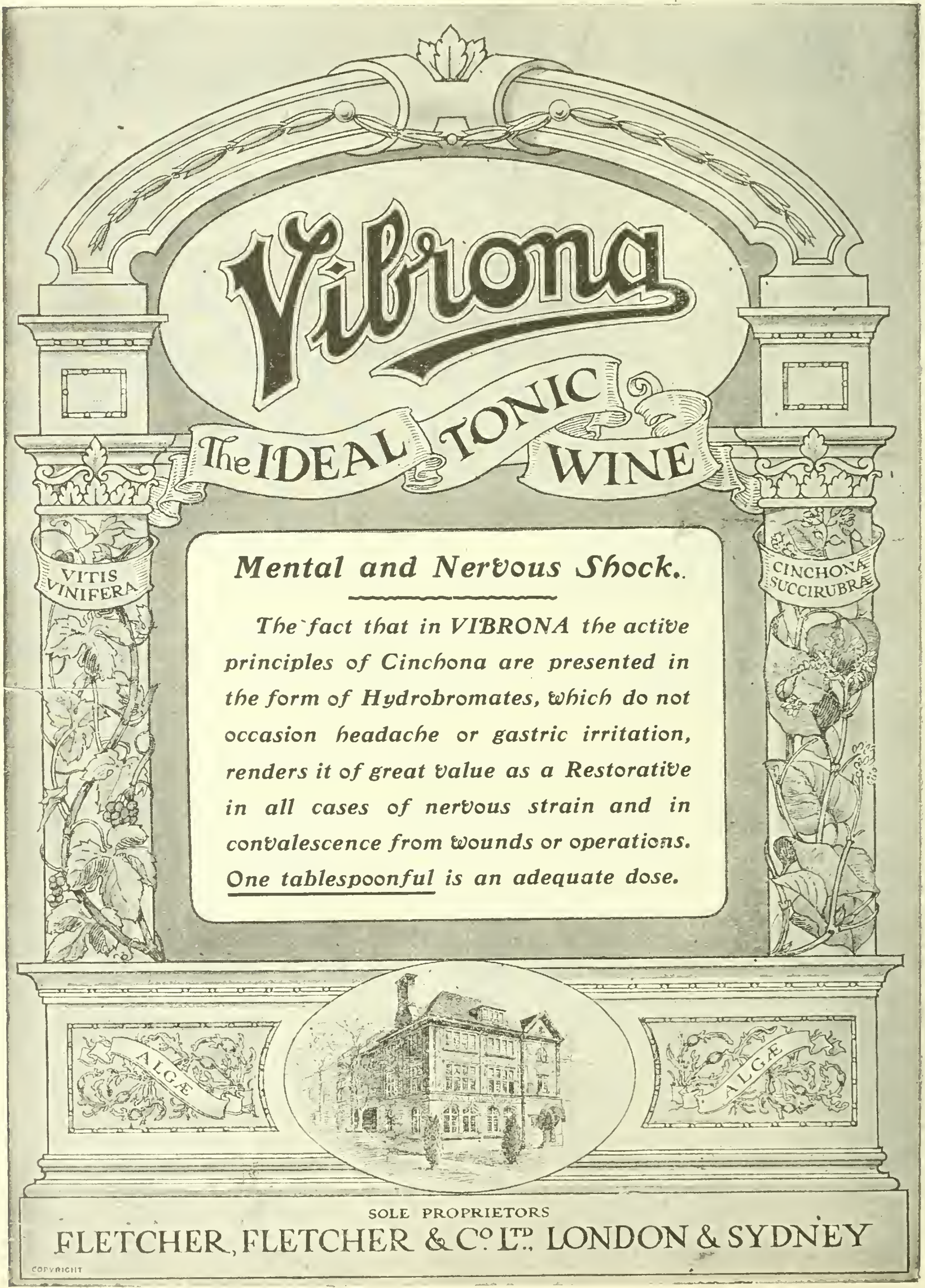
BURROUGHS WELLCOME & CO., LONDON
NEW YORK MONTREAL SYDNEY CAPE TOWN MILAN
SHANGHAI BUENOS AIRES BOMBAY

All communications intended for the Head Office should be addressed to SNOW HILL BUILDINGS, LONDON, E.C. 1

London Exhibition Room: 54, Wigmore Street, W.

THE CONGRESS OF VIENNA.—The task of the Congress was to reconstruct Europe after the Napoleonic wars, which had lasted 25 years, giving her a new basis of equilibrium and disposing of the countries which Napoleon's fall had released from French suzerainty. All Europe sent its representatives. In the picture here reproduced the figures 1-9 indicate the following delegates: Wellington, Metternich (Austria), Nesselbrode (Russia), Castlereagh, Stewart, Clancarty, Talleyrand (France), von Humboldt (Germany) and Cathcart. Talleyrand's strong representations brought about that France, Sweden, Spain and Portugal should be included in the committee formed by the four allies Great Britain, Austria, Russia and Prussia. These eight powers were the signatories to the Treaty which was the final act of the Congress. The Treaty contained 121 articles. Austria and Russia retained most of their acquired territory in Poland—Russia incorporated the rest of Poland as a separate kingdom, promising her a constitution of her own. Austria acquired Lombardy and Venetia. Prussia received two-thirds of Saxony, the former French departments on the left bank of the Rhine and several districts on the right bank. Holland and Belgium were to be one kingdom. Sweden obtained Norway. Switzerland formed a confederation whose nationality was solemnly guaranteed. Among the juridical clauses, the one abolishing the slave trade and that establishing free navigation of international rivers are the most interesting. Date, A.D. 1814.

COPYRIGHT



Vibrona

The IDEAL TONIC WINE

Mental and Nervous Shock.

The fact that in VIBRONA the active principles of Cinchona are presented in the form of Hydrobromates, which do not occasion headache or gastric irritation, renders it of great value as a Restorative in all cases of nervous strain and in convalescence from wounds or operations. One tablespoonful is an adequate dose.

SOLE PROPRIETORS
FLETCHER, FLETCHER & C^o. L^{TD}., LONDON & SYDNEY

THE MEDICAL PROFESSION ON PELMANISM

SOME REMARKABLE LETTERS

NOBODY has given more enthusiastic praise to Pelmanism than members of the Medical Profession, and in no profession are its benefits more completely appreciated.

The following interesting letters are commended to the attention of subscribers of THE LANCET. Obviously the names of the writers cannot be published, but the original letters are open for the inspection of all who desire to see them.

"I beg to enclose work sheet No. 7. I have been intending for some time now to write to the Director of Instruction to thank him for the personal interest he took in my patient, Mr. ———, whom I recommended to take up the Pelman Course. The last time I saw him I was delighted with the progress he had made and the change in his health and general condition. I am convinced that the Pelman Course has been his salvation and has saved his mind from a complete breakdown, if not worse. I have recommended this Course to at least 30 or 40 other patients, friends and acquaintances, and I only hope they will follow my advice and take up the Course."

"S. 10358" *General Practitioner.*

"Only to-day I examined a patient with your precepts in mind and discovered an astounding amount which I had previously missed."

"B. 11265" *General Practitioner.*

"I feel that I have gained all the advantages you promised—and much more besides. It has been a great pleasure to me throughout every stage of the Course. I have more energy, can acquire fresh knowledge more readily and pleasantly, and can recall and use previously acquired knowledge more easily and more extensively."

"N. 6059" *General Practitioner.*

"From the beginning of January till now there has raged the worst epidemic which has ever been experienced in the district. For a month I have hardly had half an hour's rest per diem.

By introducing system into my work I have been able to overtake the calls made upon me and have managed to keep on visiting about 100 patients a day for nearly a month without missing (I believe) a single one. I attribute this management of my work to a large extent to the hints which I received and the increase in powers obtained through your system."

"1531" *General Practitioner.*

"I am extremely pleased with the Course. As a result my memory is much more accurate than formerly; my powers of concentration are much better. Self-confidence and will power have been much increased. I seem to have acquired greater originality of outlook. I consider the Course is an excellent training for a medical man as it trains the powers of observation so well and helps to develop personal magnetism—a most important possession for a successful practitioner."

"G. 6070" *Medical Officer.*

"In the practice of medicine there is nothing more important than observation. Imperfect observation is the bane of the medical profession. More mistakes are made by not observing than by not knowing. In my present work as Inspector of Camps, &c., the eyes and other sense organs must not only functionate, but th brain must always be on the alert.

As a result of these lessons (Pelmanism) my sense perception is, under normal conditions, becoming more active and efficient, so that I am, without any effort, observing better. I am getting into the habit of observing details more and more closely."

"G. 6220" *Medical Inspector.*

The Pelman Course, it should be remembered, does not consist merely of a set of text-books It is a definite course of training and instruction which is directed through the post by expert instructors. It takes up very little time, and as the various text-books are printed in a handy pocket form you can carry them with you wherever you go, and work out the various exercises whilst travelling, or driving, and in odd moments during the day. Its cost is small and will be repaid over and over again in the increased efficiency which follows when the system is conscientiously practised. Moreover, you will find the Course to be of the most absorbing interest, and as you go through it so you will find the various weaknesses and failings which handicap the progress of so many — such weaknesses, for example, as Indecision, Forgetfulness, Want of Observation, Lack of Will-Power, Want of Self-Confidence, Mind-Wandering, Brain-Fatigue, &c.—are eliminated, and in their place the student develops such qualities as

CONCENTRATION,
OBSERVATION,
PERCEPTION,
ENERGY,
WILL POWER,
DECISION,
FORESIGHT,
JUDGMENT,
INITIATIVE,
ORIGINALITY,
IMAGINATION,
SELF-CONTROL,
SELF-CONFIDENCE,
TACT,
ORGANISING POWER,
RESOURCEFULNESS,
DIRECTIVE ABILITY,
AMBITION,
PERSONAL CHARM,
DEBATING POWER,
CONVERSATIONAL ABILITY,
and
AN ACCURATE MEMORY,

which are of the greatest value to every man or woman, whatever his or her particular position in life may be.

Over 500,000 Men and Women.

The Pelman Course has already been followed by over 500,000 men and women. It is directed through the post, and is simple to follow. It takes up very little time. It involves no hard study. It can be practised anywhere—at home, in the office, in the train, in spare moments during the day. And yet in quite a short time it has the effect of developing the mind, just as physical exercises develop the muscles, of increasing your personal efficiency, and thus doubling your all-round capacity and income-earning power.

Full particulars of the Pelman Course are given in "Mind and Memory," which also contains a complete descriptive Synopsis of the 12 lessons. A copy of this interesting booklet, together with a full reprint of "Truth's" famous Report on the work of the Pelman Institute, and particulars showing how to secure the complete Course on special terms, may be obtained gratis and post free by any reader of "The Lancet" who applies to the Pelman Institute, 323, *Pelman House, Bloomsbury Street, London, W.C. 1.*

A Great Advance in Soap Chemistry.

As a result of sixteen years of strenuous work in chemical research and its practical application, "Sapon" Soap—a British Invention, developed with British Capital—has been perfected.

It is the greatest advance in the chemistry of Soap since that article was first manufactured.

Ordinary Soap consists of Fat deglycerined and saponified with Caustic Soda.

"SAPON" SOAPS

are derived from Carbohydrates which, when treated by the Company's patented process, yield Ammonia, Methylamine, and Trimethylamine. These Nitrogenous compounds are highly emulsifying agents, and do **NOT** combine with Lime or Magnesia Salts in water, as all fat-derived soaps do. Hence, no "scum" or insoluble lime soap is formed, even in the hardest water, when "Sapon" Soap is used.

S. A. SHORTER, Esq., D.Sc., of Leeds University, says of "Sapon" Soaps:—

> "They contain 'surface active' colloids, whose 'surface activity' greatly exceeds that of an ordinary fat soap, and that therefore it fulfils in an extremely satisfactory manner the fundamental condition for detergent action."

Skin Diseases.

The Amines and Amido bodies in "Sapon" Soap are readily soluble in water. They are germicidal but non-injurious owing to their colloid nature. Besides their efficiency as cleansers, they have a wonderfully sedative action. This action is intensified by the addition of 10% of saponified Birch Root Tar in

"SAPON" RUSSIAN TAR SOAP.

A member of the Medical Profession writes:—

> "I find your Russian Tar Soap gives wonderful results in irritable skin diseases, such as Scabies, Eczema, Pruritus, Insect Bites, Acne, &c."

The following is the best method of application: Moisten the Soap, rub it on the part affected, and allow it to dry.

Free Samples will be sent to any Member of the Medical Profession on receipt of a postcard to:—

"SAPON" SOAPS, LIMITED, Sapon House, London Bridge, E.C. 4.

PAPAIN DEGA

A specially selected Papaw juice, unbleached, carefully prepared and powdered, free from all particles of inert resinous matter.

PAPAIN DEGA retains full therapeutic activity in the presence of marked alkaline reaction. It may therefore be prescribed with Sod. Bicarb., Mag. Carb. Pond, &c., in cases of **Chronic Gastric Fermentation.**

(We would respectfully ask Physicians to write PAPAIN DEGA in full when prescribing, in order to protect their patients.)

1-oz. bottles, 3/6. Special quotations for Hospitals. **4-oz. bottles, 12/6.**

CHAS. ZIMMERMANN & CO. (Chem.), Ltd.

Medical Dept. 2, 9/10, ST. MARY-AT-HILL, LONDON, E.C. 3.

British Firm. **British Interests.**

VITAMOGEN represents a highly Concentrated Food, and contains Free Vitamine in its natural and unchanged condition.

VITAMOGEN has been found invaluable in Cases of Depression following INFLUENZA.

Vitamogen *is packed in two sizes—**2/9** and **5/9**, or in bulk for Hospitals. Literature on the **Vitamines** will be sent with sample upon application.*

Extract of Leaflet IV.—Copies of the article complete, with Sample of Vitamogen, will be posted by request to VITAMOGEN, Ltd., 24, Holborn, E.C. 1

VITAMOGEN owes its origin to our Chairman —who also invented "VIROL"

"Semprolin"

Emulsion

contains
sixty per cent. of the
PUREST LIQUID PARAFFIN
of
HIGHEST VISCOSITY
Perfectly Emulsified.

Supplied as SIMPLE EMULSION or combined with SALOL, GUAIACOL, PHENOLPHTHALEIN, etc.

IN Liquid Paraffin therapy, "Semprolin" Emulsion is preferable to plain oil because it mingles more thoroughly and easily with the stomach contents, obviating nausea and softening the fæces effectively; because it is far more palatable and is therefore taken regularly by patients; and because other medicaments can be prescribed with it in the same dose. In 8-oz. and 16-oz. Bottles.

Samples Free to MEDICAL MEN

THE WM. BROWNING CO. Ltd.
MANUFACTURING AND EXPORT CHEMISTS,
Albert Works, Park Street, London N.W. 1.

GOLD MEDAL, INTERNATIONAL CONGRESS OF MEDICINE, LONDON, 1913.

MIST. HEPATICA CONC. (HEWLETT'S)

COMPOSITION.—Ext. Cascaræ, Ext. Rhei, Jalapin, Podophyllin, Cocainæ Hydrochlor., 1-12th gr. in each fluid drachm.

THIS excellent compound, first introduced as a general **aperient** and **cholagogue,** has now become a popular remedy, and attention has very recently been called to the value of the mixture, by various authorities, in that class of cases spoken of as Chronic Biliousness, in Catarrhal Jaundice, and in the Jaundice of simple Hepatic Torpor. **In passive or habitual Congestion of the Liver, so frequently met with, it has been used with marked benefit.**

In the treatment of acute or temporary constipation, frequently met with in the convalescence from acute disease, and in pregnancy, or in the constipation due to sedentary habits, to a deficiency of intestinal secretion and of peristalsis, the mixture can be prescribed with wonderful effect, positively curing cases that have resisted other remedies.

The Dose is from 10 to 60 minims, according to the age and condition of the patient. One drachm is a direct aperient and is not accompanied by griping or tenesmus.

Packed for Dispensing only in 10-oz., 22-oz., 40-oz., and 90-oz. Bottles.

Please write: "Mist. Hepatica Conc. (HEWLETT'S)" to ensure obtaining this Preparation.

C. J. HEWLETT & SON, Ltd.,
Wholesale and Export Druggists and Manufacturing Chemists,
35 to 42, CHARLOTTE STREET, LONDON, E.C.2.

Faulty Protein Digestion and imperfect Fat Digestion

are the most common errors of diet that produce the symptoms readily recognised as

Constipation in Infants.

A thorough understanding of the undeniable usefulness of

Mellin's Food

as a modifier of fresh cow's milk for the correction of these errors will save the medical practitioner much annoyance.

A well-known doctor writes:

"In the case of my own child, it was much troubled at an early age with constipation, but Mellin's Food was recommended by a medical friend whose own baby took it with excellent results. It proved to be just what was needed, and the child is now sturdy and vigorous." ——L.R.C.P., L.M., M.R.C.S.

Write to us for Sample and result of our observations.

Mellin's Food, Ltd., Peckham, London, S.E.

No. 451.—Size 7 ft. by 6 ft. Full Specification and Estimate sent on Application.

Revolving Shelters

For Open=Air Treatment

These B. & P. Revolving Shelters are in ever-increasing demand. They are specially designed for the open-air treatment, and meet every requirement perfectly. Sturdily built by skilled craftsmen from selected materials of the best quality. Splendidly finished—leaving no draughty cracks—they combine good appearance with lasting usefulness.

They are made in many designs of varying sizes—plain, ornamental, thatched, &c.—or special designs can be prepared.

Write for Illustrated List of Shelters Showing Many Designs for Choice.

Inquiries invited for Hospitals, Sanatoria, Sleeping Chalets, Portable Surgeries, Motor Car Houses.

Telephone:
Norwich
851.

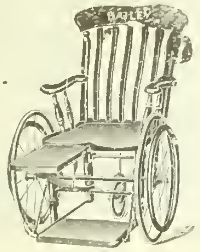
Boulton & Paul Ltd.
NORWICH

Telegrams:
"Boulton,
Norwich."

BAILEY'S INVALID FURNITURE

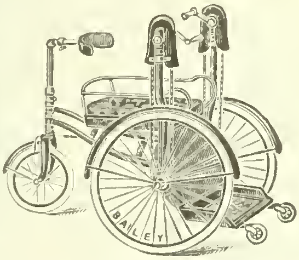
No. F 263.

No. F 263. A strong **Merlin Chair**, Birch polished Walnut, caned back and seat, rubber-tyred wheels, 24 inches diameter, with hand rims.



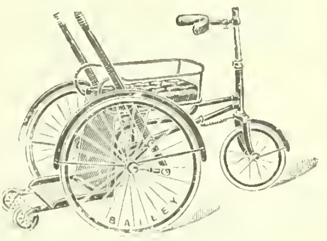
No. F 500.

No. F 500. **Merlin Chair**, very strongly built, suitable for Military Hospitals. With or without Detachable Leg Rest.



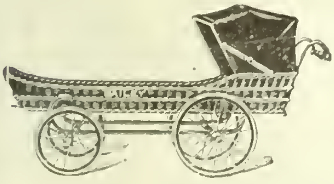
No. F 509.

No. F 509. **Hand-propelled Invalid Chair**, Seat with nickel-plated rail. The Steering is effected by the back support, ball bearings throughout, and pneumatic tyres.
Hand Brake extra.

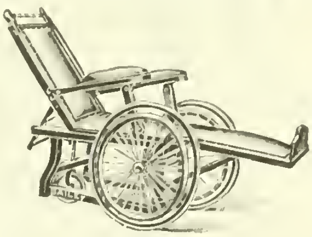


No. F.S. 540.

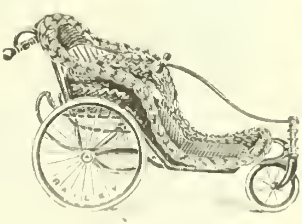
No. F.S. 540. **Hand-propelled Invalid Chair**, with lever action, Seat mounted on Spiral Springs, Rexine covered Cushion, weldless steel frame, ball bearings, and heavy roadster pneumatic tyres, steering as No. 509.



Spinal Carriages.



Lounge Merlin Chair.



Invalid Carriages.

W. H. BAILEY & SON, Ltd., 38, Oxford Street, W. 1.

Tele rams: "BAYLEAF, LONDON." Telephone: MUSEUM 1484.

Deficiency of Butter Fat

in the dietary of Infants & Adults resulting from the restriction of the sale of cream and butter

can be met by giving

Glaxo

Full Cream Dried Milk

which contains

over 25% pure Butter Fat.

As a liquid milk; in coffee and cocoa; in milk puddings, blancmanges, custards, soups, &c.

For Infants and Adults

Glaxo is continuously in use by over
1360 Infant Welfare Centres
in Great Britain.

Samples and Literature sent on request by

GLAXO (Medical Dept.),
155-7, GREAT PORTLAND ST., LONDON, W. 1.

Proprietors: Joseph Nathan & Co., Ltd., London and New Zealand.

SUBSTITUTE *for* MORPHIA
Anodyne in all affections and for
THE TREATMENT *of* MORPHINISM, *etc.*

TRIVALIN

A combination of caffeine valerianate, cocaine valerianate and morphine valerianate, in molecular proportion.

Better tolerated than morphia and free from the after-effects such as nausea and vomiting.

For Hypodermic Injection. Ampoules, box of 6, 2/6
" " Solution, bottle, 10 cc, 4/-
For Oral Administration. Capsules, " 50, 5/-

LITERATURE ON APPLICATION

THE SACCHARIN CORPORATION LTD.
Pharmaceutical Department.
36, 37, QUEEN STREET, CHEAPSIDE, LONDON, E.C.4.

As supplied to—The Cancer Hospital, St. Bartholomews, London Hospital, Guy's Hospital, St. Thomas's Hospital, St. Mary's Hospital British Red Cross Society, Army Medical Service.

"PERFECTOS"

No. 2

Virginia Cigarettes.

JOHN PLAYER & SONS beg to draw the attention of connoisseurs to **"PERFECTOS" No. 2** Cigarettes. They are distinguished by a superb delicacy, the result of a matchless blend of the Finest Virginia Tobacco.

10 FOR **9½d.** **50** FOR **3/10**
20 FOR **1/7** **100** FOR **7/2**

"PERFECTOS FINOS" are a larger cigarette of the same quality.

JOHN PLAYER & SONS, NOTTINGHAM.

P203

The Imperial Tobacco Co. (of Great Britain and Ireland), Ltd.

ORAL SEPSIS.

"EUMENTHOL JUJUBES"

(HUDSON)

Made in Australia.

A Gum pastille containing the active constituents of well-known Antiseptics, Eucalyptus Polybractea (a well-rectified Oil free from aldehydes (especially valeric aldehyde), which make themselves unpleasantly noticeable in crude oils by their tendency to produce coughing), Thymus Vulg., Pinus Sylvestris, Mentha Arv., with Benzo-borate of Sodium, &c., they exhibit the antiseptic properties in a fragrant and efficient form. Non-coagulant antiseptic and prophylactic, reducing sensibility of mucous membrane.

THE LANCET says:—

"In the experiments tried the Jujube proved to be as effective bactericidally as is Creosote."

Mr. W. A. DIXON, F.I.C., F.C.S.,
Public Analyst of Sydney, after making exhaustive tests, says:—

"There is no doubt but that 'Eumenthol' Jujubes have a wonderful effect in the destruction of bacteria and preventing their growth. ...... I have made a comparative test of 'Eumenthol' Jujubes and Creosote, and find that there is little difference in their bactericidal action."

THE PRACTITIONER says:—

"They are recommended for use in cases of oral sepsis, a condition to which much attention has been called in recent years as a source of gastric troubles and general constitutional disturbance, and are also usefnl in tonsillitis, pharyngitis, &c."

The AUSTRALASIAN MEDICAL GAZETTE states:

"Should prove of great service."

London Agents:—
Wholesale: **F. NEWBERY & SONS, Ltd.,**
27 & 28, Charterhouse Square.
FREE SAMPLES forwarded to Physicians on receipt of professional card by F. Newbery & Sons, Ltd.
Retail:—W F. PASMORE, Chemist,
320, Regent Street, W.

Manufactured by G. INGLIS HUDSON, Chemist
FOR
HUDSON'S EUMENTHOL CHEMICAL CO., LTD.,
Manufacturing Chemists, 31, Bay Street,
SYDNEY, AUSTRALIA.

Distillers of Eucalyptus Oil Rectified by Steam Distillation.
Manufacturers of Pure Eucalyptol (Cineol).

Darkness
is bad
for
timid
children —
dispel it
with
PRICE'S
NIGHT LIGHTS

TRADE MARK

Sal Hepatica

EFFERVESCENT
SALINE COMBINATION
LAXATIVE & ELIMINANT

Sample on
request

BRISTOL-MYERS
COMPANY
NEW YORK

On Sale by Jobbers and Thos. Christy & Co.,
4, 10, & 12, Old Swan Lane, Upper Thames St.
London, E.C.

The "Allenburgs" Castor Oil.

ABSOLUTELY WITHOUT ODOUR OR NAUSEOUS TASTE

ELIXIR CRESOLIS c̄. HEROIN CO.

— Gale's —

An excellent and palatable combination: Syr. Pin Cresolat., Glycerophosphates, Heroin, Demulcents, &c.

A most useful preparation for Winter and Phthisical Cough.

UNG. RUBEFACIENS

— Gale's —

An excellent Counter-irritant.

Highly recommended for Muscular Rheumatism; and also to be rubbed on the chest night and morning in the early stages of cold.

LIQUOR CRESOLIS CO.

— Gale's Lysol —

A reliable preparation for forming germicidal solutions for Surgical and ordinary disinfecting purposes.

Price List and Pill Catalogue on application.

GALE & COMPY., Ltd.,
WHOLESALE CHEMISTS AND DRUGGISTS. (*Estab. 1786.*)
15, BOUVERIE ST., FLEET ST., LONDON, E.C.
Tel. Ad.: "DREADNOUGHT, LONDON." 'Phone: 898 HOLBORN.

PROTEIN NERVE FOOD

A PURE CASEIN FOOD containing 84% Proteid with Organic Phosphate
Useful in Neurasthenia, Neuritis, & all cases of Impaired Nerve Activity.
In Boxes, 1/6, 2/6, and 4/6. *Vide* LANCET, *March 9th, 1912, p. 658*
Prepared by R. HOGG & SON, 1, Southwick-st. & 40, Connaught-st., Hyde Pk.

As Supplied to H.R.H. The Princess Royal of England and H.R.H. the Crown Princess of Sweden.

HUMANIZED MILK

PREPARED ONLY BY

THE AYLESBURY DAIRY CO., Ltd.
31, ST. PETERSBURGH PLACE, BAYSWATER, W
Telephone No.: "PARK 226."

SAMPLES FREE to the MEMBERS of the MEDICAL PROFESSION.

BRAND'S ESSENCE OF BEEF

FOR INVALIDS

OF ALL CHEMISTS

MILK FOR DIABETICS.

SOLAC (SYNTHETIC MILK)

Double Cream. **SUGAR FREE**

This milk is a new product, prepared especially for Diabetics under the directions of a physician, and is guaranteed **not to produce sugar** in the system.

It is extremely palatable, and being in powder form will keep indefinitely.

It can be used for all the purposes of ordinary milk and cream, in tea, coffee, &c., and for making custards, blanc mange, pastry, biscuits, ices, &c. It is much more nourishing than cow's milk.

Sample tin sent post free ... ... ***Price 3s.***

SOLAC, Limited, Department "A," 221, Tottenham Court Road, W.1.

DIABETES OBESITY

BLATCHLEY'S Celebrated Bread and Biscuits supplied to nearly all the London and County Hospitals & Infirmaries. Blatchley's Gluten and Bran Biscuits, a speciality in treatment of Obesity, made from a recipe of Dr. Yorke-Davies. Price Lists free.

E. BLATCHLEY, 35, GREAT PORTLAND STREET, OXFORD CIRCUS, LONDON, W. (Late 167, Oxford Street) Established 1838

PATRONISED BY THE ROYAL FAMILY. – A REAL SEA BATH IN YOUR OWN ROOM.

TIDMAN'S SEA SALT.

28 lbs. ... 4/6. Half cwt. ... 7/9. One cwt. ... 13/9. Carriage paid to any address in the United Kingdom.
Other sizes—Small packets, 1/6 per doz.; boxes, 4d., 8d., 1/2, 2/-. Orders for 20/- worth and upwards, any sizes, Carriage paid.

OF ALL CHEMISTS, DRUGGISTS, AND DRUG STORES, OR DIRECT FROM THE PROPRIETORS—
TIDMAN & SON, Ltd., Wapping, London, E.

The "REPELLO" (Zeal's Registered)
CLINICAL THERMOMETER.

NO SHAKING REQUIRED

SPECIAL AWARD & GOLD MEDAL. New Zealand Exhibition.

A 30 sec. Reset instantly. Made in all kinds. Kew certificated. Guaranteed accurate. Of all Instrument Makers, Chemists, &c.
Inventor and Maker—G. H. ZEAL, 82, Turnmill St., London, E.C.

DR. CHAUMIER'S

GLYCERINATED AND REINFORCED **CALF LYMPH.**

THE CHEAPEST AND MOST ACTIVE LYMPH.

PREPARED under the MOST MINUTE ANTISEPTIC PRECAUTIONS.

Supplied in Tubes, sufficient to vaccinate 1 or 2 persons, at 8d. each; 10 persons at 1s. 3d. each, 25 persons at 2s. 3d. each. Collapsible tubes for 40 vaccinations 3s. 9d. each. Postage and packing 2d. each extra.

ROBERTS & CO., 76, New Bond St., LONDON, W

VACCINES

AUTOGENOUS, STOCK, AND DETOXICATED.

In bulk or in graduated doses.

Apply, SECRETARY,
LABORATORIES OF PATHOLOGY & PUBLIC HEALTH,
6, HARLEY STREET, LONDON, W. 1.

CAPSICUM

"GAMGEE TISSUE."

Sole Proprietors and Manufacturers:
ROBINSON & SONS, Limited,
Chesterfield.

CATALOGUE of SECONDHAND SURGICAL INSTRUMENTS, OSTEOLOGY, MICROSCOPES, POST FREE.

Students' Half Sets of Osteology. Articulated Skeletons and Disarticulated Skulls.

Secondhand Surgical Instruments, Osteology and Microscopes bought, sold and exchanged.

MILLIKIN & LAWLEY, 165, STRAND, LONDON, W.C. 2. Telephone City 1706

THE EARLIEST HYGIENIC SHOEMAKERS.

[ESTABLISHED SINCE 1824.]

The instructions of the Profession intelligently carried out.

In addition to the Departments for **Ladies and Gentlemen**, special attention is given to provide properly shaped shoes for **Children**, parcels of which can be forwarded on approval to any part of the country. Please send outlines of the feet.

DOWIE & MARSHALL have had great experience in the shoeing treatment of weak ankles and flat feet.

DOWIE & MARSHALL, Ltd., 455, West Strand, Charing Cross, London

G.P.O. Telephone No. 9015 Central.

"NORVIC" CRÉPE BANDAGE

(REGD)

SUPERIOR ENGLISH MANUFACTURE. FAST WOVEN EDGES.

Extremely Elastic, but contains no Rubber.

Invaluable for binding. Displaces rubber and elastic web. More durable and one-third the cost. The Norwich Crepe Bandages, containing wool, will provide warmth, and do not absorb grease readily. Self-clinging and self-adjusting. Perfectly cleansed, sterilised, and resiliency entirely restored by washing in hot, soft water (with addition of a little soap). The edges will not fray out nor ravel. Made and supplied to the leading wholesale houses, neatly wrapped in labelled packages. Commended by the medical and nursing professions. Send for prices and samples to the sole manufacturers—

The Norwich Crape Co. (1856) Ltd. (St. Augustine's Silk Mills), Norwich, Eng.

London buyers can obtain samples & prices from Mr. T. Eastaway, London Represent., 7, Wool Exchange, E.C.2.
Provincial Selling Agents, Freese & Moon, Ltd., 59, Bermondsey Street, London, S.E.1.

"As fit as a fiddle."

Hospital for Diseases of the Throat,
Golden-square, London, W.

CLINICAL INSTRUCTION.

Clinical instruction in the Diagnosis and Treatment of Disease is given daily in the Out-patient Department. Minor operations are performed at 10 A.M. on four days a week.

HONORARY MEDICAL STAFF.

Surgeons.	Out-patients.	Operations.
Mr. J. FAULDER.	Wednesday, 2 P.M.	Thursday, 10 A.M.
Mr. G. W. BADGEROW.	Monday, 2 P.M. Tuesday, 6.30 P.M.	Wednesday, 9 A.M.
Mr. N. PATTERSON.	Friday, 2 P.M.	Friday, 10 A.M.
Mr. L. COLLEDGE.	Tuesday, 2 P.M.	Thursday, 2 P.M.
Mr. G. W. DAWSON.	Thursday, 2 P.M. Saturday, 10 A.M.	Tuesday, 10 A.M.
Asst. Surgeon.		
Mr. GILBERT CHUBB.	Friday, 6.30 P.M.	Friday, 2 P.M.

For further information apply to G. W. DAWSON, Dean.

POST-GRADUATE COLLEGE, WEST LONDON HOSPITAL
Hammersmith-road W.—For Prospectus apply the Dean.

York Road (General Lying-in)
HOSPITAL, Lambeth, S.E. Established 1765.

Patrons: H.M. The Queen and H.M. Queen Alexandra.

Medical Students and qualified Practitioners admitted to the Practice of this Hospital.

Telephone: 794 Central. For rules, fees, &c., apply
ROSE E. WHYTE, Secretary.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL AND
MIDWIFERY TRAINING SCHOOL, Marylebone, N.W. 1.

MEDICAL STUDENTS and QUALIFIED PRACTITIONERS admitted to the Practice of this Hospital. Unusual opportunities are afforded of seeing Obstetrical Complications and Operative Midwifery, about one-half of the total admissions being primiparous cases.

PUPILS TRAINED FOR MIDWIVES AND MONTHLY NURSES. On being found competent each pupil is awarded a certificate of efficiency.

SPECIAL PREPARATION FOR EXAMINATION OF CENTRAL MIDWIVES BOARD.

CERTIFICATES AWARDED as required by the various Examining Bodies.

For rules, fees, &c., apply ARTHUR WATTS, Secretary.

CITY OF LONDON MATERNITY HOSPITAL
(formerly City of London Lying-in Hospital)
MIDWIFERY SCHOOL, City Road, E.C. 1.

MEDICAL STUDENTS admitted to HOSPITAL PRACTICE, with Operative Midwifery and Obstetrical Complications.

PUPILS TRAINED as MIDWIVES and MONTHLY NURSES, in accordance with Central Midwives Board regulations.

CERTIFICATES awarded as required by Examining Bodies.

PRIVATE WARDS for PAYING PATIENTS.

or Prospectus apply RALPH B. CANNINGS, Secretary

GUY'S HOSPITAL MEDICAL SCHOOL
(UNIVERSITY OF LONDON).

PRIMARY F.R.C.S. EXAMINATION, MAY, 1920.

Special Classes for this Examination will commence in the first week of February, 1920, and will continue for thirteen weeks, during which time Anatomy and Physiology will be taken four times weekly.

ANATOMY ... ... Professor T. B. JOHNSTON, M.B.
PHYSIOLOGY ... ... M. S. PEMBREY, M D.

Gentlemen taking this Course will have the right of admission to the Gordon Museum, Wills Library, and the Rooms and Specimens in the Anatomical and Physiological Departments.

For time table and full particulars, application should be made to the Dean, Guy's Hospital S.E. 1

Royal College of Physicians of
LONDON.

The next PROFESSIONAL EXAMINATION for the MEMBERSHIP will commence on Tuesday, January 20th.

Candidates are required to give fourteen days' notice in writing to the Registrar of the College, with whom all certificates and testimonials required by the By-laws are to be left at the same time.

Pall Mall East, S.W. J. A. ORMEROD, M.D., Registrar.

Society for Relief of Widows and
ORPHANS OF MEDICAL MEN. — A Quarterly Court of the Directors of the above Society will be held at 11, Chandos-street, Cavendish-square, W. 1, on Wednesday, January 7th, at 5.30 p.m., to elect Members and conduct the usual business.

EDWARD J. BLACKETT, Secretary.
11, Chandos street, W. 1, 27th Dec., 1919.

University of Glasgow.
FACULTY OF MEDICINE.

The University Court, in pursuance of the notices previously issued, hereby intimates that all applicants for permission to commence the Study of Medicine on 21st April, 1920, must lodge their applications before 21st February, 1920. Forms of application may now be obtained from the Registrar.

December, 1919. DONALD MACALISTER, Principal.

Liverpool School of Tropical Medicine.

The next Course of Instruction will be conducted in the new laboratories of the School, and will commence on the 12th January, 1920. The date of the D.T.M. Examination is March 29th, 1920. For further particulars apply to the Secretary, School of Tropical Medicine, University of Liverpool

---

Salford Royal Hospital and Ancoats
HOSPITAL, MANCHESTER.

A Series of POST-GRADUATE DEMONSTRATIONS and LECTURES will be given on Thursday afternoons, at 4.30 P.M., alternately at the two Hospitals above named. The subjects of the Lectures will be announced week by week in the journals. Tea will be provided at 4 P.M. First Lecture, January 15th.

DIPLOMA IN PUBLIC HEALTH.
UNIVERSITY OF CAMBRIDGE.

LECTURES and PRACTICAL INSTRUCTION in the subjects of the Examination will begin 16th JANUARY and 23rd APRIL, 1920, at the

UNIVERSITY LABORATORIES, PEMBROKE ST., CAMBRIDGE.

Hygiene, Chemistry, and Physics—Mr. J. E. Purvis.

Bacteriology and Preventive Medicine—Dr. Graham-Smith.
Special Lectures by Professor Nuttall on Protozoal Diseases, and by Dr. Shipley on Animal Parasites.

Practical Sanitary Administration, Hospital Administration, School Hygiene, Sanitary Law, &c.—Dr. Laird, M.O.H. for Cambridge, and Dr. Robinson, M.O.H. for the Cambridgeshire County Council.

Further particulars may be obtained from Mr. J. E. PURVIS, Chemical Laboratory, Pembroke-street, Cambridge.

UNIVERSITY OF BIRMINGHAM.
FACULTY OF MEDICINE.

A POST-GRADUATE COURSE OF LECTURES AND CLINICAL DEMONSTRATIONS ON

VENEREAL DISEASE

Will be given in the University, Edmund-street, during the Spring Term, 1920.

Admission to the Lectures will be free, but a fee will be charged for attendance at the Clinical Demonstrations.

A syllabus of the Course, together with all details, will be supplied on application to the Dean.

The Lectures and Demonstrations will be open only to Members of the Medical Profession. WILLIAM F. HASLAM, F.R.C.S., Dean.

EDINBURGH
POST-GRADUATE COURSES IN MEDICINE
(In connexion with the University and Royal Colleges).

POST-GRADUATE COURSES in CLINICAL MEDICINE and in CLINICAL SURGERY, designed to meet the requirements of Graduates returning from Active Service on Demobilisation, will be conducted during the Spring Term, 1920, commencing 7TH JANUARY, and during each subsequent academic term.

Each Course will extend throughout the term, and the work, which will be essentially practical, will occupy the whole time of members.

A COURSE on OBSTETRICS, GYNÆCOLOGY, and CHILD WELFARE, on similar lines, will be held during the months of AUGUST and SEPTEMBER, 1920.

The Courses are open to Women Graduates.

Particulars may be had on application to THE SECRETARY, EDINBURGH POST-GRADUATE COURSES, UNIVERSITY NEW BUILDINGS, EDINBURGH

LONDON SCHOOL OF TROPICAL MEDICINE.

The present Session of the School commenced on 1st October, 1919.

In 1920 Sessions will be held commencing January 19th, May 3rd, and October 4th respectively.

For prospectus and further particulars apply to: The Director (Dr. H. B. NEWHAM, C.M.G.), London School of Tropical Medicine, Connaught Road, Albert Docks, London, E. 16; or to the Secretary, Seamen's Hospital, Greenwich, London, S.E.

CENTRAL LONDON OPHTHALMIC HOSPITAL,

JUDD STREET, W.C.

Classes of Instruction on the following subjects will be held during the Winter Session, commencing Jan. 6th, and are open to both Men and Women Students. Those wishing to attend are requested to send in their names to the Dean.

(1) The Use of the Ophthalmoscope.
(2) Errors of Refraction.
(3) Medical Ophthalmology.
(4) Operative Surgery and Surgical Anatomy. Fee £3 3s.
(5) Pathology of the Eye.
(6) Bacteriology of the Eye.
(7) X-Ray Instruction. Fee £3 3s.
(8) Clinical Lectures on External Diseases of the Eye.

The post of Clinical Assistant at the Hospital is open to Men and Women Students. In 1918:—New Patients, 12,821; Out-patients' attendances, 30,256.

A composition fee of £6 6s. entitles Students to a perpetual ticket, and £4 4s. to three months' Hospital practice. Either fee will admit Students to the above Classes and Demonstrations on the use of the Ophthalmoscope, Errors of Refraction, and External Diseases of the Eye. Any single Class can be taken for a fee of £2 2s. with the exception of the X-Ray and Operative Surgery Classes.

The Classes will be given by various members of the Staff, and are limited to a certain number of Students. Early application is therefore desirable. For Syllabus and further particulars apply to the Dean of the School.

Manchester Royal Infirmary.

A Series of Post-Graduate Lectures and Demonstrations will be given (if sufficient applications are received), specially arranged for the modified M.D. Examination of the Manchester University, but generally suitable for other M.D. Examinations and for the M.R.C.P. These will commence Tuesday, April 13th, 1920, and will last for twelve weeks. They will need "Whole-time" or nearly "Whole-time" attendance. Details from the Secretary of the Post-Graduate Committee, Manchester Royal Infirmary.

Lip-reading for the Adult Deaf.

American system; easily learnt. Average course twenty-four lessons. References to Aurists. Moderate fees.—Miss Brent, Flat 2, 63, Bryanston-street, W. 1.

UNIVERSITY EXAMINATION POSTAL INSTITUTION.

Postal or Oral Preparation for all Medical Examinations.

Telephone 6313 Central.

SOME SUCCESSES

M.D. (Lond.), 1901-19 (6 Gold Medallists 1913-19). **238**
M.B., B.S. (Lond.), *Final* 1906-19 (completed exam.) **100**
F.R.C.S. (Eng.) 1906-19, Primary **57**; Final **32**
M.R.C.P. (Lond.), 1914-19 .... **28**
D.P.H. (various), 1906-19 .... **148**
M.R.C.S., L.R.C.P. (*Final*), '06-19 (completed exam.) **119**
R.A.M.C. and **R.N.,** Top Candidates Jan. & March, '14.
I.M.S., July, 1915. Second place.
M.D. (Durham) (Practitioners), 1906-19. **25**
M.D. (various), by Thesis. Many Successes.
Preliminary (Arts or Science).—Many Successes.

For Prospectuses, List of Tutors, List of recent Successes, &c., apply to the Principal, Mr. E. S. WEYMOUTH, M.A., 17, Red Lion Square, London, W.C. 1.

A PEACE RISK.

Who is carrying your death Risk?
Is it your Family, or
a Life Assurance Office?

WHY NOT LET THE PRUDENTIAL CARRY IT?

Reversions and Life Interests in

Landed or Funded Property or other Securities and Annuities PURCHASED or LOANS granted thereon by the

EQUITABLE REVERSIONARY INTEREST SOCIETY, LIMITED,
10, Lancaster-place, Waterloo Bridge, Strand.
Established 1835. Capital (paid up), £500,000.

VICTORY BONDS

purchased after the 12th July will not be available for the payment of Death Duties for their full face value until six months have elapsed.

THE VICTORY BOND POLICIES
issued by the
NATIONAL PROVIDENT INSTITUTION
provide for the payment of the full amount of the face Value of the Bond from the date of issue.

Particulars post free on application to:—
48, GRACECHURCH STREET, E.C. 3.

VALUABLE BOOK FREE!

Are you preparing for any Medical or Surgical Examination?

Send Coupon below for our valuable publication

"Guide to Medical Examinations"

PRINCIPAL CONTENTS

- The Examinations of the Conjoint Board.
- The M.B. and M.D. Degrees of all British Universities.
- How to pass the F.R.C.S. Exam.
- The M.S. Lond. and other Higher Surgical Examinations.
- The M.R.C.P.
- The D.P.H. and how to obtain it.
- The Diploma in Tropical Medicine

Do not fail to get a copy of this Book before commencing preparation for any Examination. It contains a large amount of valuable information.

Send for your copy now!

The Secretary,
MEDICAL CORRESPONDENCE COLLEGE,
3, Wimpole St., Cavendish Sq., London, W. 1.

SIR,—*Please send me a copy of your "Guide to Medical Examinations" by return.*

☐

Name ....

Address ....

Examination in which interested ....

The Hospital for Sick Children,

Great Ormond-street, W.C. 1.—TRAINED NURSES can be had on application to the Matron. Telegraphic address: "Great Westcent London." Telephone Nos.: Museum 1805 and 1806.

St. John's and St. Thomas's House.—

Trained and experienced MEDICAL, SURGICAL, MATERNITY NURSES and MASSEUSES can be obtained by application, personally or by letter, to the Sister in Charge, 12, Queen's-square, W.C. 1 (Tel. No. 5099 Central), or to Matron, St. Thomas's Hospital (Tel. 4191 Hop.). Telegraphic address: "Private Nurses, London."

LONDON: 43, NEW CAVENDISH STREET.
MANCHESTER: 176, OXFORD ROAD.

GLASGOW: 28, WINDSOR TERRACE.
DUBLIN: 47, MESPIL ROAD.

TEMPERANCE MALE NURSES LTD. CO-OPERATION

TELEGRAMS:
Tactear, London. Surgical, Glasgow.
Tactear, Manchester. Tactear, Dublin.

TELEPHONES:
London, 1277 Mayfair. Glasgow, 477 Central.
Manchester, 5213 Central. Dublin, 531 Ballsbridge.

Superior trained Male Nurses for Medical, Surgical, Mental, Dipsomania, Travelling and all cases. Nurses reside on the premises, and are always ready for urgent calls Day or Night. Skilled Masseurs & good Valet attendants supplied.

Terms from £2 2 to £3 3. **Apply to the Secretary.**

MALE NURSES LTD.

Telephone—5969 MAYFAIR
(TEMPERANCE) ASSOCIATION
24, NOTTINGHAM ST., W. 1.
Telegrams—"GENTLEST. LONDON."

FEMALE NURSES

Telephone—5969 MAYFAIR
(TEMPERANCE) ASSOCIATION
24, NOTTINGHAM ST., W. 1.
Telegrams—"GENTLEST. LONDON."

CERTIFICATED HOSPITAL NURSES (Male & Female) AVAILABLE DAY & NIGHT FOR MEDICAL, SURGICAL, MENTAL, AND ALL CASES.
TERMS £2 2s. to £3 3s. ALL NURSES ARE FULLY INSURED AGAINST ACCIDENT. M. J. QUINLAN, Secretary.

Telephone: PADDINGTON 2437
Telegrams: "ASSISTIAMO, LONDON"

MALE NURSES' ASSOCIATION

29, YORK ST., BAKER ST., LONDON, W. 1.
Established 19 years.

Permanent Staff of Resident Male Nurses.

We supply fully-trained Male Nurses for all cases.
Thoroughly experienced men with special training for mental work.
Masseurs supplied for town or country.

W. J. HICKS, *Secretary.*

Telephone: PADDINGTON 2437
Telegrams: "ASSISTIAMO, LONDON"

For MEDICAL, SURGICAL, and

MENTAL NURSES

Male or Female.

To those who have employed our men, it is sufficient to say that we now have a thoroughly efficient Female staff, chosen with the same care as are our Male Nurses, both in reference to their knowledge of nursing, and their suitability for private work.

(Mrs.) MILLICENT HICKS, *Superintendent.*
W. J. HICKS, *Secretary.*

THE NURSES' ASSOCIATION

(In conjunction with the MALE NURSES ASSN.)
29, YORK ST., BAKER ST., LONDON, W. 1

THE LONDON TEMPERANCE

MALE NURSES & NURSES CO-OPERATION

Telephone—Mayfair 2302. 18, ADAM STREET, PORTMAN SQUARE, LONDON, W. 1. *Telegrams*—Nurslontem, Phone, London.

Superior Trained Male Nurses available for all cases day or night.

Supplies Fully Trained Hospital Nurses; also MENTAL Nurses.

NURSES FULLY INSURED AGAINST ACCIDENT. Apply, SECRETARY.

MENTAL NURSES ASSOCIATION, Ltd. (MALE and FEMALE)

54, George Street, Manchester Sq., London, W. 1

SUPERIOR CERTIFICATED MENTAL NURSES (MALE AND FEMALE) SUPPLIED AT A MOMENT'S NOTICE, DAY OR NIGHT.

LADIES' TRAVELLING COMPANIONS. For all MENTAL and NERVE Cases. *All Nurses fully insured against Accident.*

Telegrams: "Isolation, London" Terms: £2 4 6 to £3 3 0 Apply:—SECRETARY. *Telephone:* Mayfair 2287

MALE NURSES *TEMPERANCE* CO-OPERATION, LTD.

TRAINED MALE NURSES AND VALET ATTENDANTS for MENTAL, MEDICAL, TRAVELLING AND ALL CASES

LONDON—10, THAYER ST., MANCHESTER SQ., W. 1.
BIRMINGHAM—75, HAGLEY ROAD
MANCHESTER—237, BRUNSWICK STREET *(Facing Owens College)*
EDINBURGH—7, TORPHICHEN STREET.

Terms from £2 2 0 to £3 3 0
ALL NURSES ARE FULLY INSURED AGAINST ACCIDENT

	Telephones:	*Telegrams:*
London:	538 PADDINGTON	ASSUAGED, LONDON
Birmingham:	2106 MIDLAND	ASSUAGED, BIRMINGHAM
Manchester:	4699 CENTRAL	ASSUAGED, MANCHESTER
Edinburgh:	2715 CENTRAL	ASSUAGED, EDINBURGH

Please address all communications, W. WALSHE, Secretary.

CO-OPERATION OF TEMPERANCE
MALE & FEMALE NURSES

60 WEYMOUTH STREET, PORTLAND PLACE, LONDON, W.1.

Reliable and Experienced Nurses for all Cases at all Hours.

Special Staff for Mental "Borderline," Neurasthenia, and Nerve Cases.

Telephone: MAYFAIR 2253 **Telegrams: "NURSINGDOM, LONDON."**

Terms £2 : 2 : 0 to £3 : 3 : 0 per week. **Apply M. SULLIVAN, Secretary.**

ST. LUKE'S HOSPITAL.

Established 1751.

PRIVATE NURSING STAFF DEPARTMENT.

TRAINED NURSES for **Mental** and **Nervous Cases** can be had immediately. Apply to LADY SUPERINTENDENT, 19, Nottingham Place, London, W. 1. Telephone: Mayfair 5420.

NORTHERN BRANCH.—Apply, LADY SUPERINTENDENT, 57, Clarendon Road, Leeds. Telephone: Leeds 26165.

THE NURSES' CO-OPERATION

22, Langham St., Portland Place, W.

Founded 1891. Incorporated 1894.

Established to secure to Nurses the full remuneration for their work and to supply FULLY TRAINED HOSPITAL

Medical,
Surgical,
Mental,
Maternity,
Fever,
Children's
Massage,
} NURSES

To work under Medical Supervision. Telegraphic Address: "Aprons, Wesdo, London." Phone: 6742 & 6743 Mayfair.

The Nurses are fully insured by the Co-operation against the Employers' Liability under the Workmen's Compensation Act of 1906. MISS HOADLEY, Lady Superintendent.

DUFF HOUSE, BANFF, SCOTLAND.

TREATMENT OF DISORDERS OF THE STOMACH AND INTESTINES, INCLUDING TROPICAL DISEASES; DIABETES

and other complaints which need skilled chemical, bacteriological and protozoological investigation and dietetic treatment.

The House is fitted with Laboratories, X Ray Installation, Medical Baths, Central Heating, and Lifts.

The climate is mild, and the rainfall the lowest in Scotland

Apply, THE SECRETARY, Duff House, Banff

MANOR HOUSE NURSING HOME,

St. John's Wood Park, N.W. 8.

FOR THE SPECIAL TREATMENT OF

DIABETES,
DIETETIC DISORDERS,
TROPICAL DISEASES,

and other complaints requiring highly skilled Chemical and Bacteriological Treatment.

Any Medical case taken.

The Home is situated in a high altitude, with practically country surroundings.

Apply to the SECRETARY (Pendrill Nursing Homes, Ltd.). Telephone—HAMPSTEAD 383.

BATH

7, LANSDOWN CRESCENT.

THE ST. CATHARINE NURSING HOME,

Beautiful position. Electric light and lift. Central heating. Dietetic and electrical treatment. Plombières douche. All chemical investigations.

Telephone: 1119. Telegrams: "Nursing," Bath.

For COMFORT and HEALTH Visit

THE CATERHAM SANITARIUM

"Battle Creek System."

Telephone: 88.
Telegrams: "HYDRO, CATERHAM."

Medical Superintendent:
Dr. F. C. SHONE.

SMEDLEY'S HYDRO.

MATLOCK. Established 1853.

Physicians: G. C. R. Harbinson, M.B., B.Ch.
R. MacLelland, M.D., C.M. (Edin.)

Prospectus and full information on application to Managing Director

---

Recommended for the Cure of Insomnia.

GRANVILLE
HOTEL
St. Margaret's Bay

(Two Hours from London.)

A comfortable Hotel, set in its own spacious grounds, with Southern aspect, absolutely sheltered from N. and E. Winds; Broad Sheltered Balconies.

Climate equal to any Southern Watering Place. Unrivalled Marine Scenery.

No Trippers. Golf at easy access. Own Farm Produce.

Apply Manageress.

A Real Rest Cure.

ST. ANDREW'S HOSPITAL

FOR MENTAL DISEASES,

NORTHAMPTON.

President—The Right Hon. the EARL SPENCER, K.G.

This Registered Hospital receives for treatment PRIVATE PATIENTS of the UPPER and MIDDLE CLASSES of both Sexes. The Hospital, its branches (including a Seaside Home at Llanfairfechan, North Wales), and its numerous Villas are surrounded by nearly thousand acres of Park and Farm.

Voluntary Boarders without certificates received.

For particulars apply to DANIEL F. RAMBAUT M.A., M.D., the Medical Superintendent. TELEPHONE No. 56.

SPRINGFIELD HOUSE

Near BEDFORD (Telephone No. 17)

A PRIVATE HOME for MENTAL CASES

Terms from 4 guineas per week.

Apply to DAVID BOWER, M.D.

ASHWOOD HOUSE

KINGSWINFORD, STAFFORDSHIRE.

An old-established home-like Institution for the treatment of MENTAL AFFECTIONS in BOTH SEXES.

Full particulars as to reception, terms, &c., may be obtained from the Resident Medical Officer.

WYE HOUSE, BUXTON.

FOR LADIES AND GENTLEMEN MENTALLY AFFLICTED.

Situated 1200 feet above sea level. Facing south.

For terms, &c., apply to the Res. Med. Superintendent W. W. HORTON, M.D.

[NAT. TEL. 130.

THE MOAT HOUSE, TAMWORTH, STAFFORDSHIRE.

Stations: L. & N. West. and Mid. Railways.

The House is devoted to the care and treatment of a few Ladies suffering from Nervous and Mental Affections, who enjoy the comfort, privacy, and occupations of home life. For terms, &c., apply to the Resident Licensees, EDWARD HOLLINS, M.A.Cantab., or (Mrs.) S. A. MICHAUX.

HEIGHAM HALL, NORWICH.

Telephone ***For Upper & Middle Classes*** 80 Norwich.

A Private Hospital for Cure of Ladies and Gentlemen suffering from **Nervous** and **Mental Diseases.** Extensive pleasure grounds. **Private Suites of Rooms** with Special Attendants available. **Boarders** taken without certificates.

Terms from 4 to 25 guineas weekly. Patients sent for.

J. G. GORDON MUNN, M.D., F.R.S.E., Proprietor and Res. Phys.

STRETTON HOUSE,

Church-Stretton, Shropshire.

A Private HOME for the treatment of Gentlemen suffering from Mental Diseases. Bracing hill country. See "Medical Directory," p. 2119. Apply to Medical Superintendent. Telephone: 10 P.O. Church-Stretton

MALLING PLACE, KENT

For LADIES and GENTLEMEN of Unsound Mind.

Terms moderate. Apply to Resident Medical Superintendent.

Telegrams: ADAM, WEST MALLING. Telephone: No. 2 MALLING

HOME FOR FEEBLE-MINDED,

BRUNTON HOUSE, LANCASTER.

There are now a few vacancies in this well-appointed private establishment. It is easily accessible from Lancaster, overlooks Morecambe Bay, and possesses extensive gardens and grounds, with tennis and croquet lawns. Varied scholastic and manual instruction. Individual attention is given to pupils by experienced staff under a Resident Physician and Lady Matron. Terms on application to Dr. W. H. COUPLAND.

CITY OF LONDON MENTAL HOSPITAL,

DARTFORD, KENT.

Under the Management of a Committee of the Corporation of the City of London.

PRIVATE PATIENTS are received at the rate of 31s. 6d. and upwards per week.

Apply to the Medical Superintendent.

CLARENCE LODGE

CLARENCE ROAD, CLAPHAM PARK.

Stations: Clapham Road and Clapham Common.

A Licensed Home for Mental and Nervous Patients.

Twelve Ladies only received for treatment under eminent Specialist and given individual care and the comforts of their own homes. Suitable cases received as voluntary boarders. The house is surrounded by well-wooded grounds; shady lawns for tennis, croquet, &c.

Associated Rooms, Private Rooms, or Suites. Very moderate terms.

Illustrated Prospectus from Resident Licensee, Mrs. THWAITES.

Telephone: 494 Brixton.

BISHOPSTONE HOUSE, BEDFORD.

Telephone 708.

Private Home for Mentally afflicted Ladies; ten only received.

Terms from 5 gns. weekly.

Apply, Medical Officer, or Mrs. Peele

PORTSMOUTH BOROUGH MENTAL HOSPITAL.

Accommodation is provided for the reception of PRIVATE PATIENTS of both sexes in three detached Villas, which are healthily and pleasantly situated in extensive grounds, with sea views.

Charges, from 3 guineas weekly, including all necessaries, except clothing. Apply to the Medical Superintendent.

BARNWOOD HOUSE HOSPITAL FOR MENTAL DISEASES BARNWOOD, near GLOUCESTER

Exclusively for private Patients of the Upper and Middle Classes. This institution is devoted to the Care and Treatment of persons of both sexes at moderate rates of payment. Under special circumstances the rates of payment may be reduced by the Committee. For further information apply to ARTHUR TOWNSEND, M.D., the Med. Supt [Tel. No. 7.

NORTHUMBERLAND HOUSE,

GREEN LANES,

FINSBURY PARK, N.

A PRIVATE HOME for the Treatment of Ladies and Gentlemen suffering from Mental and Nervous Affections. Highly situated, facing Finsbury Park.

Voluntary Boarders received without certificates.

For particulars apply to the Resident Physicians.

Telephone No. 888 North. Telegrams: "SUBSIDIARY, LONDON.

THE GRANGE, Near ROTHERHAM

A HOUSE licensed for the reception of a limited number of ladies of unsound mind. Both certified and voluntary patients received. This is a large country house with beautiful grounds and park, five miles from Sheffield. Station, Grange Lane, G.C. Railway, Sheffield, Telephone No. 34 Rotherham.

Resident Physician—GILBERT E. MOULD, L.R.C.P., M.R.C.S. Consulting Physician—CROCHLEY CLAPHAM, M.D., F.R.C.P.E.

THE COPPICE, NOTTINGHAM.

HOSPITAL FOR MENTAL DISEASES.

President: The Right Hon. the EARL MANVERS.

This Institution is exclusively for the reception of a limited number of PRIVATE PATIENTS of both sexes, of the UPPER and MIDDLE CLASSES, at moderate rates of payment. It is beautifully situated in its own grounds, on an eminence a short distance from Nottingham, and commands an extensive view of the surrounding country; and from its singularly healthy position and comfortable arrangements affords every facility for the relief and cure of those mentally afflicted.

For terms, &c., apply to the Medical Superintendent.

THE WARNEFORD, OXFORD.

HOSPITAL FOR MENTAL DISORDERS.

President: The Right Hon. the EARL OF JERSEY.

This Registered Hospital, for the Treatment and Care, at moderate charges, of Mental Patients belonging to the educated classes, stands in a healthy and pleasant situation on Headington Hill, near Oxford. Voluntary boarders are also received for treatment.—For further particulars apply to the Medical Superintendent.

PLYMPTON HOUSE PLYMPTON, S. DEVON.

This old-established Licensed House offers every advantage that experience can suggest for the care and treatment of Mental Cases.

For terms, &c., apply to the Resident Physicians.

Telephone: No. 2 Plympton. Dr. ALFRED TURNER, Dr. J. C. NIXON.

YARROW CONVALESCENT HOME, BROADSTAIRS.

EXCLUSIVELY FOR CHILDREN OF WELL-EDUCATED PEOPLE OF VERY LIMITED MEANS.

100 Beds. Boys, ages 4 to 12. Girls, ages 4 to 14. ***Charge, 15s. per week for each Child.***

The usual stay is 4 weeks, but some wards are reserved for serious cases requiring special treatment, and for these a lengthened stay may, under some circumstances, be granted, and the age limit raised to 14 for Boys and 16 for Girls.

The Home faces the sea, and is open all the year, being as well adapted for winter as for summer residence.

There is a well-equipped operating theatre and a complete X-ray installation.

Particulars can be obtained from the SECRETARY, 6, HOLBORN VIADUCT, LONDON, E.C. 1.

ST ANDREW'S HOSPITAL

DOLLIS HILL, LONDON, N.W. 2.

Telegrams: ANDREWS HOSPITAL, CRICKLEWOOD. 'Phone: Willesden 898.

Rooms for PRIVATE PATIENTS. Wards and Cubicles (at inclusive fees) for Gentlepeople of limited means. Medical and Surgical, but not mental, contagious, consumptive, or chronic cases. Resident Doctor.

For terms apply to MATRON.

INEBRIETY. [Telephone: 16 Rickmansworth.

DALRYMPLE HOUSE, RICKMANSWORTH, HERTS.

For the treatment of Gentlemen under the Act and privately. Established 1883 by an association of prominent medical men and others for the study of inebriety; profits, if any, are expended on the institution. Large secluded grounds on the banks of the river Colne All kinds of out-door and in-door recreations and pursuits.—For particulars, apply to F. S. D. HOGG, M.R.C.S., &c., Resident Medical Superintendent.

BRISLINGTON HOUSE, near BRISTOL.

Telegrams: FOX, BRISLINGTON. *ESTABLISHED 1804.* Telephone: No. 2 BRISLINGTON.

A PRIVATE MENTAL HOSPITAL for the Care and Treatment of Persons of the UPPER and MIDDLE CLASSES of BOTH SEXES.

The House is situated on an estate of 200 acres, and has extensive Pleasure Grounds and a Farm connected with it. It lies between Bristol and Bath, three miles from Bristol Station and within two-and-a-half hours' journey from London.

In addition to the main building there are several villas completely detached and pleasantly situated in their own grounds, where there is accommodation for suitable cases. Patients can be received without certificates as Voluntary Boarders.

For terms and further particulars apply to the MEDICAL SUPERINTENDENT.

NORTHWOODS HOUSE

WINTERBOURNE, near BRISTOL.

FOR PRIVATE TREATMENT OF MENTAL DISEASES.

Situated in a large park in a healthy and picturesque locality, easily accessible by rail viâ Bristol, Winterbourne, Patchway, or Yate Stations. Uncertified Boarders received. For further information see Medical Directory, page 2069. Terms moderate.

Apply to Dr. J. D. Thomas, Resident Physician and Licensee, for full particulars.

HAYDOCK LODGE, Newton-le-Willows, LANCASHIRE.

A PRIVATE MENTAL HOSPITAL FOR THE CARE AND TREATMENT OF MENTAL AND NERVOUS CASES OF BOTH SEXES EITHER VOLUNTARY OR UNDER CERTIFICATES, preference being given to Recoverable Cases.

Terms from £2 2s. per week upwards. Private Apartments on special terms.

Situated mid-way between Manchester and Liverpool. Two miles from Newton-le-Willows Station on the L.& N.W.Rly., and close to Ashton-in Makerfield Station on the G.C.Rly. in direct communication with Manchester.

CONSULTING ROOMS (Dr. Street), 47, Rodney Street, Liverpool, from 2 to 4 P.M., or by appointment. Telephone: 2456 Royal Liverpool. Manchester (Dr. Mould), Winter's Buildings, St. Ann Street, on Tuesdays and Thursdays, from 12 to 1.30 P.M., or by appointment.

VISITING AND CONSULTING PHYSICIANS.—Sir JAMES BARR, LL.D., M.D., F.R.C.P., 72, Rodney Street, Liverpool; W. B. WARRINGTON, M.D F.R.C P., 63, Rodney Street, Liverpool; G. E. MOULD, Physician for Mental Diseases to the Sheffield Royal Hospital, The Grange, Rotherham.

For further particulars and forms of admission apply Resident Medical Proprietor, Haydock Lodge, Newton-le-Willows, Lancs.

Telegraphic Address: "STREET, Ashton-in-Makerfield." Telephone: 11 Ashton-in-Makerfield.

CAMBERWELL HOUSE, 33, PECKHAM ROAD, S.E.

Telegrams: "PSYCHOLIA, LONDON." Telephone: New Cross 1057.

For the Treatment of Mental Disorders.

Completely detached Villas for Mild Cases. Voluntary Boarders received. 20 acres of grounds. Cricket, tennis, croquet, squash racquets, bowls, and all in-door amusements. An Illustrated Prospectus, giving full Particulars and Terms, may be obtained on application to the Secretary.

Senior Physician: FRANCIS H. EDWARDS, M.D., M.R.C.P.

HOVE VILLA, BRIGHTON—A Convalescent Branch of the Above.

PECKHAM HOUSE (Established 1826)

112, PECKHAM ROAD, LONDON, S.E.

Telegrams "Alleviated, London." Telephone: New Cross 576

An Institution licensed for the CARE and TREATMENT of the MENTALLY AFFLICTED of Both Sexes. Conveniently situated. Electric trams and omnibuses from the Bridges and West-End pass the House. Private houses with electric light for suitable cases adjoining the Institution. Holiday parties sent to the Seaside branch at Worthing during the Summer months. Moderate terms.—Apply to Medical Superintendent for further particulars.

SHAFTESBURY HOUSE

Formby-by-the-Sea, LANCASHIRE.

For the CARE and TREATMENT of Ladies and Gentlemen MENTALLY AFFLICTED, with or without certificates. Consultations at 31, Rodney Street, Liverpool, every Monday and Thursday afternoons by appointment.

For terms apply MEDICAL SUPERINTENDENT. Tel. No. 8 Formby.

PENDYFFRYN HALL SANATORIUM

(NORDRACH-IN-WALES.)

FOR THE OPEN-AIR AND INOCULATION TREATMENT OF ALL FORMS OF TUBERCULOSIS.

One of the first Sanatoria opened in the United Kingdom to carry out the treatment as practised at Nordrach. Carefully graduated walks rise through pine, gorse, and heather to a height of over 1000 feet above sea level, commanding extensive views of both sea and mountains. Sheltered from E. and N.E. winds. Climate mild and bracing. Small rainfall. Large average of sunshine. There are over five miles of walks in the private grounds. Rooms heated by hot-water radiators and lit by electric light.

Sister and full Nursing Staff. Trained Nurse on duty all night.

Telegrams: Pendyffryn; and Telephone: 20 Penmaenmawr.

For particulars apply to Dr. J. M. GERATY, Medical Superintendent, Pendyffryn Hall, Penmaenmawr, N. Wales.

MATLOCK SANATORIUM

Situated on the edge of the mountain limestone area of Derbyshire, over 700 feet above sea-level. The buildings face south and command beautiful views, while on the north and east they are sheltered by lofty hills. The surrounding country is well known for its great beauty and interest. The climate is dry and bracing. The buildings are lighted by electricity and heated by radiators.

Treatment is carried out on modern lines, all special methods being available in suitable cases. A new X-ray apparatus has been installed, and there is a complete equipment for the carrying out of up-to-date methods in all Tubercular and other Pulmonary cases.

For particulars apply to FREDERICK KINCAID, M.R.C.S., L.R.C.P., Medical Superintendent, Matlock Sanatorium, Matlock, Derbyshire Telephone and Telegraph: SANATORIUM, MATLOCK 22.

DARTMOOR SANATORIUM. 750 FEET.

TUBERCULIN USED ONLY FOR SUITABLE CASES. WITHIN EASY REACH OF THE MOOR.

ARTIFICIAL PNEUMOTHORAX TREATMENT AVAILABLE.

Resident Physicians—C. H. BERRY, M.R.C.S., L.R.C.P.; D. L. MCCULLOUGH, M.B., D.P.H.

For particulars, apply C. H. BERRY, M.R.C.S., Sanatorium, Chagford, Devonshire. Telephone: 11 Chagford.

VALE OF CLWYD SANATORIUM.

This Sanatorium is established for the treatment of Tuberculosis of the Lungs and of the Pleural Cavities. It is situated in the midst of a large area of park-land at a height of 450 feet above sea-level, on the south-west slopes of mountains rising to over 1800 feet, which protect it from north and east winds and provide many miles of graduated walks with magnificent views.

Fully-trained Nurses. Nurse on duty all night. X-Ray apparatus newly installed. Every facility for treatment by Artificial Pneumothorax.

Electric lighting in every room. Heating by radiation.

For particulars apply to Medical Superintendent, H. MORRISTON DAVIES, M.D. (Cantab.), F.R.C.S, Llanbedr Hall, Ruthin, N. Wales.

MENDIP HILLS SANATORIUM, FOR THE OPEN-AIR TREATMENT.

Old-established, beautifully situated. 300 acres of Sanatorium grounds. Pinewoods and sheltered avenues. Altitude 850 feet. Porous subsoil. Separate châlets, with verandahs, hot-water radiators, and electric light. Special features—breathing an graduated exercises, and continuous inhalation. Individual attention. *Resident Physician*—C. MUTHU, M.D., M.R.C.S., L.R.C.P.

Terms 4 guineas weekly. For particulars, apply SECRETARY, Hillgrove, Wells, Somerset.

DROITWICH BRINE BATHS WARNING.

The Public are warned that the full benefits of the treatment for Rheumatism and kindred complaints CAN ONLY BE OBTAINED IN THE NATURAL BRINE BATHS AT DROITWICH, FOR WHICH THERE IS NO SUBSTITUTE. LOVELY HOLIDAY DISTRICT. GOOD HOTELS, &c. Illustrated Booklet Post-free from Baths Manager, J. H. HOLLYER, 46, Spa Enquiry Offices, Droitwich (Worcs.). SPECIAL FACILITIES TO MEDICAL MEN

5500 feet high—Grisons

AROSA

SWITZERLAND.

Unrivalled Health Resort

Tuberculosis Cure Station.

◆

All kinds of Winter Sport.

Electric Railway Coire-Arosa.

Grove House, All Stretton, Church
STRETTON, SHROPSHIRE.

A PRIVATE HOME for the Care and Treatment of a limited number of Ladies Mentally Afflicted.

Climate healthy and bracing.

Apply to Dr. McClintock, Proprietor and Resident Medical Superintendent.

Telegraphic Address: "Relief, Old Catton." Telephone: "290 Norwich."

NERVOUS & MENTAL AFFECTIONS.

Ladies only received.

The Grove, Old Catton, Norwich.—
A **High-class Home** for the **Curative Treatment** of Nervous Affections. **Voluntary Boarders** are also received without certificates Nurses supplied to take charge of patients under the care of their own medical attendants. For full particulars apply to the Misses McLINTOCK, or to CECIL A. P. OSBURNE, F.R.C.S.E., Medical Superintendent.

EPILEPSY. THE DAVID LEWIS COLONY.

Stands in its own grounds of 180 acres and is situated in a beautiful part of Cheshire, 2½ miles from Alderley Edge Station, and 14 miles from Manchester. Electric light throughout. The Colony system ensures the social life and employment most suitable for those who suffer from Epilepsy. Patients certifiable under the Lunacy or Mental Defective Acts are NOT ELIGIBLE for admission. Two Resident Physicians. Terms for Middle- and Upper-class Patients, from 38s. a week upwards, according to accommodation and requirements. Private rooms can be provided.

For further information apply to the Director, Dr. ALAN McDOUGALL, Warford, near Alderley Edge, Cheshire.

EPILEPSY.

Colthurst House School,
Warford, Alderley Edge.

(Under the Management of the Committee of the David Lewis Colony.)

Home Life, Medical Care, School Education, most suitable for boys subject to Epilepsy. Terms 38s. weekly.

Further particulars may be obtained from Dr. ALAN McDOUGALL, The Colony, Warford, Alderley Edge.

Neurasthenia and Prostatic
SYMPTOMS.

DR. HADDON receives PATIENTS, under his personal supervision, for treatment without drugs.—For particulars, apply to Dr. Haddon, Denholm, Hawick, Scotland.

Resident Patients.—Descriptive List
(Illustrated) of Medical Men in all parts willing to receive Resident Patients sent without charge. Or selection will be made on statement of nature of case and terms to the General Manager, Scholastic, Clerical & Medical Assn., Ltd., 22, Craven-street, Trafalgar-square, W.C. 2.

IN BEAUTIFUL COUNTRY, 18 MILES FROM LONDON.

Littleton Hall, Brentwood, Essex
(400 feet above sea-level). A HOME for a few LADIES Mentally Afflicted. Large grounds. Liverpool-street half an hour. Stations: Brentwood one mile; Shenfield one mile. Voluntary Boarders received. Vacancy.—For terms, &c., apply Dr. Haynes. Telephone and Telegrams: Haynes, Brentwood 45.

Doctor (young), experienced, has
vacancy for RESIDENT PATIENT. Charming residence near sea; 4 acres shady lawns, tennis, croquet, bowls, golf, billiards, bridge. music.—Address, No. 966, THE LANCET Office, 423, Strand, W.C.2.

Two Certificated Nurses, husband and
wife, have good home for a MENTAL CASE. Detached house, charming situation, overlooking sea and country. Only one case taken. Personal supervision. Highly recommended by doctors and relatives of previous patients. Terms from 7½ guineas.—Apply, Nurse Baker, Red House, Dawlish.

Home for Chronics and Maternity
CASES. From £5 5s. per week upwards. Nurses supplied at short notice to any part. Tel: Otley 67.—Apply, Matron, Wharfedale Nursing and Nurses' Home, Leeds-road, Otley, Yorks.

Residence in a delightfully situated
house on Tunbridge Wells Common offered to an Invalid, with own personal attendants (ideal place for slight Mental or Shell Shock case). All housekeeping and domestic service included in terms.—Page, care of Williams' Library, Tunbridge Wells.

Accommodation for Students, Bed
and Breakfast.—14, Gilbert-street, off Bury-street, W.C. 1 (near British Museum).

INEBRIETY MELBOURNE HOUSE, LEICESTER
PRIVATE HOME FOR LADIES.

Medical Attendant: ROBERT SEVESTRE, M.A., M.D. Cantab.
Principal: HENRY M. RILEY, Assoc. Soc. Study of Inebriety.
Thirty years' Experience. Excellent Medical References.
For Terms and Particulars, apply Miss RILEY or PRINCIPAL.
Telegrams: "MEDICAL, LEICESTER. Nat. Telephone: 769

National Hospital for the Paralysed
and EPILEPTIC, Queen-square, W.C. 1.—HOUSE PHYSICIAN. This appointment being vacant, the Board of Management invite applications from duly qualified candidates. The conditions of the appointment will be supplied by the undersigned. The salary is £150 a year, with board and lodging. Applications, accompanied by copies of three recent testimonials, should be sent in on or before December 31st, 1919. GODFREY H. HAMILTON, Secretary.

West End Hospital for Nervous
DISEASES, 73, Welbeck-street, W. 1.—Applications are invited for the post of PHYSICIAN to OUT-PATIENTS. Candidates must be Fellows or Members of the Royal College of Physicians of London and Graduates in Medicine of one of the Universities of the U.K. Applications, with copies of recent testimonials, should be sent to the undersigned before the 15th January

D. D. KIRKALDY WILLIS, B.A., Secretary.

Italian Hospital.—Applications are
invited for the post of HOUSE SURGEON, from the 1st of February next. Candidates must be doubly qualified and registered. The appointment will be for six months, renewable at the pleasure of the Committee of Management.

Salary £150 per annum, with board and residence.

Applications, with copies (only) of testimonials, should be forwarded to the Secretary and Controller, Italian Hospital, Queen-square, W.C. 1, on or before Saturday, 10th January, 1920.

Seamen's Hospital Society.—The
Committee of Management invite applications for the appointment of SURGEON with Charge of Out-patients at the DREADNOUGHT HOSPITAL, Greenwich. The elected candidate will be appointed for twelve months, but will be eligible for re-election.

Candidates are invited to attend a Meeting of the Medical Council at the Hospital for Tropical Diseases, Endsleigh Gardens, N.W., on Monday, 19th January, 1920, at 5 P.M.

Applications to be sent in on or before Thursday, 15th January, to the undersigned, from whom further particulars can be obtained.

By order.
P. MICHELLI, Secretary.

Seamen's Hospital Society, Greenwich, S.E.10,
12th December, 1919.

Bethlem.—Wanted, Resident House
PHYSICIAN (Gentleman, unmarried), recently qualified in Medicine and Surgery. The term of residence is for six months, apartments, complete board, and laundry being provided, and an honorarium at the rate of £25 per quarter will be paid. He will be under the direction of the Physician-Superintendent, to whom he must present himself previous to the date of election.

Copies of the duties can be obtained from the undersigned, and applications with testimonials, are to be forwarded to the Treasurer, Bridewell Hospital, New Bridge-street, E.C., before January 3rd, endorsed "House Physician."

Candidates must attend at Bethlem Hospital on Wednesday, January 7th, at 11.30 A.M., when the Sub-committee will make the appointment. JOHN L. WORSFOLD, Clerk, &c.

Bridewell Hospital, New Bridge-street, E.C. 4,
December, 1919.

London County Council.—The
Council is about to appoint FIFTH ASSISTANT MEDICAL OFFICERS at the London County Mental Hospitals. Age not to exceed thirty-five years. Candidates must be registered to practise both in Medicine and Surgery in England. The candidates appointed will be pensionable under the Asylum Officers' Superannuation Act. Preference will be given to candidates who have served with H.M. Forces, or who offered themselves for such service. Salary £300 a year, rising by annual increments of £25 to £400. In addition, at present, war bonus and percentage addition at rate of £130 a year. No emoluments. Charge made for board, lodging, &c. (at present £2 2s. weekly). Full particulars and conditions of appointment on form of application (on which alone application must be made) obtainable from the Asylum Officer, London County Council, 13, Arundel-street, Strand, W.C. 2.

JAMES BIRD, Clerk of the London County Council.

West Ham Union.—Assistant
MEDICAL OFFICER.—The Guardians invite applications for the appointment of a Resident Assistant Medical Officer at their Infirmary, Whipps Cross-road, Leytonstone, E. 11, at a salary of £300 per annum, rising by annual increments of £25 to a maximum of £350 per annum, with a war bonus of £30 per annum plus 10 per cent. of salary, and the usual residential allowances.

The Infirmary is situated on the borders of Epping Forest, the nearest station being Wood Street, Walthamstow.

Candidates must possess qualifications both in medicine and surgery, and preference will be given to candidates having previous hospital experience.

Intending applicants should communicate in the first instance with the Medical Superintendent, who will furnish particulars as to duties, &c.

The successful candidate will be required, should occasion arise, to act in any other institution under the control of the Board.

Applications to be made on forms which can be obtained at my office, or will be forwarded upon receipt of a stamped addressed foolscap envelope, and must be returned not later than 10 A.M. on Tuesday, the 6th January, 1920.

Canvassing the Guardians, either directly or indirectly, is prohibited, and will disqualify. By order of the Board.

THOMAS SMITH, Clerk.

Board Room, Union-road, Leytonstone, E. 11,
16th December, 1919.

Bolingbroke Hospital, Wandsworth Common.—Wanted, **HONORARY PHYSICIAN** in Charge of X-Ray and Electrical Department, to attend at least three times a week.

Applications, with testimonials, to be sent not later than Jan. 10th to the Secretary, Bolingbroke Hospital, Wandsworth Common, S.W.

Leyton Urban District Council.—EDUCATION COMMITTEE.—DENTAL CLINIC.—A SECOND SCHOOL DENTIST (Man or Woman) is required by the above-named Council, and applications for the post are invited from qualified and registered Dental Surgeons.

The selected candidate will be required to devote his or her whole time to the service of the Council.

Commencing salary £300 per annum plus present war bonus of £120, together £420, rising by two annual increments of £25 each to the maximum of the scale.

Applications, on form to be obtained from the undersigned, to be sent to me on or before the 3rd January, 1920.

R. VINCENT, Clerk.

Education Department, Town Hall, Leyton, E.10, 19th Dec., 1919.

Hamlet of Mile End Old Town.—The Guardians of the Poor of the Hamlet of Mile End Old Town invite applications from duly qualified Medical Practitioners for appointment to the post of SECOND ASSISTANT MEDICAL OFFICER at the Mile End Infirmary, Bancroft-road. The Infirmary is certified for 469 patients, and is a recognised Training School for Nurses; has a well equipped up-to-date Operating Theatre and X-Ray apparatus.

Salary £300 per annum, rising by annual increments of £25 to £400 per annum, with residential allowances.

Application must be made on forms to be obtained from me, and and will be forwarded upon receipt of a stamped, addressed foolscap envelope, and must be returned to me duly filled up at once.

The appointment will be made subject to the consent of the Ministry of Health and to the provisions of the Poor-law Officers' Superannuation Act, 1896.

Canvassing the Guardians is prohibited and will be deemed to be a disqualification.

By order,
BENJAMIN CATMUR, Clerk to the Guardians.

Guardians' Offices, Bancroft-road, Mile End, E. 1, 18th Dec., 1919.

Parish of Bermondsey.—First and SECOND ASSISTANT MEDICAL OFFICERS of the Infirmary.

The Guardians of the Parish of Bermondsey invite applications from duly qualified Medical Gentlemen for the appointment of First and Second Assistant Medical Officers of the Infirmary, Lower-road, Rotherhithe, S.E. (The First Assistant ranks next to Deputy Medical Superintendent.)

Salary for the First Assistant £350 per annum, rising £25 yearly to £450 per annum, and for the Second Assistant £300 per annum, both appointments with rations, furnished apartments, washing, attendance, and war bonus of £79 14s. 9d. and £74 14s. 9d. per annum respectively. Candidates for First Assistant Medical Officer possessing experience in Bacteriology will receive preferential consideration.

The persons appointed will be required to devote their whole time to the service of the Guardians, reside in the Infirmary, and act under the direction of the Medical Superintendent, and previous Institution experience will be an advantage.

The Infirmary contains 640 beds.

The appointment is subject to the sanction of the Ministry of Health and the provisions of the Poor-law Officers' Superannuation Act, 1896.

Applications, with particulars of age, previous experience, qualifications, diplomas, and certificates held and date and place of registration, together with copies of three recent testimonials, must be made on forms to be obtained on application to the undersigned.

Applications must be returned to me at the latest by 10 A.M. on Wednesday the 14th January, 1920, and selected candidates will have notice when to attend a meeting of the Guardians. Canvassing, either directly or indirectly, will disqualify.

By order.
HENRY H. REEVE, Clerk to the Guardians.

Guardians' Offices, 283, Tooley-street, London, S.E. 1.

West Riding County Council.—ASSISTANT MEDICAL OFFICER (Non-Resident).—The County Council of the West Riding of Yorkshire invite applications for the appointment of an Assistant Medical Officer (Non Resident) for the MIDDLETON-IN-WHARFEDALE SANATORIUM, near Ilkley.

The salary will be £450 per annum.

Further particulars and form of application may be had from the undersigned, by whom all applications must be received not later than 12th January, 1920.

FRANCIS ALVEY DARWIN, Clerk of the County Council.

County Hall, Wakefield, December, 1919.

Liverpool Royal Infirmary. — A vacancy having occurred on the Staff, the Committee invite applications for the office of DERMATOLOGIST to the Institution.

Applications must be made in writing, addressed to the Chairman of the Committee, at the Royal Infirmary, Liverpool, and no candidate will be eligible who has not so applied within twenty-one days of this date—viz., by the 10th January, 1920.

The election will be made by the Election Committee, a list of whom and particulars of the qualifications necessary for the appointment will be supplied on application to the Secretary of the Hospital.

LAW No. 55 states:—"Any candidate who advertises in the public papers, or canvasses in person or by writing any Member of the Election Committee, shall be disqualified, but candidates shall be at liberty to send to members of the Election Committee copies of their applications, accompanied by not more than ten testimonials."

20th December, 1919. H. WADE DEACON, Chairman.

University of Liverpool.—Grade I. LECTURER IN PHARMACOLOGY.—The Council invite applications for this post. Salary £500 per annum, without share of fees. Full particulars may be obtained from the Registrar, to whom application must be made on or before January 31st, 1920.

The Hospital for Sick Children, Newcastle-upon-Tyne (74 beds).—Applications are invited for the post of JUNIOR RESIDENT MEDICAL OFFICER (Male). Salary £200 per annum, with board, residence, and laundry. Duties to commence the beginning of January, 1920. Applications, stating age and copies of testimonials, to be sent to the Secretary, Mr. NEIL BRODIE, Star Buildings, 26, Northumberland-street, Newcastle-upon-Tyne.

The Sheffield Royal Hospital.—VACANCY for RESIDENT.—Applications are invited for the post of OPHTHALMIC HOUSE SURGEON in the above Hospital. Salary £135, with board, washing, and residence in the Hospital. Candidates must be registered Medical Practitioners and unmarried. Applications, with copies of testimonials, should be sent as early as possible to JOE W. ROBINSON, Secretary.

The Board Room, 16th December, 1919.

Cheshire County Asylum, Parkside, Macclesfield.—Wanted, Male JUNIOR ASSISTANT MEDICAL OFFICER. Previous Asylum experience not essential. Age under thirty. Salary £350, with board, lodging, and washing, valued at £100. Subject to deductions under the Asylums Officers' Superannuation Act, 1909.

Apply, stating qualifications, with copies of three recent testimonials to the Medical Superintendent, County Asylum, Macclesfield.

County Asylum, Whittingham, Preston, Lancs.—ASSISTANT MEDICAL OFFICER required. Salary £300 plus £120 bonus per annum, together with board, furnished apartments, and washing. Candidates must be unmarried and not over thirty years of age, and duly registered under the Medical Act. The appointment is subject to the provisions of the Asylum Officers' Superannuation Act, 1909. Applications, stating age and qualifications, to be sent to the Medical Superintendent.

The Manchester Northern Hospital for WOMEN and CHILDREN, Park-place, Cheetham Hill-road.—The Committee of Management require the services of a duly qualified HOUSE SURGEON, to commence duties in February next. Salary, with apartments and board, £150 per annum.

The appointment is not restricted to a Male House Surgeon.

Applications, with testimonials, and stating age and experience, to be sent to Mr. HUBERT TEAGUE, Secretary, 38, Barton Arcade, Manchester, not later than January 7th.

Borough of Hyde.—Appointment of Woman ASSISTANT MEDICAL OFFICER.—The Town Council of the Borough of Hyde invite applications for the position of Woman Assistant Medical Officer. The person appointed will be expected to assist the Medical Officer of Health in the discharge of the duties of the following offices:—

(1) Medical Officer of Health for the Borough.
(2) Medical Superintendent of the Infectious Diseases Hospital.
(3) Medical Superintendent of the Tuberculosis Hospital and General Tuberculosis Officer.
(4) Police Surgeon.
(5) School Medical Officer.
(6) Maternity and Child Welfare Officer.

The duties of the Assistant Medical Officer will be chiefly those of School Medical Officer and Maternity and Child Welfare Medical Officer.

The salary of the Assistant Medical Officer will be £400 per annum, rising by annual increments of £25 to £600.

The person appointed will be required to devote her whole time to the duties of the said offices. Applications (with copies of recent testimonials), endorsed "Assistant Medical Officer," must be sent to me, at the Town Hall, Hyde, not later than Saturday, the 3rd day of January, 1920.

Canvassing Members of the Council is prohibited.

THOS. BROWNSON, Town Clerk.

Town Hall, Hyde, 15th December, 1919.

District Asylum, Ballinasloe.—MEDICAL OFFICER wanted.—The Joint Committee of Management of above Asylum will, at their meeting to be held on Monday, the 12th day of January, 1920, proceed to elect a Second Assistant Medical Officer at a salary of £225 per annum, with allowances of furnished apartments, washing, fuel, light, attendance, bread, milk, and vegetables, valued at £48; also £52 in cash in lieu of other rations.

A contribution to the Asylum Officers' Superannuation Fund will be deducted from the salary, calculated at 3 per cent. on salary and value of allowances.

Applicants must furnish proof that they have been registered Medical Practitioners, and must not be more than thirty-two years of age.

The appointment will be made subject to the statutory concurrence of His Excellency the Lord Lieutenant, and shall be probationary for a period of six months subject to one month's notice on either side.

Personal attendance of candidates on day of election is necessary.

Applications, accompanied by the necessary proofs and copies of testimonials, to be lodged before 1 o'clock P.M. on Saturday, 10th day of January, 1920, with the Resident Medical Superintendent, from whom any further information may be obtained.

By order of the Committee.
JOHN MILLS, Resident Medical Superintendent.

8th December, 1919.

Addenbrooke's Hospital, Cambridge. The General Committee invite applications for the appointment of HONORARY ASSISTANT SURGEON in charge of the Gynæcological Department (with beds in the Hospital).

Applications, accompanied by 14 copies each of three recent testimonials, to be sent to the undersigned on or before 5th January, 1920,

December 16th, 1919. W. H. HEAD, Secretary-Superintendent.

Plymouth Education Authority.—A full-time ASSISTANT SCHOOL MEDICAL OFFICER (Man or Woman) is required. Salary £400, rising by £25 yearly to £500 per annum. Application form and particulars as to duties will be forwarded on application to the undersigned.

Last day for applications 10th January, 1920.

E. CHANDLER COOK, Education Secretary.

Education Office, Coburg-street, Plymouth, 15th December, 1919.

University of Birmingham.—Faculty OF MEDICINE.—LECTURER IN BACTERIOLOGY.—Applications are invited for the post of Lecturer in Bacteriology at a stipend of £450 per annum.

It is anticipated that the successful candidate may also be appointed to the post of Bacteriologist to the Queen's Hospital at a stipend of £100 per annum.

Applications, with three testimonials, should be sent on or before Jan. 10th to the undersigned, from whom further particulars may be obtained. GEO. H. MORLEY, Secretary.

The Royal National Hospital for CONSUMPTION and DISEASES of the CHEST, Ventnor, Isle of Wight.—A MALE ASSISTANT RESIDENT MEDICAL OFFICER is required for twelve months, to take up duties at an early date. Salary £250 per annum, with board and lodging in the Hospital.

Every candidate must be doubly qualified, registered, and unmarried, and should have knowledge of Bacteriological methods.

Applications, stating age and qualifications (with one copy of three recent testimonials), may be sent at once to the Secretary, R.N.H.C., 18, Buckingham-street, Strand, London, W.C. 2.

Dated 16th December, 1919.

Manchester Hospital for Consumption and DISEASES of the THROAT and CHEST.—Wanted, a RESIDENT MEDICAL OFFICER for the In-patient Department, Bowdon, Cheshire.

The duties include attendance on certain days at the Out-patient Department, Manchester, and at operations in the Throat Department of the Hospital. Candidates must be registered.

Salary £250 per annum, with board, apartments, washing, and railway contract.

Applications, with copies of testimonials, to be sent in not later than December 31st. C. W. HUNT, Secretary.

Hardman-street, Deansgate, Manchester.

Manchester Children's Hospital (Out-patients' Department), Gartside-street, Manchester.—Wanted, for the period 1st March to 30th September, at the Out-patients' Department, an ASSISTANT MEDICAL OFFICER, who must be doubly qualified and on the Medical Register. Salary at the rate of £200 per annum.

Applications, stating age, and accompanied by copies of not more than three testimonials, to be sent to the undersigned not later than Friday, 9th January, 1920.

By order of the Board.

19th December, 1919. W. M HUMPHRY, Secretary.

Salop County Council. — Medical INSPECTION OF SCHOOL CHILDREN.—MATERNITY AND CHILD WELFARE.—ASSISTANT MEDICAL OFFICERS.—Applications are invited from Medical Practitioners for Three posts under these schemes.

Salary £450, rising annually by £10 to £500, with travelling and out-of-pocket expenses on a fixed scale.

Applications should be sent on or before January 3rd to the County Medical Officer of Health, County Buildings Shrewsbury, from whom forms of application, conditions of appointment, list of duties, and any other information can be obtained.

County Borough of Dudley.—Education COMMITTEE.—Applications are invited for the post of ASSISTANT (Male or Female) to the School Medical Officer and Medical Officer of Health.

Candidates should state their experience in the giving of Anæsthetics, Diseases of Children, and Public Health work. The possession of a Diploma in Public Health will be considered an advantage.

Commencing salary £500 per annum.

Particulars of the duties, &c., can be obtained from the undersigned, to whom all applications should be sent not later than 6th January, 1920.

Education Offices, Dudley. J. M. WYNNE, Director of Education.

Middlesbrough Education Committee. —Appointment of SCHOOL DENTIST.—The Middlesbrough Education Committee invite applications for the appointment of School Dentist. The officer appointed must be a duly qualified and registered Dentist, and will be required to act under the direction of the School Medical Officer. He will not be allowed to engage in private practice. Salary £400 per annum.

Applications, stating age, qualifications and experience, accompanied by copies of not more than three recent testimonials, should reach the undersigned as early as possible, but in no case later than Saturday, 3rd January, 1920. EMMERSON BECKWITH, Director & Secretary.

Education Offices, Middlesbrough, 15th December, 1919.

The Royal Infirmary, Sunderland.— Wanted, SENIOR HOUSE SURGEON. Male (with previous Hospital experience). Salary £250. Also HOUSE PHYSICIAN, Male. Salary £200 per annum, with board, residence, and laundry.

State age and qualifications, and submit copies of three testimonials by December 29th to S. C. FRYERS, Secretary.

Hospital for Children, Leasowe, Cheshire (240 beds for Surgical Tuberculosis, 60 beds for Wasting Babies).—Vacant on February 1st, 1920, post of JUNIOR MEDICAL OFFICER (Resident). Salary £150, with board, residence, and laundry.

Suitable for Post-graduate work. 40 minutes from Liverpool.

Applications to be sent to the Senior Medical Officer by January 8th, 1920.

Dorset County Council Education COMMITTEE.—Appointment of SCHOOL DENTISTS.—Three School Dentists required. Duties: To examine the teeth of School Children and to treat those with dental defects. Salary £400 per annum with travelling expenses.

Application form and terms of appointment may be obtained from Secretary for Education, County Offices, Dorchester.

Cheshire County Council.—District TUBERCULOSIS OFFICER.—The Cheshire County Council invite applications for the appointment of a District Tuberculosis Officer.

The person appointed will be required to devote the whole of his or her time to the duties, to reside in such place in the county as the Council may approve, to work under the direction of the County Tuberculosis Officer, and in coöperation with the Public Health Department of the Council.

The salary will commence at £450 per annum, rising by annual increments of £50 to a maximum of £600 per annum, together with travelling and other reasonable out-of-pocket expenses.

Applicants must be registered Medical Practitioners between twenty-five and forty-five years of age, and must have held appointments in a General Hospital for at least six months, and had special experience in the Diagnosis and Treatment of Tuberculosis.

Special practical experience in Bacteriology, in the Diagnosis and Treatment of Tuberculosis in Sanatoria or otherwise, and in the Administrative Work of a Tuberculosis Dispensary will be deemed additional qualifications.

Applications, accompanied by copies of three recent testimonials, must be delivered to the undersigned not later than 3rd January, 1920.

Canvassing is prohibited and will be a disqualification.

Forms of application, terms of appointment, and list of duties may be obtained from the County Tuberculosis Officer.

43, Foregate-street, Chester, 17th December, 1919.

Worcestershire County Council.— Appointment of ASSISTANT COUNTY MEDICAL OFFICER.—Applications are invited for the post of an Assistant County Medical Officer for the Administrative County of Worcester.

Applicants, either male or female, must be registered Medical Practitioners of suitable experience and qualifications (Diploma in Public Health desirable), and be between twenty-five and forty-five years of age.

The duties will be (1) to undertake Medical Inspection and Treatment of Elementary School Children; (2) to act as Assistant Tuberculosis Officer; (3) to supervise Maternity and Child-Welfare Work; and (4) to undertake the examinations necessitated by the Mental Deficiency Act, 1913.

The above duties will be subject to the directions of the County Medical Officer.

The person appointed will be required to devote the whole of his time to the work, and to reside in such place as the County Council may direct.

The salary will be £450 per annum, with travelling and personal expenses.

Applications (on forms to be obtained from the County Medical Officer), accompanied by not more than three recent testimonials, must be received by 12 noon on January 15th, 1920, addressed to the County Medical Officer, 29, Foregate-street, Worcester, and endorsed "Assistant County Medical Officer."

Canvassing disqualifies, and neither the names of the members of the County Council or of the Committees will be supplied.

Shirehall, Worcester. C. H. BIRD, Clerk of the County Council.

County Borough of Blackburn.— Appointment of MEDICAL OFFICER OF HEALTH.—The Corporation of Blackburn invite applications for the position of Medical Officer of Health and School Medical Officer.

Candidates must possess the qualifications required by the Acts of Parliament and the Regulations of the Ministry of Health.

The attention of candidates is called to the Definition of Duties, a copy of which may be obtained from the undersigned. The gentleman appointed may be called upon to act as Medical Adviser to the Insurance Committee.

He must devote the whole of his time to his duties, and will not be allowed to engage in private practice.

Candidates must possess practical experience of the duties of Medical Officer of Health.

Canvassing, either directly or indirectly, will be regarded as a disqualification, but ten copies of applications and testimonials may be forwarded for use of members of the Selection Committee.

Applications, stating age, qualifications, experience, and essential particulars, accompanied by copies of not more than three recent testimonials and endorsed "Medical Officer of Health," to be sent to the undersigned not later than 12 o'clock at noon on Monday, the 12th January next.

Original testimonials must not be sent, and if sent will not be returned.

By order.

LEWIS BEARD, Town Clerk.

Town Hall, Blackburn, 16th December, 1919.

Manchester Hospital for Consumption AND DISEASES OF THE THROAT AND CHEST.—Wanted, an ASSISTANT MEDICAL OFFICER for the CROSSLEY SANATORIUM, Delamere Forest, Cheshire (100 beds). Salary £250 per annum, with board, apartments, and laundry. Applications, with copies of testimonials, to be sent in not later than December 31st, to Hardman-street, Deansgate, Manchester. C. W. HUNT, Secretary.

Holloway Sanatorium (Hospital for the INSANE), Virginia Water, Surrey.—JUNIOR ASSISTANT MEDICAL OFFICER (Lady) for Ladies' side required. Salary begins at £300 per annum, with board, lodging, laundry, and attendance. Applications, stating age, &c., and accompanied by testimonials, to be sent not later than Wednesday, January 14th, 1920, to the Medical Superintendent.

Aberdeen Royal Infirmary.—There is a vacancy in this Hospital for an ASSISTANT PHYSICIAN. Applications and testimonials (twelve copies of each) should be lodged with the subscriber not later than 10 A.M. on Friday, 9th January next.

A. SCOTT FINNIE, Clerk and Treasurer.
343, Union-street, Aberdeen, 15th December, 1919.

Professor of Anatomy, Medical Department, STRAITS SETTLEMENTS.—The Government of the Straits Settlements requires the services of a Professor of Anatomy for the Medical Department of the Straits Settlements. The salary of the post is $600 a month (£840 per annum at the present rate of exchange). No quarters are provided and no private practice, either general or consultant, is allowed.

The appointment is on agreement for three years, and the officer selected will be required to devote his whole time to the service of the Singapore Medical School, and to act directly under the orders of the Principal of the School. He will be responsible for the theoretical and practical teaching of Anatomy and Osteology and for the supervision of the Anatomical Department, and will be required to assist the Principal from time to time in the routine administration of the School.

Candidates must be fully qualified and registered Medical Practitioners, and must have had experience in the teaching and demonstration of Anatomy. Preference will be given to a man who has held a Demonstratorship at some well-known British School of Medicine, and whose interests are anatomical rather than surgical—i.e., he should be a man who has specialised definitely in anatomy, without ultimate surgical ambitions.

The officer selected will be provided with free passages out and home (second class by mail or first class by other steamer), and will receive half salary from the date of embarkation from this country.

Applications for the post should be addressed to the Secretary for Appointments, Colonial Office, S.W. 1.

East African Medical Appointments. —The Secretary of State for the Colonies announces vacancies for posts of MEDICAL OFFICERS in the following Protectorates:—East Africa Protectorate, Uganda, German East Africa, Nyasaland, Zanzibar, Somaliland.

The salary of a Medical Officer is on the scale of £400–£20–£500 a year, with duty allowance of £40, and after six years' service £525–£25–£600 a year, with duty allowance of £50. Temporary war bonus is paid at present, the annual amount corresponding to a salary of £400, being £55 to single Officers, and £105 to married Officers.

The grading of the Service posts in East Africa, which are filled by the promotion of Medical Officers, may be judged from the following arrangements in the East Africa Protectorate:—

Senior Medical Officer at £600–£25–£750, duty allowance £60.

Deputy Principal Medical Officer, or Senior Sanitary Officer, £750–£25–£850, with duty allowance £75.

Principal Medical Officer, £850–£50–£1000, duty allowance £85.

Certain Special Appointments are graded as follows:—

Bacteriologist as a Senior Medical Officer, Assistant Bacteriologist as a Medical Officer, higher scale; Medical Officers of Health as Medical Officers. In Zanzibar the Medical Officer of Health is equivalent to a Medical Officer, higher scale, with additional special allowance of £100 a year, and the Assistant Medical Officer of Health as an ordinary Medical Officer, with additional special allowance of £50 a year. The Principal Medical Officer in Nyasaland is graded as a Deputy Principal Medical Officer. The Principal Medical Officer in Zanzibar is graded as a Senior Medical Officer. The head of the Medical Department in Somaliland is graded as a Senior Medical Officer. Quarters are provided free of rent, but not of rates or similar outgoings, or an allowance is given in lieu. Leave is granted with full pay at the rate of 2½ days or 3 days, according to the Officer's station, in respect of each month of service, and an equal period of return leave if the Officer returns to the Protectorate. A free first-class passage is allowed on first appointment and on leave.

All appointments are pensionable. Medical Officers are permitted to retire after nine years' service with a gratuity of £1000, or after twelve years' service with a gratuity of £1250; this gratuity is in lieu of pension.

Medical Officers are permitted to take private practice on the understanding that they give precedence to their official duties.

Intending candidates should write to the Private Secretary for Appointments, Colonial Office, S.W. 1, for forms of application. No testimonials, &c., should be sent in until the candidate has received a form of application from the Colonial Office.

Ship's Surgeon. — Messrs. Elder Dempster and Co., Limited, have a few vacancies for Surgeons in their West African Service. Pay £20 per month. Fees allowed for attendance on passengers. Length of voyage varies from six to ten weeks, according to particular route.—Apply, Medical Superintendent, Messrs. Elder Dempster and Co., Limited, Colonial House, Liverpool.

Out-door Assistant wanted in Working-class district, Manchester (Panel). Fire, light, rooms, and attendance. Salary £360 per annum. Day off weekly when possible. Able to cycle. Usual bond required.—Replies to 92, Gt. Ancoats-street, Manchester.

Wanted, Out-door Assistant. £400, increasing. Furnished house. Large industrial town in North of England. Partnership later. Indian or West Indian gentleman preferred. Would suit one wishing to settle in England.—Address, No. 735, THE LANCET Office, 423, Strand, W.C. 2.

Non-resident Doctor wanted by Nursing Home, to call in daily. Yearly salary plus fee for each patient attended. London district.—Address, No. 736, THE LANCET Office, 423, Strand, W.C. 2.

Locum Tenens Provided

at short notice.

Apply to Mr. PERCIVAL TURNER,

the oldest and only Agent who for forty years, *without agency fee to Principals*, has supplied Practitioners with reliable substitutes,

4 & 5, ADAM STREET, ADELPHI, STRAND, W.C. 2.

Telegrams: Epsomian, London. Telephone: Gerrard 399.

After 5 P.M.—Tel. Epsom 695.

Locums.—Lee & Martin, Ltd.,

71, TEMPLE ROW, BIRMINGHAM.

Telegrams: "LOCUM, BIRMINGHAM." Telephone: 1116 CENTRAL.

NOTE Change of Address.

Locum Tenens Provided.

APPLY TO

ARNOLD & SONS

6, GILTSPUR STREET, LONDON, E.C. 1.

Telegrams: "Instruments, London." Telephone: 5240 City (3 lines)

Typewriting by Expert, 1/3 1000. Medical, Scientific and Literary Work; also Testimonials. Duplicating. French, German Medical Translations. Careful and neat work. Prompt attention. Satisfaction guaranteed.—Address, No. 687, THE LANCET Office, 423, Strand, W.C. 2.

Chauffeuse seeks Situation. Reliable driver. Knows London. Willing take entire charge car. Well educated. Would assist Secretarial work if desired. Excellent references.—Write, G. P. F., care of Streets, 30, Cornhill, E.C. 3.

Wanted by M.B., B.S., aged 33, a PARTNERSHIP or PRACTICE, panel or non-panel, in West, N.W., or S.W. Suburb, or within 20 miles of London. Income about £1000. No objection to buying a house.—Apply, Blundell & Co., Walter House, 418-422, Strand, W.C. 2.

Wanted, Practices and Partnerships. Messrs. ARNOLD & SONS, Surgical Instrument Manufacturers (Estbd. 100 years), are in urgent need of Practices and Partnerships for several of their Clients who are anxious to settle down at once.—Send full particulars, in confidence, Arnold & Sons, Transfer Dept., 6, Giltspur-street, London, E.C. 1 (opposite St. Bartholomew's Hospital).

Wanted by M.B., F.R.C.S., aged 27, a PARTNERSHIP or PRACTICE in South of England, in place with Hospital or Cottage Hospital. Unmarried. No house immediately necessary. — Apply, Blundell & Co., Walter House, 418-422, Strand, W.C. 2.

M.B., B.S. (Lond.), M.R.C.S., L.R.C.P., age twenty-seven, married, seeks Practice, Partnership, or Assistantship with view. Has been H.S., H.P., and Casualty Medical Officer at first-class London hospital, and has held special appointments in Ear, Nose and Throat, Tuberculosis, and at Children's Hospital. Late Hon. Assist Surgeon to Provincial General Hospital. Experience in Private Practice. Served R.N. during war. Advertiser has car and furniture. Free in February or March. — Address, No. 719, THE LANCET Office, 423, Strand, W.C. 2.

For Disposal, Practices or Partner-SHIPS. — Messrs. ARNOLD & SONS, Surgical Instrument Manufacturers (Estbd. 100 years), have been instructed to privately dispose of a large number of really good Practices and Partnerships. Gentlemen are requested to state their requirements and amount of capital available. No charge to purchasers.—Address, Arnold & Sons, Transfer Dept., 6, Giltspur-street, London, E.C. 1 (opposite St. Bartholomew's Hospital).

To Purchasers. — Do not buy any Practice or Partnership without an investigation into books and other inquiries by an expert specially competent to conduct the same. Forty years' personal attention to such inquiries has given Mr. PERCIVAL TURNER an unique ability to advise in all cases.—Terms and full particulars free on application to 4, Adam-street, Adelphi, Strand, W.C.2. Telephone: 399 Gerrard. Telegram. Epsomian, London.

Death Vacancy.—Manchester district. Working-class PRACTICE. Receipts about £1100, including £900 panel. Well-situated house, with all conveniences. Yearly tenancy; rent £40. Furniture also if required. Offers invited.—Apply, Joseph Gregory, Solicitor, 6, Pall Mall, Manchester.

For Disposal.—A really good Practice is not always to be had directly, but Mr. PERCIVAL TURNER (with forty years' personal experience) can generally offer applicants something suitable on being furnished with details of their requirements. Nearly all the best Practices are Sold by him without being advertised.—Full information free of charge on application, personally or by letter, to 4, Adam-street, Adelphi, Strand, W.C. 2.

Brook Street. — Consulting and WAITING ROOM—Share of—to Let. Telephone and every convenience. — Address, No. 676, THE LANCET Office, 423, Strand, W.C. 2.

Pure China Tea. As imported direct from China, without any admixture whatever. In 6 lb. parcels, carriage paid, £1 2s. 6d. each.—J. B. Thomson & Co., 5, Rumford-place, Liverpool.

Doctors' A/c Forms printed in best style—250, 10/-; 500, 15/-; 1000, 25/-. Letterheads, Post Card Heads, Calling Cards, &c., at equally moderate rates. — ANDERSON & SON, 1, Hill-place, Edinburgh. Samples sent on request.

Electric Lamps.—Manufacturers of first-class Tungsten Electric Lamps have factory throw outs and odd sizes for Sale. Very cheap, from 1s 2d. each. Sound delivery guaranteed and good burning. Write for quotations, giving particulars of voltages and candle powers required.—Storekeeper, Corona Lampworks, Ltd., Ascham-street, St. Pancras, London, N.W. 5.

AN IDEAL PROTECTION FOR MEDICAL MEN.

Weekly Benefits of £5 to £20 per week may be secured in case of Incapacity through Sickness or Accident with PERMANENT BENEFITS to the 65th year of age

No confinement to the house when disabled.

For full details apply, stating date of birth and amount of weekly compensation required, to:

MESSRS. ARNOLD & SONS,
Transfer Dept., 6, Giltspur-street, London, E.C. 1.
(Opposite St. Bartholomew's Hospital.)

STEVENS' AUCTION ROOMS (Estab. 1760).

A Sale by Auction is held every Friday, at 12 30, which affords first-class opportunities for the disposal or purchase of SCIENTIFIC, OPTICAL, and ELECTRICAL APPARATUS. Microscopes and Accessories, Telescopes, Surveying Instruments, Photographic Cameras and Lenses, Cinematographs and Films, Lanterns and Slides, Lathes and Tools, Books and Miscellaneous Property. Frequent Sales of Natural History and Ethnological Specimens. Curiosities, &c., are also held.

Catalogues and terms for selling will be forwarded on application to Mr. J. C. STEVENS, 38, King-street, Covent Garden, London, W.C. 2

Received too Late for Classification.

M.B., B.Ch., age 29, desires Part-time WORK in London or Suburbs.—Letters to be addressed to No. 739, THE LANCET Office, 423, Strand, W.C. 2.

Wanted, Temporary Post in Institu-tion or Private Practice for a few weeks. British Indian, M.B., M.R.C.S. Eng. Good experience and testimonials. Reasonable terms. In or near London preferred.—Address, No. 738, THE LANCET Office, 423, Strand, W.C. 2.

National Hospital for the Paralysed
and EPILEPTIC MEDICAL SCHOOL,
Queen-square, Bloomsbury, W.C. 1.

A POST-GRADUATE COURSE will commence on January 19th. The Syllabus will be sent on application to the Dean.

St. Mary's Hospital, Paddington, W. 2. The post of FIRST ASSISTANT PATHOLOGIST is vacant. Salary £500 a year. The Board of Management invite applications, which, with copies of testimonials, not exceeding three in number, should reach the undersigned on or before Wednesday, 8th January, 1920.

THOMAS RYAN, Secretary.

BLUNDELL & CO.,

Walter House, 418-422, STRAND, W.C. 2.
(Entrance Bedford Street.) *Telephone:* 7148 GERRARD.
Cable Address: (viâ Eastern) "RECALLABLE, LONDON."
LOCUMS SUPPLIED.

South-West County.—Old-established unopposed PRACTICE of over £1000 in beautiful district. Usual appointments and panel. Hunting, shooting, fishing, &c. Station. Good house, with surgery, garage, large garden; rent £30.

Death Vacancy. — Old-established unopposed PRACTICE of £500 within eighty miles. Panel and appointments £250. Station. Good house and garden, garage.

County Town.—In the Midlands.— Old-established Middle-class PRACTICE, with over 900 panel, in nice part of the town. Excellent house with nice garden. Receipts over £1100, which could be doubled by active man.

North London.—Partnership.—Half Share of £2400. Very safe. Middle- and Working-class Practice. Appointment £300. Panel 2500. Rent £55.

Isle of Man.—Nice Seaside Practice of £500. Low rent. Golf, &c. Premium £450.

Ear, Nose and Throat Practice in University Town. Receipts about £1000. Good chance of Hospital appointments.

New Zealand.—Old-established unopposed PRACTICE of £2500. Would suit two friends.

Isle of Wight.—Promising Nucleus, with good house; rent only £50. Nice seaside place.

Liverpool.—Half Share of £2700, including panel £1200.

North London.—Partnership.—Half Share of £2400, including 2600 panel.

Gloucestershire. — Old-established PRACTICE of £800 with great scope, as vendor has been handicapped by illness. Good house and garden.

Midlands. — Partnership. — Half Share of £1500, with scope for increase up to £2000, in unopposed Practice (country). Good house with large garden.

Death Vacancy.—Pleasant Colliery PRACTICE in Midlands, with beautiful surrounding country. Receipts average £2100, including 2630 panel and valuable appointments. Opposition slight. Good house, with garage, tennis court, &c.; rent £60.

East Coast. — Practice of £2000, including 2200 panel, in busy town; rent £50. One year's purchase, half down.

Midlands. — Partnership. — Surgeon required for Third Share of £3600 in prosperous Manufacturing Town.

Lock-up Surgery near the City. Receipts about £1100, including 2000 panel; rent £50.

Seaside.—Partnership. — Share pro-ducing £1000 in small fashionable watering place with cottage hospital. No dispensing. No panel. Premium only one and a half years' purchase.

Durham.—Unopposed Country Prac-TICE. Receipts £1500. Good house, with garage, &c. Station. Hunting, fishing, and shooting. One year's purchase.

Midlands. — Unopposed Practice of £800 in beautiful country district. Cottage hospital in the place. Very nice house with electric light and garage.

Sussex.—Very old-established Prac-TICE in beautiful district. Receipts £600, with plenty of scope for younger man. Good house and garden.

Cheshire.—Half Share of £1600 in Manufacturing Town. Receipts will soon be £2000.

West Riding.—Old-established Prac-TICE of £1400 with 1500 panel. Good house; rent £70. Premium £1300; £500 down.

Leicestershire.— Half Share of £1500, with scope to £1800 or more, in nice agricultural district.

Purchasers stating their requirements can have Particulars of other Practices not advertised.

MEDICAL AGENCY. Established over 40 Years.

Mr. PERCIVAL TURNER, 4 & 5, Adam Street, Strand, W.C. 2.

Telegrams: "EPSOMIAN, LONDON." *Telephone:* GERRARD 399. After Office Hours—EPSOM 695.

LOCUM TENENTS provided—no charge to Principals. Every description of AGENCY and ACCOUNTANCY work undertaken.

PARTNERSHIPS FOR DISPOSAL.

No. 6681. YORKSHIRE.—£5000 a year. 1/2 Share for Sale in large prosperous town. No panel.

,, 6679. YORKSHIRE.—£3000 a year. Old-established. Non-panel. Residential Town on Coast. 1/4 Share at first.

,, 6675. SOMERSET.—£1000 a year. Country PRACTICE. 1/2 Share £300.

* ,, 6667. ESSEX.—£1100 a year. Junior Partner wanted. Increasing Practice. Old-established. Great scope. Guaranteed share £500 a year to begin with. Price £750.

No. 6650. YORKSHIRE.—£3000 a year. Shipbuilding Town. 1/3 Share Senior retiring.

,, 6625. YORKSHIRE.—£2600 a year. Small Country Town. Cottage Hospital. Panel 950. 1/3 Share for Sale at first.

,, 6615. MIDLANDS.—£1500 a year. Unopposed. Panel 1500. 1/2 Share for Sale.

PRACTICES OVER £800 A YEAR.

No. 6665.—WEST COAST. £800 a year. Old-established. Seaside resort. No panel. Easily worked. Good house facing sea. Price £650.

,, 6663. MIDLANDS.—£1000 a year Panel 700. Old-established. Unopposed. Good house, large garden. Price £1200.

,, 6654. HAMPSHIRE.—£1000 a year. Old-established. Favourite Seaside resort. Panel 440. Very little Midwifery. Good house and garden. Premium £1500.

,, 6634. LONDON SUBURB.—£1000 a year. Middle-class. Easily worked. Panel 2200. Good corner house, garden; rent £85. Price £2000.

No. 6629. NORTH COUNTY.—£1000 a year. Coast Town. Panel 800. Good house and garden. Recommended. Good schools.

,, 6635. DURHAM.—£1900 a year. Non-panel. Old-established. Held twenty-seven years. Busy Town.

,, 6537. YORKSHIRE.—£1000 a year. Panel 800. Old-established. Pleasant Town. Hospital. Opposition light. Price £1100.

,, 6533. DERBYSHIRE.—£720 a year. Old-established. Good house and garden, lawn, &c. Panel 400. No conveyance needed.

* ,, 6532. YORKSHIRE.—£1600 a year. Increasing. Suburb of large City. Easily worked. Panel 1100. Good house, large garden. Long introduction.

NOTE.—*Practices marked with an asterisk have been personally investigated or visited by Mr. Turner.*

Full details of any of the above and of many others for disposal not advertised will be sent free on application to Mr. PERCIVAL TURNER as above.

SPECIAL NOTICE.—Mr. Percival Turner's Offices will be CLOSED from WEDNESDAY, Dec. 24th at 5 p.m. until MONDAY Morning, Dec. 29th. Urgent Telegrams will be attended to at any time.

THE SCHOLASTIC, CLERICAL, & MEDICAL ASSOCIATION, LIMITED.

(Established in 1880 by Mr. G. B. Stocker),

22, CRAVEN STREET, TRAFALGAR SQUARE, W.C. 2.

Telegraphic Address: "TRIFORM, WESTRAND, LONDON." *Telephone No. 1854 (Gerrard).*

ASSISTANTS AND LOCUM TENENS SUPPLIED. RESIDENT PATIENTS INTRODUCED.

NO CHARGE TO PURCHASERS.

(1) SOUTH COAST.—PARTNERSHIP in good-class Practice in growing fashionable Health Resort. One sixth Share (£900 per annum) at two years' purchase. Scope for Surgery.

(2) DEATH VACANCY.—WEST MIDLANDS.—Country PRACTICE about £1300 per annum. Small panel. Nice house.

(3) EAST ANGLIA.—Country PRACTICE over £1300. Near important Town. Panel 700. Good house, garden, orchard, &c. Premium one and a half years' purchase.

(4) SOUTH AFRICA.—Increasing PRACTICE about £2300 in first-rate Town in Natal. Excellent society. Premium £950.

(5) LONDON, S.W.—Well-established PRACTICE in populous district within three miles of Charing Cross. Receipts average £1050. No appointments, panel, or Midwifery. Nice house. Premium one and a quarter years' purchase. Plenty of scope.

(6) NORFOLK.—HALF SHARE (with succession) in unopposed Country Practice within ten miles of a good town. Several good appointments. Not much Midwifery.

(7) LONDON, N.E.—Well-established PRACTICE about £1300 (mainly ready money) in pleasant outlying Suburb. Panel 800. Appointments worth £350. Very good house in excellent position. Premium £1500.

(8) HOME COUNTIES.—PARTNER required in good-class Practice about £3000 in first-rate Country Town. No panel. Not much Midwifery. Share worth about £800 at two years' purchase. Cottage Hospital. Preference to one holding the F.R.C.S.

(9) NORTH OF ENGLAND.—Coast Town.—THIRD PARTNER required in good-class Practice. Share worth about £1000 p.a. at one and a half years' purchase. Partner should be well qualified, aged about 37, and married.

(10) NEAR MANCHESTER.—Town of 10,000.—Mixed PRACTICE. Receipts over £2300, including appointments nearly £200 and panel 1155. Good house and garden. Premium £1400. Ample scope.

(11) YORKS. WEST RIDING.—Compact Country PRACTICE over £1800 in centre of Manufacturing and Agricultural District. Panel 1157. Good house. Ample scope.

(12) SOUTH MIDLANDS.—PARTNERSHIP in well-established Cash and Panel Practice over £2200 p.a. in Industrial Town. Panel 3200. Small house (three bedrooms). Low expenses. One-half Share at one and a half years' purchase.

(13) EAST ANGLIA.—Market Town near Coast.—PARTNERSHIP in Practice £1680 p.a. Panel 1300-1400. Large and charming old house in acre ground. Premium, One-half Share, one and a half years' purchase, payable £800 down.

(14) HOME COUNTY.—PARTNERSHIP in increasing Practice nearly £1800 in small Country Town. Panel 1000. Premium, Five-twelfths Share, one and a half years' purchase.

(15) SOUTH-WEST OF ENGLAND.—Large Town. Very old-established Middle-class PRACTICE of £1500–£1600 p.a. Panel 1600. Excellent house; rent £60. Premium £2000.

(16) LANCS.—Unopposed Country PRACTICE over £1400 p.a., in Colliery district, close to large Town. Appointments worth £200. Panel 400. Visits, 3s. 6d. to 21s., medicine extra. Premium £1400.

(17) LARGE UNIVERSITY CITY.—Consulting Surgical PRACTICE with Hospital appointment. Income over £1000. Great scope.

(18) LONDON, N.W.—One of the best Suburbs. Very old-established good-class non-dispensing PRACTICE about £1000. No panel. Practically no Midwifery. Excellent house. Premium two years' purchase.

(19) SOUTH OF ENGLAND.—PARTNERSHIP in mixed Practice over £3000 p.a. in important Seaport Town. Panel 3200. Rent £45. Two-fifths Share at one and a half years' purchase.

(20) SOUTH COAST.—POPULAR RESORT.—ASSISTANT required (with view to Partnership) in large and very busy Practice. Panel 6000. Partner must be unmarried and keen and energetic.

(21) EASTERN COUNTIES.—Junior PARTNER required in Country Town Practice about £6000 p.a. Share worth £1000 to £1300 net at one and three-quarter years' purchase.

NUMEROUS OTHER PRACTICES AND PARTNERSHIPS NOT ADVERTISED. FULL DETAILS ON APPLICATION.

Medical Partnerships, Transfers & Assistantships (BARNARD & STOCKER). *Published by the Association. Price 12s. 6d.*

MR. A. V. STOREY, *General Manager.*

THE MANCHESTER CLERICAL, MEDICAL, AND SCHOLASTIC ASSOCIATION, LTD.

The oldest MEDICAL Agency in Manchester 8, KING STREET.

Telegraphic Address: "STUDENT, MANCHESTER.

TRANSFERS and PARTNERSHIPS arranged, and Investigations Valuations, &c., undertaken. ASSISTANTS and LOCUM TENENS SUPPLIED. PRACTICES for Sale Particulars on application.

PEACOCK & HADLEY (EST. 1868)

(Mr. A. HADLEY),

MEDICAL TRANSFER AGENCY,

19 Craven Street, Strand, W.C. 2.

Wires: HERBARIA WESTRAND—LONDON. *Telephone:* CENTRAL 1112

HERBERT NEEDES (EST. 186)

Mayfair 2299. 199, PICCADILLY, W. 1.

EVERY DESCRIPTION OF BUSINESS transacted by this, the OLDEST MEDICAL AGENCY IN THE KINGDOM.

Mr. J. C. NEEDES

(P. W. NEEDES F. B. NEEDES)

MEDICAL PARTNERSHIP AND CONVEYANCING AGENCY,

8, DUKE STREET, ADELPHI, W.C. 2.

(Late 1, ADAM STREET, ADELPHI.)

Telegrams: "*Acquirement, Westrand, London.*" *Telephone:* *Gerrard 3543*

This Agency (which has been established since 1875) undertakes the Sale of Practices, the Introduction of Partners, Valuations, Investigations on behalf of Purchasers, the supply of trustworthy Locum Tenens and Assistants, and every other description of Medical Agency Business.

N.B.—No charge made to Purchasers.

DR. J. FIELD HALL

(FIELDHALL, LIMITED),

MEDICAL TRANSFER AGENT,

12, CRAVEN STREET, STRAND, W.C. 2.

Telephone: 4667 GERRARD. *Telegrams:* "FIELDHALL, WESTRAND-LONDON."

ALL BRANCHES of AGENCY WORK undertaken.

Purchasers stating their requirements in full will be sent particulars of suitable PRACTICES and PARTNERSHIPS for Sale free of charge.

CLOTH CASES FOR BINDING

THE HALF-YEARLY VOLUMES OF

"THE LANCET"

Can be obtained through any Bookseller in town or country or from THE LANCET Office.

Price 2s. 6d. each, by post 2s. 10d.

Office: 423, Strand, London, W.C. 2; and 1 & 2 Bedford-street, adjoining

ARHÉOL

($C_{15}H_{26}O$)

THE ACTIVE PRINCIPLE OF SANDALWOOD OIL

Used with Conspicuous success in Gonorrhœa, Cystitis, Vesical Catarrh, &c. Does not Produce Backache

DIRECTIONS: 10 to 12 capsules daily.

ASTIER LABORATORIES: 45, Rue du Docteur Blanche, PARIS.

For Samples and Literature address:

WILCOX, JOZEAU & CO., 49, Haymarket, LONDON, S.W.

AUSTRALASIA—Messrs. Joubert & Joubert, 552, Flinders St., MELBOURNE. CANADA—Rougier Bros., 63, Notre Dame St. East, MONTREAL. INDIA—Eugène Meiffre, P.O. Box 130, BOMBAY, and 11, Ezra St., CALCUTTA.

MUFTI FOR MEDICAL MEN.

Medical Men requiring stylish Dress can secure well-tailored Clothes made to measure in 24 hours, or they can select same from our READY for SERVICE MODELS. Finest materials at most reasonable prices. SUITS and OVERCOATS in great variety from £8 8s. Patterns to suit all tastes post free on application. A PERFECT FIT GUARANTEED. Visitors to London can leave Record Measures or order and fit same day.

HARRY HALL, 207, OXFORD STREET, W. 1. 149, CHEAPSIDE, E.C. 2.

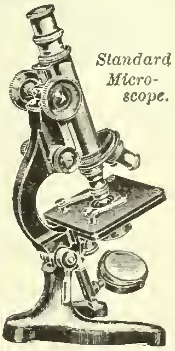
'Phones—MUSEUM 820-821. CITY 2086.

MICROSCOPES

SPECTROSCOPES BOUGHT, SOLD, or EXCHANGED

JOHN BROWNING (Dept. 7), 146, Strand, London, W.C. 2. Estab. 176

WATSON MICROSCOPES.



Standard Micro-scope.

A WATSON MICROSCOPE is an instrument that can always be relied upon. It embodies the highest degrees of ACCURACY, RIGIDITY, and DURABILITY, with entire freedom from needless complications so patent in some instruments.

There is a WATSON MICROSCOPE for every class of work, and to suit every worker, from the beginner to the most advanced research worker, and every WATSON MICROSCOPE is backed by WATSON'S reputation of 80 years' standing.

ABRIDGED EMERGENCY LIST gladly sent on request to

W. WATSON & SONS, LIMITED,

313, HIGH HOLBORN, LONDON, W.C. 1.

GLOUCESTERSHIRE SURGICAL APPLIANCES CO.

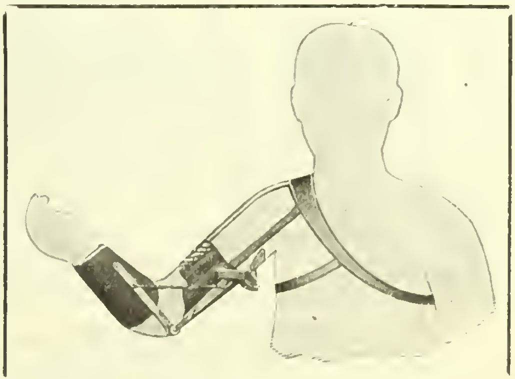
(Proprietors: THE GLOUCESTERSHIRE AIRCRAFT CO.),

CHELTENHAM.

Specialists in the Manufacture of

IMPROVED SURGICAL APPLIANCES for all ORTHOPÆDIC requirements.

Any Appliance made to Surgeons' Orders.



Support for Excised Elbow, with Spring Support and Locking Joint.

Full Particulars on Application to—

1, BELLE VUE LAWN, CHELTENHAM.

FRAME MILK FOOD

FOR

INFANTS and INVALIDS

A preparation of dried milk free from bacteria. Made with hot water only. . . No cooking required . .

FREE FROM STARCH

FRAME MILK FOOD is a new preparation of milk, rich in fat and free from bacteria. Particularly suitable for babies from birth to six months old.

FRAME FOOD (old style) is a wheat preparation, containing an abundance of natural phosphates. It contains a proportion of cooked starch, which has been found by experience to be particularly useful in irritable intestinal conditions. Recommended for children over six months.

OBTAINABLE FROM ALL CHEMISTS

MANUFACTURED BY

FRAME FOOD CO.

(CALLARD, STEWART & WATT, Ltd),

STANDEN ROAD, SOUTHFIELDS, LONDON, S.W. 18.

Printed and Published by the Proprietors, Wakley and Son (1912), Ltd., at No. 423. Strand, and Nos. 1 and 2, Bedford-street, Strand, in the County of London.—Saturday, December 27th, 1919.

THE MARK THAT DISTINGUISHES

L TRADE MARK L
BRAND BRAND
Registered

British Lysol.

The only genuine Lysol bears this mark of the cross with "L" in centre. This brand of Lysol is a pure cresol preparation and guaranteed to contain the requisite amount of free cresols to ensure thorough disinfection

LYSOL LD Warton Rd Stratford, London

"L" Brand Lysol

IMPORTANT NOTICE.—In order that Medical Men should readily be able to recognise our genuine British Made Lysol we now affix a small GREEN coloured label, as above illustrated, on the back of each package. "L" Brand Lysol costs no more than inferior preparations and is guaranteed in every respect. *Ask for "L" Brand.*

In bottles 1/-, 1/9, 3/-, and 5/-, and ½ and 1 gallon drums.

Samples Free on Request.

LYSOL LTD., Warton Rd., Stratford, London, E.15.

Antikamnia Tablets

AK

Strongly Recommended in:

INFLUENZA & LA GRIPPE

For the headache, pain, and general soreness give a five-grain Antikamnia Tablet crushed with a little water; if the pain is very severe two tablets should be given. Repeat every 2 or 3 hours as required. One single ten-grain dose is often followed by complete relief.

NEURALGIA

In the Treatment of Neuralgia and Myalgic Pains Antikamnia Tablets are not only palliative, but, along with other measures, assist in ultimate cures; they also have a field of use in Rheumatic and Gouty Affections. In Neurasthenia, Hysteria, and Migraine they are a valuable adjuvant to the other recognised therapeutic measures.

LARYNGEAL COUGH

Frequently remains after an attack of La Grippe, and has been found stubborn to yield to treatment. There is an irritation of the larynx, huskiness, and a dry and wheezing cough, usually worse at night. The prolonged and intense paroxysms of coughing are controlled by ANTIKAMNIA & CODEINE TABLETS, and with the cessation of the coughing the laryngeal irritation subsides.
Antikamnia Tablets are the least depressing of all the drugs that can exercise so extensive a control of pain, and also least disturbing to the digestive and other organic functions.

Analgesic. Antipyretic. Anodyne.

Antikamnia Preparations in 1-oz. packages only.

JOHN MORGAN RICHARDS & SONS Ltd.,
46-47, Holborn Viaduct, LONDON.

HORMOTONE

IN GYNECOLOGY.

Owing to the reciprocal relationship that exists between the glands of internal secretion, a functional disorder of them is, in its last analysis, always a pluriglandular disturbance—never a monoglandular malady. As Blair Bell puts it: "A woman is what she is on account of the sum total of her internal secretions."

HORMOTONE is a pluriglandular preparation of proven value in

MENSTRUAL & MENOPAUSAL DISORDERS

The following Reports from Physicians are of interest:

> "I used Hormotone with satisfactory results in a case of amenorrhea. The nervous symptoms, which were alarming, were promptly corrected and the menstrual flow restored."
>
> "I have used Hormotone in the case of a young lady suffering from dysmenorrhea, fainting and prostration at period, which was the cause of her losing her position as stenographer. After being on Hormotone for five months she is entirely free from pain and there is a notable gain in her general condition of nutrition."
>
> "I have noted exceptionally good results with Hormotone in that type of neurasthenia associated with the menopause."

In Menopausal Conditions associated with Hypertension, use

HORMOTONE WITHOUT POST-PITUITARY.

Dose of either preparation: One or two tablets three times daily before meals.

LITERATURE ON REQUEST.

G. W. CARNRICK CO.

NEW YORK, U.S.A. **Hornsey, LONDON, N.8.**

UNIVERSITY OF ILLINOIS-URBANA
3 0112 114890897